Annamari Turunen

Innovation as Communication Prosesses

A Legal Architecture for Governing Ideas in Business

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This thesis is the result of an experiment. As I began to explore legal issues, my principal aim was only to go and see whether I could get into the Faculty of Law. I made it, was hooked, and what a roller coaster it has turned out to be. Sometimes the views from the top have been marvelous but the plunges into the valleys have offered equally many surprises. In any event, my life in the world of Law has never lacked spectacular challenges or astonishing events, and for these I would now like to thank a number of people.

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Heinäsaari Island, in a velvety August night, 2005

Annamari Turunen

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COM (2004) 757 final. Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions: Challenges for the European Information Society Beyond 2005.

IV INTERNATIONAL CONVENTIONS AND AGREEMENTS

Agreement on Trade Related Aspects of Intellectual Property Rights, Including Trade in Counterfeit Goods. Final Act of the 1986 — 1994 Uruguay Round of Trade Negotiations. Annex 1C (TRIPS).

Bern Convention for the Protection of Literary and Artistic Works of September 9, 1886, last amended on September 28, 1979.

Charter of Fundamental Rights. Charter of Fundamental Rights of the European Union (2000/C 364/01).

Convention on the Grant of European Patents (European Patent Convention) of 5 October 1973
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International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations (Rome Convention) Rome on October 26, 1961.

Paris Convention for the Protection of Industrial Property of March 20, 1883, last revised on July 14, 1967 and amended on September 28, 1979.

WIPO Copyright Treaty adopted by the Diplomatic Conference on December 20, 1996.

WIPO Performances and Phonograms Treaty adopted by the Diplomatic Conference on December 20, 1996.

ABBREVIATIONS

a. Legal abbreviations

CCPR	International Covenant on Civil and Political rights
DMCA	Digital Millennium Copyright Act
EPC	European Patent Convention
EPO	European Patent Office
EU	European Union
FICORA	Finnish Communications Regulatory Office
NOU	Norges offentlige utredninger
SOU	Statens offentliga utredningar
TRIPS	Agreement on Trade Related Aspects of Intellectual Property Rights, Including Trade in Counterfeit Goods
USC	United States Code

b. Technical abbreviations

DNS	Domain Name System
DRM	Digital rights management
EDI	Electronic Data Interchange
FTP	File Transfer Protocol
HTML	Hypertext Markup Language
HTTP	Hypertext Transfer Protocol
ICT	Information and communication technology
IP	Internet Protocol
IS	Information System
PSDN	Packet-switching Data Network
RFC	Request for Comments
SMS	Short Message Service
URL	Uniform Resource Locator
TLD	Top Level Domain
WWG	World Wide Grid
WWW	World Wide Web

c. Others

e2e	End-to-end
EAN	European Article Numbering

XL

HCI	Human Computer Interaction
ICANN	Internet Corporation for Assigned Names and Numbers
ISBN	International Standard Book Number
ISSN	International Standard Serial Number
OSI	Open System Interconnection, Open Source Initiative
P2P, p2p	Peer-to-peer
R&D	Research and development
UBL	Universal Business Language
UPC	Uniform Product Code
W3C	World Wide Web Consortium

CHAPTER ONE. INTERESTS OF THE STATE, THE MARKET AND SOCIETY

0 INTRODUCTION

Much of business today is communication, making communication one of the essential factors in the new economy. Other crucial considerations in that economy are the importance of *information and communication technology* (ICT), continuing economic expansion, the increased risks to enterprises, uncertainty in the course of development, networking, and the globalization of the economy.[1] These essential components are connected to both the operations of enterprises and their operational framework.[2] When these factors materialize, they will bring about profound changes in both business itself and the business environment. There exist, however, risks, of which the most serious is the inability to get sufficiently effective protection for innovations. The changes occasioned by economic structures will further prompt a search for new and more suitable forms of protection for the increasing number of operations.

The main purpose of this study is to analyze the divergent interests of the state, business, and society in the evolving environment. To this end, business is examined in terms of the business idea, which is considered the very core of business overall.[3] The business idea can even by definition be seen as constituted mainly of other innovative ideas. In this perspective, information and ideas are the most important structural elements of the new economy.[4] Information and ideas are both also the core elements of the network economy, which is usually also described as the digital economy. The evolving prerequisites of operations are manifested through the digital economy as well. This is the

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1 This development is also called *"the intellectual property age"*. See Koulu 2003, 2. ICT has been considered to play the most important role in reaching the objectives for further development at the EU level, for example. See *COM (2004) 757 final*, 3. The effective evolution of information and communication technologies is one of the key issues in the *"Lisbon strategy"*; two other key issues are to improve investments in knowledge and networks and to promote active ageing. See *COM (2004) 29 final*, 2.

2 The importance of being able to create and invent and the ability to communicate creations and inventions to others have been included among the most important factors in the emerging Information Society. Supporting these factors has also been considered a worthwhile development area. See Bangemann et al. 1994, 11.

3 The concept of *business idea* is used in this study to refer to the kernel of a business. A business idea is also termed a *business mission* and a *business concept*, which are descriptions of the same object. These are essentially Anglo-American concepts; in Scandinavia the kernel of a business is generally described as a business idea. See Karlöf 1986, 29.

4 Information is the essence of what has become known as the *Information Society*. In general terms, the Information Society is a society where information builds up, and acts in, the most important societal structures. In sum, the Information Society is a society where information is bound to all human activity. See Tilastokeskus 1997, 5.

outcome of two factors: the digitization of traditional physical products, and the dynamics brought by this development. Accordingly, information and ideas increase in significance as the core of the new economy and as the most important aspect of value.[5]

The kernel of the digital economy is compact and tightly structured around ideas. At the very core of this economy, information and ideas have close mutual connections. Information is organized data, data being the most foundational of the three units of information in the theory of knowledge.[6] Information simply becomes the connecting link in the foundation of the digital economy in that it connects both core assets of the economy - ideas and knowledge - to each other. Both are founded on information and, further, both are derived from data as well. Information acts as a form in which ideas are expressed, a characteristic of information that has even increased in importance recently with the digital economy. Data, on the other hand, is the basis of information generally, whereby ideas are often expressed in the form of data: in fact, it is impossible to separate ideas from data. Thus, it is essentially impossible to separate data and information from each other and as such a captive bond they form the very foundations of this study.

The digital economy is not, however, only the abstract communication of information and ideas; it has serious practical implications. Indeed, the emergence of the digital economy has brought a set of new products and new ways to operate.[7] These new products and operations are mixes of products and services and differ considerably from traditional products.[8] An illustrative example is the trade in and delivery of information products. Music may be uploaded from a database and transmitted to the client's computer. Is this considered a service, like delivering music to the client and letting him or her upload it, or as a product, like selling and buying music? This is only one example of the mass of novelties. The blurred borderlines between products and services have made it impossible

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5 The new economy is also described as based on rapid innovations, a globalizing world economy, and information and communication technology. See Kuusiholma - Pöyhönen 2002, 279. The new economy may also be called an *intellectualized economy*, in which scientific discovery, technological change, and innovation are integral in creating growth. See Petrusson 2004, 2 - 3.

6 Data is called the raw material of information; it consists of signs or combinations of signs and can be stored, saved, transferred, or transmitted using computers or the digital communication infrastructure. See Niiniluoto 1997, 236.

7 The developing digital economy does not mean only new discoveries. Just as often, it consists of old discoveries in a new environment. For example, the first benefits of the Industrial Revolution were realized in agriculture. Similarly, the productive benefits of the second industrial revolution derived from the transition from mechanics to electricity. It is too early to say yet whether the effects of information and communication technology will be as profound. See Koski - Rouvinen - Ylä-Anttila 2002, 15 - 16.

8 This development has also been described as a two-stage one. The first stage comprises technological introduction, in which the computer technology is developed and refined. The second stage is then the one of technological permeation, in which the technology becomes integrated in everyday human activities and social institutions. At this level, computer technology changes the fundamental meanings of basic concepts such as money, education, work, and fair elections. See Bynum 1998, 280.

to draw any clear line of demarcation between the contextual and functional elements of a given asset. These assets constitute a category termed *new property*.[9] Characteristic of this new property is that it is derived from the dynamic new economy, this economy being exactly the framework in which the new property is used. New property thus includes commercialized information on the availability of some product and a price that depends on availability. To go even further, *new products* are not even constructed of single elements, which used to be the cornerstones of intellectual property. This is often referred to as *mixed property*, which contains some attributes of personal property, like intellectual property, and some attributes of real property.

This development results in the object to be protected having an exceptional character. This divergent nature sets some further requirements for the overall protection of property rights. Protection needs to be targeted more and more on operations. This is due to the dynamics of digital economy, which are at least partly bound to the interplay of three formerly distinct processes: gaining access to traditionally protected content, to its usability and employment, and the possibility to copy the content, whatever that may be.[10] These dynamics are the development that has caused business to take on an important role in communication. They relate to operativity, with operativity further fundamentally connected to the divergent interests that in practice constitute the overall business idea. A business idea is thus communication. Communicativeness is then further brought into the business idea through the different interests linked to its operational nature and the different stakeholders who are active in this communication. A business idea as such includes a number of contradictory interests and pursuits that are driven by several stakeholders. On the other hand, the ability or inability to protect a business idea clearly illustrates the overall change from strictly defined object-oriented protection towards a more dynamic one. Accordingly, an examination of the business idea and the prerequisites for its protection require a review of intellectual property rights, which are foundational.

The point of departure for such an examination is to draw a line between *free and controlled*. This distinction is important, indeed integral, in the law of intellectual property. It is derived from the character of resources, which are either free or controlled. Free resources are those available for everyone to take, like air to breathe or sunshine to enjoy.[11] They are free in the sense that everyone can take advantage of them without permission

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9 New property may be described also as *new forms of property*, with those forms including all new applications of property. The new forms of property are, for example, the right to the environment and its values and rights to social benefits such as a pension or health care. See Kartio 1991, 159.

10 In the digital environment it is almost impossible to get access to digital content without making several copies of it. See Vaidhyanathan 2001, 152.

11 Public information resources are also considered a *common public resource*. These information resources are free for everyone to use by saving or searching for information. See Kuronen 2000, 91.

from others.[12] The control of resources is based on the requirement of permission for their use; that is, one person is allowed to establish limits affecting use by others and to control others ' access to certain resources. When use is allowed, it takes place based on the permission of the possessor and in accordance with his or her rules. This distinction between free and controlled is found in the foundation of intellectual property rights, one of the main focuses of intellectual property law. However, recent developments in the digital environment and its operational framework have brought about pressure for change in intellectual property rights. The rise of the digital economy has influenced intellectual property law in that distinctions between different types of intellectual property have been eroded.[13] The main factor here is the collapse of the object of protection as a tangible physical asset. This is a direct consequence of the mixing of the characters of products and services. Protecting merely the object is no longer a tenable approach. The basic explanation for the collapse of the protected object lies in two main developments: *digitization* and *networking*. The two have collapsed some important distinctions in intellectual property rights. This also has implications for the collapse of the traditionally very distinct elements of producers and consumers of information and culture.

The business idea as a reflection of several overlapping interests is continuously dynamic. Its dynamics clearly illustrate the communication of the stakeholders in those interests, these stakeholders being the major actors in society at large. Specifically, communication is carried out among three different interests: the state, the market, and society.[14] These are the stakeholders that make up the modern scope of intellectual property rights. This threefold communicative pattern is also the basis of the operativity underlying the concept of business. In this study, business is examined precisely as the communication and cooperation of these three overlapping elements and the stakeholders behind them. A study of this communication is well founded, given the need to sufficiently illustrate the functionality and the communicativeness of business. These communicative relations are illustrated in the form of a triangle below:

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12 Totally free resources are rather rare, however. The most common approach has been control of some degree. Controlled resources may also be available to others, who need permission to use them. See Lessig 2002a, 12.

13 See Vaidhyanathan 2001, 152 - 153.

14 In the discussions concerning the American information infrastructure, these three stakeholders have always been considered a communicative wholeness. In other words, venture capital, innovativeness, and commercialization constitute an interactive system in which none can exist without the other two. See Steinbock 1998, 4.

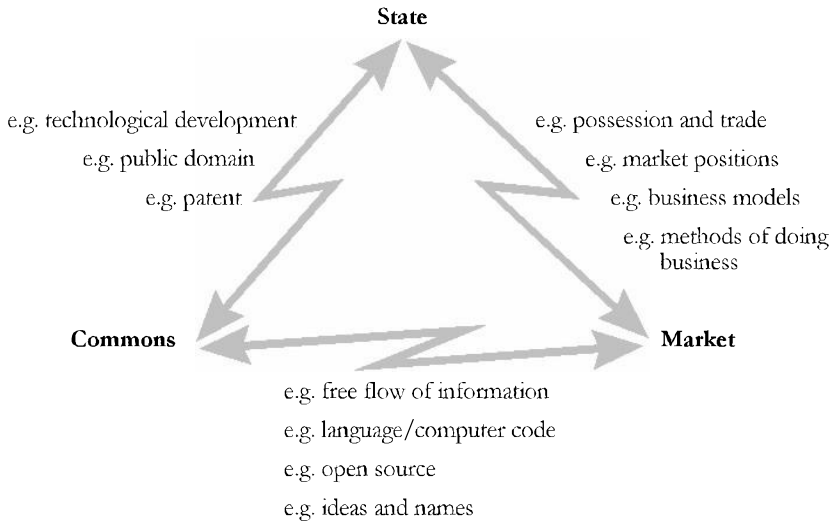

Figure 1. Interplay of state, market and commons

The arguments regarding the communicativeness and functionality of the concept of business are examined through some practical operations, which are to be interpreted as operational frameworks. It is essential to frame those operations in order to be able to capture the internal communication of the divergent interests represented by the three stakeholders concerned. Indeed, examining these interests and stakeholders separately seems to be the major failure of traditional intellectual property rights. The separation of stakeholders and the strict adherence to this distinction in interests has apparently led to at least a certain inability to discern and anticipate the bases on which different stakeholders operate and the need to reconcile them. In other words, these needs have always existed, but they have remained rather inconspicuous. Accordingly, the present study undertakes to reveal at least some of those interests and the stakeholders behind them.

Crucial developments in the economy overall and thus also in intellectual property rights have nevertheless one rather fundamental implication: the change in the balance between statics and dynamics as the core of the interests that constitute business in general, i.e., the interests of the state, the market, and society. It is, however, the interest of the state that has been emphasized most in traditional intellectual property rights, the other two stakeholders being comparatively overlooked in this respect. On the other hand, all of these interests have been emphasized differently depending on the operational framework concerned and the activity of the stakeholders in it. The state-oriented view has led to statics. The static nature of the state orientation is best illustrated in examining the interests of the market, for the aim is to make the market *as dynamic as possible*. Dynamic operation

is the essence of the overall functionality of the market. The alteration of statics and dynamics is in fact best seen when the interests of the market are solidly fixed on dynamics. However, both the state and the market need to be cooperative and mutually communicative. In the traditional economy, this was accomplished by building up contractual mechanisms to provide for dynamics, i.e., licensing. Licensing made it possible to transfer rights and thereby it was considered dynamic. However, the digital economy has changed the content of these interests and the *stakeholders have become more dynamic*, even in terms of content. It is no longer sufficient to be able to create dynamics that are fundamentally based on statics, nor is it possible to create statics that have only a tenuous connection to dynamics.

The alteration of statics and dynamics is hence the problematic point in reconciling the interests of the state and the market. One additional consideration here is the scope of commons, which illustrates the interests of society as a third stakeholder. Commons may be used as a safety valve when pursuing collaborative communication between all the stakeholders and their interests. There then remains at least one major problem: How to construct a complete illustration of the communicative pattern of all these stakeholders and their respective interests? Outlining this pattern and presenting its most important implications is the central aim of the present study.

1 THE STATE. STATIC GOVERNANCE

1.1 Implications of state governance

State governance is *characteristically static*, mainly due to the nature of state governance itself and how it is implemented. The state as a governing body is generally considered a *sovereign exerciser* of the highest executive power.[15] This is one basic function of the state as the holder of centralized power. This sovereignty is clearly seen for example in the state governing people by registering them using state-issued identity numbers. State governance clearly has its source in the centralization of power, which also explains its static nature. On these grounds, the state has been granted the authority to *command and control behavior* in society. The control of the state is thus basically the power to act, command, and restrain, and these actions are often carried out by the state. This control is also called state regulation or *state governance*.[16]

State governance has thus some core elements that are additional to its sovereignty and the reasons for its static nature. One such element is the governance of behavior. Functionally, state governance is aimed at ruling behavior, with this control aimed at the behavior of a group of people, or even the whole country. Governance of this kind is carried out by making and amending laws.[17] As such, the governing power of the state is exercised through its legislative power, as embodied in laws.[18] The main purpose here is to set constraints on unwanted behavior. Legislation is thus used for making the governed people "unfree" by directing the legislative power at them. On the other hand, the *governable unfree* may be anything whatsoever, as long as it may be placed under the power of the state. This implies that legislation is used for dominating unfree nature.

State governance is, further, essentially based on the operations of government, which derives directly from the sovereignty of the state. This makes the character of government likewise one of the core elements of state governance. Government is a tool

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15 On the other hand, the state consists of continuous communication among its citizens. This communicativeness constitutes a unity. See Simmel 1999, 20.

16 The means of control may be generally classified using the categories of physical, material, and symbolic control. Physical control is founded on the use of powers that affect the body, such as a gun, a whip, or a lock. Control based on the application of physical means is also described as *coercive power*. See Etzioni 1964, 59. One of the most effective forms of control is to connect it to the information streams in society. This may be done by the mass media. See Bagdikian 2000, 3.

17 See Longman Dictionary of English Language and Culture 1993, 67.

18 Laws are also described as rules of behavior for certain societies, with societal organization is created by the people living in a society. See Tolonen, J. 1989, 1.

used by the state to organize its own operations and the behavior of its citizens.[19] Hence, state governance is itself bound to governmental authority, which imposes some further requirements on the governmental structure. State regulation is *centralized*, which means that it is based on some centralized power that maintains control.[20] Governance is thus often linked to the control carried out by a country, which controls the public services. This controlling force is, for its part, often bound to the exercise of political power.[21]

The *authority* of state governance is also one of its basic elements. Governance is usually carried out by an authority that controls policy or affairs.[22] This is one further explanation for the sovereignty of state governance; i.e., governance is carried out by the sovereign state. The governing power here is precisely that power which is exercised by a sovereign. Governance is hence often used as means to define the rules and behavioral patterns of the dominating power, which complements the power with some measure of politics and *political power*. On the theoretical level, this in fact corresponds rather closely to the formation of genuinely political power as described by *Jürgen Habermas*. According to Habermas, political power derives its authority from disposition over juridical means of sanction. Furthermore, the organizational complex that is created at the level of political control becomes the core of the institutional state.[23] This is the very kernel of the mechanism of state organization, whose interests are embedded directly in legal institutions.

The governance structure may further be brought down to a slightly lower level, on which it can be examined from a somewhat functional viewpoint. A functional approach makes it possible to implement the governance structure in operations in society at large, not only in traditional governmental ones. This possibility is associated with certain circumstances or operations, where the governance structures have some essential potential to be implemented in individual operations. This kind of governance structure may be described as *functional governance*. The forms of functional governance are characteristically

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19 State governance is also a means to define the functions and tasks of the government generally. For example, the state of the 19th century, described as *"a night watchman"*, derived from the general nature of the state as an organizer of general state governance, public order and security, national defense, taxation and some essential aspects of citizenship. See Kivivuori 1997, 683.

20 State governance is thus centralized governmental organization due to its institutionalized character. It is also hierarchical, bureaucratic, and subject to legal rules. See Tuori 1990, 269.

21 See Longman Dictionary of English Language and Culture 1993, 567. See also Collins Cobuild English Language Dictionary 1987, 630.

22 See The Oxford Reference Dictionary 1986, 352.

23 In the Habermasian sense, the institutionalized state is here compared with an archaistic kinship system, where the systemic mechanisms remain tightly intermeshed with mechanisms of social integration only so long as they attach to pre-given social structures. In the institutionalized state the formation of genuinely political power no longer derives its authority from the prestige of leading descent groups. See Habermas 1989, 165.

somewhat more specific than the forms of state governance. Functional governance is aimed at governing particular events or occurrences. It may be effected using traditional governmental instruments in a certain network of those events or situations. In these cases, the overall governance structure is a practical means for creating some order in temporary functions. The reason is clear: the natural course of events may become total chaos if left uncontrolled. Governance is used for controlling functions or influencing them.[24]

The applicability of governance structures in both state governance overall and more specific instances makes it a practical tool in operational frameworks. It may be applied somewhat further provided that its limitations are taken into consideration. Governance is static and rather fixed, and while it is precisely this static nature that makes state governance characteristically vertical, it is nevertheless used as an instrument for controlling operations.[25]

1.1.1 State governance as a tool

The control that is carried out in the form of state governance is bound to *fundamental values* that must be preserved and protected. Generally these values are simply built into people's ordinary daily activities. An illustrative example is copyright legislation. The author of a work has an exclusive right to dispose of the copyrighted content. This ensures the author's right to decide about his or her property.[26] This is closely connected to the constitutional protection of property (In Finland: *Constitution of Finland 15§*.)[27] At the same time, a copyright ensures freedom of action for the author in that the copyright may well be considered a right ensuring two fundamental values.

The governing structure of values is thus generally established in a framework which then further sets out the operational environment. The framework may change in the course of time and this variation affects the values and their mutual relationship

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24 This governance is called operational governance. See Collins Cobuild English Language Dictionary 1987, 630.

25 Verticality is a direct consequence of the significance of human and civil rights as the kernel of state governance. See Karhu 2004, 73.

26 *Copyright* in Anglo-American countries and *author's right* (*droit d'auhor*) in France are slightly different in content. Copyright focuses traditionally on the societal role of protection: a work is considered a commercial good. The author's right tradition, on the other hand, has emphasized the individual aspect of protection, with moral rights constituted one of the most significant elements. A societal aspect has thus been introduced by protecting the author. See Koivumaa 1995, 75. In the present study, these two different traditions are not differentiated; "copyright" is used as a general term referring to both.

27 Section 15 in its entirety reads as follows. "Protection of property. The property of everyone is protected. Provisions on the expropriation of property, for public needs and against full compensation, are laid down by an Act." See the *Constitution of Finland* at http://www.finlex.fi/fi/laki/kaannokset/1999/en19990731.pdf
See also *Charter of Fundamental Rights of the European Union* (2000/C364/01), article 17.

accordingly.[28] For example, the digital economy has changed the conditions for the economy at large. This development necessarily affects fundamental values. Naturally, one of the most likely developments is that these values do not simply occur, but *need to be built into* new structures. This occurs when the traditional structure of values is revised to reflect the changed digital framework - exactly what we do when we re-examine the structure of data protection or data security in the revised digital framework.[29] In the digital framework this also implies that the values may be built directly into the code of cyberspace. Indeed, in the artificial digital framework, fundamental values are usually realized artificially as well.[30] These values may well be those of the biggest or the most powerful party.

Values are divided into two classes, which are rather closely connected to the structure of the framework concerned. Values are either substantive or structural. *Structural values* are concentrated in the structure of government or other governing body.[31] In the digital framework the governing body is usually the one that decides on the construction of computer code. The purpose of structural values is to ensure that the power of the governing body does not become too strong.[32] Accordingly, structural values become embedded in the constitution and cannot be removed without changing the entire instrument. This is due to the essence of human rights, which constitute the overall scope of structural values. A good example of structural values in the digital framework is the *incompatibility of digital constraints* (*DRM*) and free access to information, where technological measures may restrict or diminish the realization of access to information as a fundamental value.[33] In Finland, free access to information is set down in the law even at the level of

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28 The interconnected entity of values and their realization corresponds rather closely to the *constellation approach* elaborated by *Satu Paasilehto*. Paasilehto sees the constellation approach as an attempt to understand the structural forces which generate the order and regularity that are characteristic of a certain legal culture. This occurs without assuming that the order is natural or built into cultural space. See Paasilehto 2002, 132.

29 Radical change in the most fundamental frames of society is naturally based on digitization and informatization. Information is no longer stored and modified in physical form but is transmitted and passed on in digital form. When dependency on information technology rises, the transmission of information and information itself become more vulnerable. See Saarenpää et al. 1997, 21 - 22.

30 See Lessig 1999, 6.

31 Structural values are closely bound to the *constitutive role of law*. Law has a dual role as a constitutive factor and as a regulative tool. In its constitutive role, law creates and preserves social institutions through norms. On the other hand, law is regulative and gives guidance and incentives for certain behavior. See Pöyhönen 1999, 49.

32 Lessig writes here about the constitution of the United States Federal Government where the purpose of structural values is pursued by designing certain checks on governmental power and limits on its reach over states. See Lessig 1999, 7. The structural values are, however, rather similar and quite incompatible when structuring the values of cyberspace.

33 DRM is an acronym of *digital rights management*. A digital rights management system is an application of technical tools which are used to protect digitally expressed copyrighted content. Protection is implemented by technical applications that restrict access to the content of any information products requiring protection. In the digital environment,

civil rights. (*The Constitution of Finland 12 §*: Freedom of expression and right of access to information.)[34]

Substantive values support the checks and limits of governmental power. These values are fundamental ones and thus cannot be totally removed. In other words, a certain protection of these values must always be preserved, whereby a commitment to them persists.[35] These substantive values thus resemble human rights or traditional civil rights. As such they come rather close to the central role of human and civil rights as the most important restrictive instrument of the power of state. Preserving these substantive values is actually the traditional task of civil rights. Indeed, it is their most fundamental task.[36] In other words, there always exists some value that is further realized through a relevant civil right; e.g., *privacy* corresponds to the right to personal freedom. (*The Constitution of Finland 10 §*: The right to privacy.)[37] Another good example of substantive values is *free speech*, which is partly included in the overall freedom of human beings. This freedom has to be preserved in order to prevent anarchy in the state. (*The Constitution of Finland 7 §* : The right

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these restrictions can be carried out effectively almost only by technical measures. See Davis 2001, http://www.copyright.com/PDFs/ComputerLibraries.pdf.pdf

34 Section 12 in its entirety reads as follows: "Everyone has the freedom of expression. Freedom of expression entails the right to express, disseminate and receive information, opinions and other communications without prior prevention by anyone. More detailed provisions on the exercise of the freedom of expression are laid down by an Act. Provisions on restrictions relating to pictorial programs that are necessary for the protection of children may be laid down by an Act. Documents and recordings in the possession of the authorities are public, unless their publication has for compelling reasons been specifically restricted by an Act. Everyone has the right of access to public documents and recordings." See the *Constitution of Finland* at http://www.finlex.fi/fi/laki/kaannokset/1999/en19990731.pdf See also the *Charter of Fundamental Rights of the European Union* (2000/C364/01), article 11.

35 See Lessig 1999, 7.

36 In addition to traditional civil rights, these civil rights include such economic fundamental rights that influence all the market actors by protecting them. One of the most important of these is protection of property, which includes freedom of contracts and their validity. Likewise, freedom of trade, the right to work and freedom to engage in commercial activity are crucial civil rights in this sense. These civil rights actually have their impact on the functionality of the overall market. See Karhu 2004, 73.

37 Section 10 in its entirety reads as follows: "Everyone's private life, honor and the sanctity of the home are guaranteed. More detailed provisions on the protection of personal data are laid down by an Act. The secrecy of correspondence, telephony and other confidential communications is inviolable. Measures encroaching on the sanctity of the home, and which are necessary for the purpose of guaranteeing basic rights and liberties or for the investigation of crime, may be laid down by an Act. In addition, provisions concerning limitations of the secrecy of communications which are necessary in the investigation of crimes that jeopardise the security of the individual or society or the sanctity of the home, at trials and security checks, as well as during the deprivation of liberty may be laid down by an Act." See the *Constitution of Finland* at http://www.finlex.fi/fi/laki/kaannokset/1999/en19990731.pdf See also at the level of EU: *the Charter of Fundamental Rights of the European Union* (2000/C364/01), article 7.

to life, personal liberty and integrity.)[38] On the other hand, personal liberty and integrity both constitute an essential part of copyright, which draws a borderline between private (included) and public (excluded).[39] Here copyright may be seen as an instrument for defining the scope of privacy.[40]

There is also some *internal logic* in the system of substantive and structural values; i.e., the implementation of both structural and substantive values ought to be ensured. This is also why the implementation of both should be carried out in an interrelated manner. Interrelated implementation is reasonable for several reasons. On the one hand, implementing one category without implementing the other would be meaningless. On the other hand, if left unchecked the structure could easily undermine substantive protection; i.e., the governing structure may become too strong or too weak. This in turn might cause some distortions in the overall structure of governance or even in the category of substantive values. Without any substantive protection fundamental values may be violated by even reflective and balanced government.[41]

Both sets of values also have some influence in society itself. Namely, it is through these values that the governing power essentially aims to affect people's behavior.[42] This kind of influence is either direct or indirect.[43] The law functions in different ways depending on the case. Direct legislation is designed to directly regulate the behavior itself. In other words, the law tells individuals how to behave, and then threatens them with punishment if they deviate from that behavior.[44] An illustrative example of this is a

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38 Section 7 in its entirety reads as follows: "Everyone has the right to life, personal liberty, integrity and security. No one shall be sentenced to death, tortured or otherwise treated in a manner violating human dignity. The personal integrity of the individual shall not be violated, nor shall anyone be deprived of liberty arbitrarily or without a reason prescribed by an Act. A penalty involving deprivation of liberty may be imposed only by a court of law. The lawfulness of other cases of deprivation of liberty may be submitted for review by a court of law. The rights of individuals deprived of their liberty shall be guaranteed by an Act." See the *Constitution of Finland* at
http://www.finlex.fi/fi/laki/kaannokset/1999/en19990731.pdf
The right to the integrity of person is set out the *Charter of Fundamental Rights of the European Union* (2000/C364/01), article 3.

39 The borderline has also been drawn at the level of free speech. Mass communication has to be carried out in a neutral way. Neutrality ought to apply to both media and content. See Niiranen - Sotamaa 2003, 11 - 12.

40 Copyright is even more clearly defined and formulated in section 12 of the Constitution of Finland. See n. 34 footnote.

41 See Lessig 1999, 7.

42 On the other hand, public law and order are strictly derived from the decision-making of the governing body and their manifestation varies. See Schmitt 1997, 54.

43 These values linked to fundamental rights are generally vertical; i.e., they are realized in the relationship of the individual and the state. See Ferrajoli 2001, 14 - 15.

44 See Lessig 1999, 95.

copyright, which grants the creator of a work an exclusive right to dispose of the work. (The *Copyright Act of Finland* 2 §.)[45]

Indirect legislation, for its part, aims at modifying one of the other structures of constraint. Indirect legislation may be more powerful when the punishment enacted in law is not effective enough to prevent people from violating the law. These structures of constraint may arise from either direct or indirect regulation and the forms of regulation may be divided into four categories.[46] *Law* is naturally the starting point inasmuch as it is an instrument of direct regulation. Law may nevertheless be used a tool of indirect regulation. Alongside the law, there are *norms,* which are also rules of behavior. Norms differ from laws in that they are usually agreed upon in a certain society or group of people. Accordingly, compliance with norms is often based on group pressure.[47]

Law and norms are further complemented by the *market*, which is also an effective regulative instrument. Market regulation is carried out by setting market prices, for example.[48] The most fundamental regulative tool of these four, however, is the technical *architecture*. Architecture means that the technology of a product set limits on behavior, for example, by limiting the use of the product. Architectural regulation also refers to technology that directly affects the supply or the supply channels of products.[49] In the copyright example above, architecture takes the form of different physical restrictive means that seek to prevent infringements of copyright, e.g., a high price and poor quality of copies. These physical means now tend to be strengthened by constructing instruments for digital rights management and incorporating these into copyrighted works.[50] Making these technical measures part of the copyright clearly alters the architectural construction of the system of copyright. Both direct and the indirect regulation are closely bound to the implementing values in the society, which makes them part of the foundation of state

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45 See Article 2 of the Copyright Act in footnote n. 231.

46 Law is the most general of the regulative forms; legislation is aimed directly at setting limits on behavior. See Lessig 1999, 87.

47 For example, the behavior of smokers is only seldom regulated by law. Regulation by norms can be seen in the pattern of behavior whereby one asks permission to smoke in a car. See Lessig 1999, 87.

48 The price of a cigarette is a constraint on one's ability to smoke. Changing the price changes this constraint accordingly. The same applies to quality. If the market supplies a variety of cigarettes of widely varying quality and price, one's ability to select the kind of cigarette one wants increases. Increasing choice here reduces constraints. See Lessig 1999, 87.

49 For example, unfiltered cigarettes represent a greater constraint on smoking than filtered ones, if one is worried about one's health. "Architecture" here means the way the cigarette is designed, how it is built, and what it is like. See Lessig 1999, 87.

50 This is especially carried out by *Directive 2001/29/EC* of the European Parliament and of the Council of 22 May 2001 on the Harmonization of Certain Aspects of Copyright And Related Rights in the Information Society: *Article 6: Obligations as to technological measures*. See similarly in the USA in the *Digital Millennium Copyright Act* (*DMCA*) H.R. 2281: Section 1201: Technical amendments.

governance. The verticality of state governance is also readily found in the implementation of these forms of regulation. Verticality is the foundation of an additional vertical structure in the human being's dominance over nature.

1.1.2 The human being's dominance over nature

State governance is basically founded on influencing the way people behave. The *governance of human behavior* is hence one tool of state governance. In this sense state governance is based on putting the state above the people. This is one of the cornerstones of the verticality and static nature of state governance: placing the state above the people makes the governance structure and thus the overall governance architecture vertical.[51] Verticality is incorporated in the forms of regulation used by the state, e.g., law and norms. These forms of regulation are based on a certain superiority of legislative power. This superiority, and verticality as a fixed part of it, then further constitute the state's monopoly on legislation.[52] On the other hand, state governance is based directly on building up the architecture of governance inasmuch as structural values are implemented in this manner in any case.

The overall interests of the state are thus also basically embodied in the vertical structure. Verticality is based on a certain distinctiveness in the internal order of nature. The current view on the mutual relationship of humankind and nature is based on this *dualistic distinctiveness*.[53] In nature there simply exist no intentions and in this sense nature is totally unintentional. Natural phenomena simply occur without anyone having any intent to make them or want them to occur. Nature thus includes that part of reality in which causal natural laws are predominant.[54] In nature one certain occurrence plainly causes some other one. In this sense, nature is precisely unintentional and thus unfree. In practice, this

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51 Verticality is basically expressed in the medieval view that the societal structure ought to be hierarchical. In other words, a hierarchically organized society was a harmonious whole: at the top was the church, and below it were then the secular might and the other positions. In this whole everything had its own meaning and function. See Tolonen, J. 1989, 9.

52 This clearly corresponds to the structure of a legal order as described by *Carl Schmitt*. Schmitt concludes that law and order are based on decision-making, exactly like other social orders. See Schmitt 1997, 54.

53 On the one hand, human beings are a part of nature and likewise a part of the ecosystem; on the other, they are considered responsible actors utilizing nature. See Heinonen 2000, 55.

54 The *causal principle* is based on the presupposition that all events are derived from certain characteristic causes as an unexceptional rule. The future is hence causal in that it is always determined by the past. See Makkonen 1998, 13. See also Niiniluoto 1983, 238 - 241.

means that natural beings develop on their own.[55] As thinking creatures, human beings distinguish themselves from nature. A human being is capable of having intentions and the ability to make rational decisions is his or her most distinctive attribute. In this sense humans are free, or at least they always have the chance to be free.[56] On the other hand, in being bound to causality, nature is crucially unfree. This verticality embodied in the imbalance in the relationship between human beings and nature then sets up the *empowerment of human beings over nature*.[57]

Society differs from nature precisely in the sense that nature is unfree, whereas *society is bound to a certain order*. The causality of natural laws means that a certain order exists in nature that is directly derived from that causality itself. In other words, nature functions on its own. In society the setting is slightly different. Society tends to turn towards chaos and anarchy if there is no sovereign to keep law and order. Maintaining law and order is the task of the state.[58] The resulting control is then extended over all other actors and this domination is the source of verticality in state governance. It also imparts the static nature to the overall state governance system.

The verticality of state governance is thus transferred directly to the relationship between people and nature.[59] In this relationship verticality means that human beings ought to control nature in general. The vertical relationship of people and nature is precisely manifested in how nature is exploited. People have the ability to take advantage of natural resources and to utilize those resources. This is often also described as "discovering" nature, where discovering actually means getting information about nature and then exploiting this to one's own advantage. On the other hand, discovering nature creates the

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55 Natural beings develop on their own as they progress in the direction determined by their own norms. As such they also reproduce themselves. Technical creations, in contrast, get their form and their functioning rules from human beings. Thereby, it is up to humans to decide about this development and its pace. See Heinonen 2000, 58.

56 According to the words of *Lord Bacon* from the year 1597 "*Nam et ipsa scientia potestas est*", meaning "knowledge is power". This power is considered to be the human being's power over nature. See von Wright 1983, 7 - 8.

57 Here it is clear that the behavior of a human being is based on his or her intention, i.e., that he or she pursues a certain goal and has a certain epistemic outlook, which means that he or she considers an act as a necessary step reaching this goal. Further, the intention and epistemic outlook constitute a sufficient justification for committing the act. See Makkonen 1998, 110 - 111. The intentions and beliefs that influence a given human act are never employed alone; rather the act becomes understandable in terms of several beliefs and intentions. This makes it rather complicated to predict societal behavior. See Rosenberg A. 1988, 33 - 34.

58 On the other hand, the laws of nature and the rules of law are analogically connected. The former control the relations among natural objects, the latter the relations among people. See Renner 1949, 45.

59 In the Middle Ages it was generally thought that God and the real world together formed an organized whole in a reasonable way. No clear borderlines were drawn between nature and its ethos and God and his creations. God's will and ability were brought out in the visible world, mainly in nature in the form of natural laws. See Tolonen, J. 1989, 8 - 9.

crucial basis for inventions, which may then become excluded from the common base of natural resources. Here an illuminating example is a patent, which is actually a state-granted monopoly to exploit some discovery of nature.

Nature is thus, in more general terms, exploited by employing the information gathered about it. In other words, discovering nature and gathering information about it yields some more sophisticated knowledge about nature and its functions. On the basis of this knowledge it becomes possible to use nature and its resources for humankind's own good. Thus, the human ability to collect and compile knowledge and information creates an important element in humankind's dominance over nature. This is also exactly the meeting point of human knowledge and information technology as a manifestation of nature.

1.1.3 The human being's dominance over any free actor

The basis of human beings' dominance over nature is found in the *de facto* freedom of the human being. This is freedom gives an individual the liberty to enter into obligations, i.e., *to oblige him- or herself*, and thereby to become unfree. Therefore, the other rather essential implication of the superiority of humankind, alongside its domination over nature, is manifested in the relationship between free actors, i.e., *human being versus human being*. People are free to enter into obligations and use their privileged position for their own good. This takes place through contracts, for example.[60] In the relationship between two free actors, contracts incorporate a dominance rather similar to the human being's domination over nature; the difference is in the freedom or unfreedom of the object.

An individual's domination over nature is governed. This occurs precisely through the vertical construction of state governance, which is needed for governing the activities of free actors as well. Thus, exactly as in the case of domination over unfree nature, even the rights of free actors may be governed. This is where contracts are to be used. Contracts are precisely the tool to govern these rights among free human beings. C*ontractual freedom*, i.e., the freedom of a free actor to obligate him- or herself, is in fact considered the very basis of exchange. It is precisely the freedom to make arrangements for future activity that sets the foundation for cooperation in society at large. Freedom is then manifested in the form of autonomy, which allows each party to define his or her individual sphere of life in order to achieve his or her individual aims.[61]

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[60] Contractual freedom is an illustration of a free market that is based on free competition. Free competition then further stabilizes the market and supports contractual freedom. See Wilhelmsson 1995, 5.

[61] Freedom is manifested in the very foundations of contract law. In contract law, freedom to act is based on the possibility granted to the contracting parties to arrange their mutual relationships as they wish. See Wilhelmsson 1995, 2.

In more general terms, contractual freedom involves the libertarian idea of *free activity*. The basis of this free activity is that a contracting party is free to decide on his or her own acts according to his or her individual aims and responsibilities. Free activity is thus rather extensively based on the intentionality of the human being.[62] Accordingly, freedom is also part of economic activity. The state has no power to interfere in the free activity of contracting parties. Legislation concerning contracts is assumed to be discretionary and thus also to yield to the will of the contracting parties regarding the context of the contract.[63] Further, as a manifestation of the freedom of contract, the normative framework of contract law is assumed to be equal for everyone.[64] It is thus precisely contractual freedom that *binds individuals* to the contractual relationship. This freedom is exercised in entering into a contract of one's individual free will.[65]

Moreover, this obligation is free and voluntary and is thus fundamentally derived directly from the individual him- or herself. This is the greatest distinction between dominating the free and the unfree. It is precisely individuality that draws the most significant line of demarcation here. In other words, both freedom as free will and commitment as a manifestation of individuality are essential factors in incorporating some privacy into the contractual relationship. Internal privacy is actually a rather robust manifestation of individuality in the contractual relationship. Yet, contractual freedom by no means implies an *unlimited freedom* of choice. At least public interests and justified claims

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62 These intentional acts may be explained on various grounds. Some focuses here are motivation to do something, social pressure, goal orientation, and intentionality. Other essential factors are the interplay of intentions and beliefs in certain acts and their relation to the ultimate goal. See von Wright 1976, 116.

63 See Wilhelmsson 1995, 2.

64 This was also the case when the powers of state and society were clearly different from each other. This is an explicit difference from the strict engagement of state and society in the era of feudalism, when the feudal lord determined both private law and public law. The rights and duties of a bondman were hence totally subject to the power of the lord superior. See Ylikangas 1983, 77.

65 This is carried out through both the *validity of contracts* as one of the main presumptions of the whole contractual system and *contractual freedom* as a legal principle. See Pöyhönen 1988, 88. On the other hand, contractual freedom has been shaken (Or, has it in fact been strengthened?, added here) by including in the concept of a contract some prerequisites that are valid right after entering into a contract. These prerequisites contribute to the concept itself. See Grönfors 1993, 27 - 31.

of others delimit the scope within which the contractual parties are allowed to act.[66] Nevertheless, contractual liability does add a certain verticality to contractual relationships.

A contract actually consists of different kinds of relationships. These relationships are *commands* aimed at the contracting parties to act in a certain, desired way. In other words, the requirements of certain types of behavior are actually seen as originating in the concept of a contract, which is further described as a gathering together of those relations. A contract may be considered only a *legal fiction* having a certain internal normative system.[67] This system is composed of different kinds of norms, some of which are set individually and others generally. Contractual norm-setting may thus be carried out for only one single contractual act or for a more general course of action. Norms concerning an individual contractual relationship are usually set individually and are thus single norms. As such they regulate only a single contractual relationship.[68] On the other hand, general norms are enacted by the legislator and are made concrete through enforcement.[69] A corresponding interpretative problem occurs in intellectual property rights and concerns the *expansion of the scope of contract* through licensing. Licensing acts as a means of expansion when it allows the licensee to enlarge the scope of the licensing agreement by excluding third parties from a domain to which they would otherwise have free access. This gives the licensee a

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66 The market is often based on monopolies or oligopolies, where the market is cooperation among a few powerful market actors. These are then free to decide market prices or the terms for entering into contracts. In these cases contractual freedom will be reduced or become even a total fiction. These contracts are often mass ones and the terms are decided almost exclusively by one contracting party or its branch organization. Actually in these cases interfering in contractual terms also implies interference in the content of contracts. Restriction of contractual freedom actually entails interference to some degree also in the contextual freedom of contracts. Contextual distortions have emerged when the stronger contracting party has the intention of getting a better legal position or limiting its liability. See Wilhelmsson 1995, 6 - 8.

67 The argumentation behind legal fictions may be explained through an examination of the work of *Alf Ross*. Ross examined the notion of *tû-tû* by comparing it to the concept of subjective right. Originally tû-tû referred to an ancient rite of the *Noït-Kif people*, who were very primitive and based their life on several different beliefs. Tû-tû was one of these beliefs and it was connected to violating the taboos of the Noït-Kif. Tû-tû was hence realized when a taboo of the Noït-Kif was violated. For example, one violation was eating the food intended for the chief. One who committed this kind of violation was driven under a harmful or even injurious force of tû-tû. This was a dangerous *magic power* or threat of bad luck under which the guilty member of Noït-Kif or even the whole people might come. In order to neutralize tû-tû, a guilty person had to go through a special purification ceremony. Ross aimed his criticism at the chain of inferences which was drawn from the violation of a taboo via tû-tû to the purification ceremony. Ross argued that the conclusion could be drawn from eating the food intended for the chief straight to the purification ceremony and tû-tû therefore seemed to be a completely needless concept and thus a *fiction*. See Ross 1951, 468 - 470.

68 The norms set by the courts of justice are also single norms. See Zitting 1987, 491.

69 Legal norms are assumed to be stable so that they will create some essential stability and predictability for the market as well. In addition, legal norms are assumed to be general and abstract to impart some predictability to social behavior. General legal norms concern everyone equally. See Häyhä 1993, 170 - 172.

possibility to protect his or her privilege much more forcefully than he or she would be allowed to according to the agreement itself. A third party has to adapt its behavior to this in order not to violate the right being set out in the licensing agreement.

A contract is thus constituted of behavioral patterns. It is always a *constellation of different relationships*.[70] The freedom to act constitutes the basis of all inter partes relationships, of which the contractual relationship is the core.[71] A contractual relationship is also based on intentionality as the manifestation of the free will of free actors. The intent of the parties actually makes up the normative system in its functional sense; i.e., intentionality is the key to realizing one's free will as a manifestation of the freedom to act. This is carried out by setting a single norm for a single contractual relationship.[72] This norm is based on the intention of both of the parties.[73] On balance, a contract is an individual regulative instrument whose core is a certain amount of essential privacy. Privacy as the core of the contractual relationship actually imparts some degree of privatization to contracting overall. The most crucial elements of privatization are brought in through individual contract regulation, this regulation being a matter of only certain committed parties. Here, the *instrumentality of contract* is evident. In this norm setting, the main element of intent is to set out a formal pattern of behavior. This creates at the same time some regulative force for the contract, which thereby becomes based on the intention of the contracting parties. This then shifts the regulative force from the state towards individually decided relationships, whereby a contract may be considered a regulative tool.[74]

On the other hand, there exists a clear *interference by the state* in the freedom of contract. This is actually an exception to the main rule according to which contract law is

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70 The argument against the concept of subjective right was similarly the idea that a subjective right has *no counterpart in reality* even though it was used as a descriptive concept. On these grounds the subjective rights were considered not to exist either. Rather than examining the prerequisites for the existence of this kind of rights it had to be considered what a concept of subjective right means and what was being referred to when the concept was used. It was possible to structure the concepts more accurately by giving up the requirement of a concrete entity and concentrating on what the concepts referred to. See Helin 1978, 645 - 646.

71 The prototype of a contract consists of two equal parties, with the contractual commitment bound to the intent of both of those parties. See Zitting 1987, 491.

72 The view of contracts has altered. A contract is no longer considered an instrument for realizing the divergent interests of the contracting parties. Rather, it is increasingly considered a means to balance the common interests and aims of both parties. In other words, a contract is an instrument to realize the common interests of the parties. See Häyhä 1996, 16 - 19.

73 The intention does not concern only a single issue but consists of several discretionary intents given together or separately. See Zitting 1987, 492.

74 This means that individually set rules implement contractual regulation. In this case, it is only this precise contractual relationship that can then be regulated. Contractual norms are thus set individually for each contractual relationship in turn, and this individual regulation then becomes the foundation of contractual regulation overall. See Zitting 1987, 492.

based on certain contractual principles directing the contractual behavior of the parties rather than on strict state regulation. Those principles then further govern contract law in general, in which the cooperation of parties is rather free.[75] In order to ensure the proper functionality of the system of contracts and to sustain the principle of contractual freedom, there exists a class of *standard-form contracts*. Standard-form contracts are often also described as mass contracts and their fundamental purpose is to establish exact standard forms in all contracts.[76] Standard-form contracts constitute one effective tool for governing the expanding market, where governance is realized precisely by creating general standards for mass contracting.

Standard-form contracts have been used for incorporating static verticality into contracts as privatized instruments of regulation. Examples in intellectual property rights are *click-wrap* and *shrink-wrap* contracts, which are actually only one way to strengthen the regulatory force of the content provider. Shrink-wraps and click-wraps differ from the average standard-form consumer contracts in that the terms of the contract are not revealed to the consumer until he or she opens the package. This is precisely when the consumer becomes liable as well.[77] Generally, standard forms are provisions that characteristically already include some provisions for consumer protection. On the other hand, the level of consumer protection in standard-form contracts in the Nordic countries is due to the overall strength of consumer protection.[78] The scope of standard-form contracts is thus one way to include state regulation directly in a given contractual form.[79] State regulation becomes a central element of a contract by becoming part of the context of a discretionary relationship.

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75 Contractual principles are used for optimizing cooperation and thereby they need to be weighed against each other. See Pöyhönen 1988, 25 - 26.

76 An illustrative example of standard-form contracts in the present day are the *IT 2000 Terms and Conditions for IT Procurement*. This document includes the general terms and conditions for information technology contracts. In Finland, IT terms and conditions are prepared as a cooperative effort of the Central Chamber of Commerce of Finland, the Finnish Association of Logistics, the Finnish Information Processing Association, and the IT Services Association (*TIPAL*). The starting point for the IT terms and conditions is to draft contract clauses that can be used in contracts between suppliers and customers for domestic deliveries. For more details, see *IT 2000 Terms and Conditions for IT Procurement*.

77 In the digital network framework, standard-form contacts are often introduced as *point-and-click contracts*. Here a consumer accepts conditions by only pressing a button, but there is no guarantee that he or she has read them. See Lindberg - Westman 2000, 58 - 59.

78 Adjustment of an unreasonable condition actually maintains contractual freedom by endeavoring to ensure the equality of both parties in the contractual relationship. Contractual terms used by the stronger contracting party should not be used as tools to suppress the weaker party. See Pöyhönen 1988, 263.

79 For example, credit agreements and piece-work contracts are typically standard-form contracts. See Halila - Hemmo 1996, 41.

1.1.4 Technological determinism as a manifestation of nature

Nature is diverse in form and its manifestations are divergent indeed. Today one of the most essential of these is technology.[80] The significance of technology is so fundamental that it may often be considered as a compelling force in society at large. Accordingly, *technological development* has been considered one of the most important transitional forces of today.[81] Technological development is also rather extensively based on close communication regarding the means of retrieving, transmitting and distributing information.[82] On the other hand, information technology and its development are rather essential for the telecommunication links that are the central means of communication. Development thus affects the mutual relationship of communication and the further development and convergence of telecommunication links.[83]

Technology may be described as the application of science and engineering to the development of machines and procedures. The fundamental purpose of applying a technological contribution is thus to *enhance or improve* the human condition or at least to improve human efficiency in some respect.[84] Technology may well be considered the most

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80 The relation of nature and technology may also be described as a *separation of natural being and technical being*. There exists a distinction between nature and art, with technical counterparts being natural, but in a slightly different way. See Heinonen 2000, 57. On the other hand, the emerging form of market capitalism is considered to be *technocapitalism*, which relies greatly on intangible assets such as knowledge and creativity. See Suarez-Villa 2001, 4.

81 This is stated for example at the European level in *e-Europe 2005: An information society for all*. Rapid progress in digital technologies has been considered one of the driving forces in economical development as well. See *COM (2002) 263 final*, 6. On the other hand, technology is closely related to cultural and political aspects of society. For example, patent law as a reflection of technological development is closely related to the social culture. See Lee 2000, 16 - 17.

82 This means that information is in continuous circulation. At the same time, human communication affects the development of culture and humankind overall. However, technological development has altered the means of communication, the prerequisites for obtaining information, and even communication itself. See Martin 1978, 5.

83 The increase in the amount of electronics, technology, and telecommunication links has changed the structural components of society. The change has been so rapid and dramatic that it has sometimes been called an information revolution. The change from an Industrial Society towards an Information Society may be described as parallel to the discovering of agriculture 1000 years ago or the beginning of the industrial age 200 years ago. See Niiniluoto 1996, 67. This development is often described in terms of technological development and is defined as *linear*. See Bell 1974, 359. It may also be described as waves, with the current wave depicted as a mixture of the previous ones. See Toffler 1981, 14 - 16.

84 See Thomas 1999, 37.

essential factor of change in social cooperation.[85] At the same time, change affects societal life.[86] Technologies are not significant alone but always interact with society at large. This is exactly the communicative element in the interaction between technological development and society.[87] Technology does not exist separate from societal or cultural institutions, but interacts intensively with them. Further, societal and cultural institutions are the producers and consumers of technology.[88] This is precisely where business methods enter the picture. Business methods are not pure technological productions but, rather, are constructed of not only technology but also a highly interactive link between the market and certain common interests.[89] Business methods are nevertheless essentially technological constructions in that they take the form of applications used on networks.

Business methods have close connections to life in society and the smooth operation of the market. Technology as such is one of the most significant indicators in social life. This is exactly why development and change in society might derive from technological development itself. Indeed, this trend can be seen clearly in the recent societal development that may be readily attributed to information and communication technology (ICT). For example, ICT has been considered the key component of recent development policy in the

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85 In this sense, technology may be divided in two aspects: a *technological artifact* is an identifiable and a durable entity that is physically, economically, socially, and politically organized object in space-time. *Technology-in-practice* is, on the other hand, a specific technology structure that is a repeatedly experienced, personally ordered and edited version of the technological artifact. See Orlikowski 1999, 7 - 8.

86 It may even be said that the effect of a new medium and new technologies is more important than the messages transmitted by them. This means that the World Wide Web as a transmission channel is more important than the content that is transmitted over it. See Lehtonen, M. 2000, 104 - 105.

87 A good example of this is the interplay and mutual development of technologies and intellectual property rights. Several interconnecting classes of intellectual property rights have been created along with technological development. These are, for example, the utility patent, which was to fill the gap between a patent and a design copyright, and circuit design. See Petrusson 1999, 100.

88 Technologies are not actually causes but consequences. Technological development is in fact a common result of societal, economic, and political circumstances and structures. See Lehtonen, M. 2000, 90. On the other hand, technologies are often understood through a *technological frame* when it is easier to identify the technological development overall. Technological frame includes assumptions, expectations, and knowledge used for understanding technology in organizations. See Orlikowski - Gash 1994, 178.

89 A good example of the close interaction of new technology and society overall is the ever-blurring line between idea and expression. This line is actually questioned by each new technological invention, for example, photography, motion pictures, sound recordings, radio, televison, photocopying, and telecommunication. The latest such invention is the Internet. See Bobko 2001, 55.

European Union.[90] This development is often referred to as technological determinism, which implies that a change in the amount of technology also changes society at large.[91]

Technological determinism also has its manifestations in technological or commercial laws, which in turn have an impact on cyberspace. *Moore's law* is based on the assumption that the maximum processing power of a microchip doubles roughly every eighteen months.[92] Technology is here raised up to become the most powerful guiding force in development. Technology in a way feeds itself and thereby acts as the principal motor of overall development. Other development has to follow the technological.[93] Further, *Metcalfe's law* describes the technological and economic forces that drive the growth of cyberspace and the Internet. Metcalfe's law is based on the manifestation of the *network effect*, whereby as the network grows, the utility of being connected to that network grows even more. The value of a network increases exponentially with the number of connections and users. Here, one sees technological determinism manifested from a slightly different point of view. Technological development still dictates the pace of change. On the other hand, the technological and economic dynamism of the Internet are based on the simultaneous manifestation of these two laws.[94]

Technological determinism has one more implication in its being a manifestation of nature. This is the crucial question of the *relative priority of the human being and nature* and it derives precisely from the "unfreedom" of nature and the freedom of the human being.[95] The forces of nature are traditionally considered rather strong and thus as affecting society in quite a profound way. People are also influenced by these forces and are often considered merely as objects, not subjects. The rationality of the human being, however,

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90 Information and communication technology has even been considered as accelerating the pace of technological progress, modernization and structural adjustment of our economies. See *COM (2004) 757 final*, 4. IT often refers to the communication of coexisting computers and telecommunication links. See *SOU 1995:68*, 4.

91 See Webster 2002, 120.

92 This is not really the case, for the microprocessor industry is not driven solely by its own technical advances. The growth in the number and development of processors may be related to the increased requirements of the operating systems and office applications used with Intel processors. It may also be related to increased consumer interest in multimedia and audio applications.
See Tuomi 2002, http://www.firstmonday.org/issues/issue7_11/tuomi/index.html

93 Human interaction with technologies is, however, often recurrent. Even when users constitute a technology-in-practice through their present use of a technology, their actions are at the same time shaped by the technologies-in-practice they have implemented in the past. See Orlikowski 1999, 11. This is often also referred as *human-computer interaction* (*HCI*). See Isomäki 2002, 17.

94 In other words, computing power increases at a high rate and at the same time the price at a certain level of computing power decreases at the same rate. The value of a network is equivalent to the square of the number of nodes. See Grewlich 1999, 31- 32.

95 For example, technologies-in-practice are changed through human action. Another way to change these practices is improvisation, where situated innovations respond to an unexpected opportunity or challenge. See Orlikowski 1999, 12 - 13.

makes him or her distinct from nature. The human being has the power to achieve a dominating role in the coexistence of humankind and nature: human beings and nature can never be equals. The difference between human beings and nature lies in the deterministic character of both, however. Nature is rather strictly bound to natural laws, making its behavior very *predictable*. In other words, natural laws govern natural forces. In this sense, the human being is totally different; his or her behavior is not so certain. This is also why humankind needs some social order to reconcile the general behavior of people with the needs of society at large. In this task, the state has the legislative power that is used for governing societal behavior patterns. the state is needed for keeping the forces of society in order.[96] Here again one sees the verticality of state governance clearly and most characteristically manifested in the construction of that governance.

Verticality derives from legislation as a governing tool. Legislation is a rather useful tool for controlling society, which justifies its use to control the new developing technology.[97] As a means of governing society, legislation may be utilized for *controlling technology*. In this context, legislation is used for regulating technological development and, through this, societal development as well. The *interplay of technology and society* can thus be seen as the very kernel of technological determinism. Technology in itself is also a significant indicator in social life and societal development.[98] In other words, regulation not only pertains to the regulation of new developing technology but setting requirements for the society that is created by that technology.[99]

Regulation does not, however, concern technological determinism as non-definable forward strides or a larger whole. Rather, regulation is more likely to be defined as opening

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96 See Tolonen, J. 1989, 10.

97 Dommering sees the development of new technologies as an important driving force behind the improvement of new legal specifications. In this view, mechanical technology led to specializations like building law, and the combustion engine encouraged the development of traffic law. Mass media and information would, following this reasoning, lead to media law and computer law. See Dommering 1991, 2.

98 According to this view, societal transformation would derive from technological development itself. This view is often called technological determinism and it says that change in the amount of technology will change the status of social actors and society itself. See Webster 2002, 271 - 272. Technological determinism may be complemented through parallel descriptions of the interplay of technology and society. The *technological imperative* says that everything that can be realized will be. Further, the *technocratic view* focuses on the power of technology and says that it is possible for specialists to predict technological development and accordingly adjust the rest of the society to the change. The *free market economy*, for its part, is founded on the view that the law of supply and demand also directs the technological development. Finally, the *indeterministic view* says that even technological change is dependent on the circumstances and on coincidences. See Niiniluoto 2000, 29 - 30.

99 See Lundblad 2000, 12. One interesting approach is to concentrate on communication and examine the Internet as a means enabling different communications models. The Internet can be seen as either a mass medium or a communication channel. Governments tend to see the Internet as a mass medium, whereas individuals consider it a communication channel. For more on this, see Slevin 2000, 219.

some possibilities from the societal perspective to see technology as several different aspects of regulation.[100] One of these viewpoints is the lowering of the costs of production. Low prices and productivity are closely connected in that low prices are directly associated with the quantity of production. What is more, telecommunication links are among the best financed and thus most popular products. This development has caused the whole sphere of communication and information to coalesce, however. Indeed, we generally speak about information and communication technology. This part of technology and communication that have converged then becomes the core of society.[101] Convergence is clear: information technology and societal communication have been welded together, inasmuch as joining communication lines makes it possible to link more and more computers together. In this development, it is absolutely certain that technology sets the pace of development.[102]

Technological determinism as divergent viewpoints may be examined also in slightly different perspective: technological determinism makes possible a reorganization of the economy. This reorganization is nothing less than one more expression of technological determinism. This is particularly the case when the concept of technology no longer refers exclusively to *"hard"* technology, e.g., equipment; it may well embrace increasing possibilities to construct networks with other producers, clients, and information producers.[103] This is actually one more manifestation of Metcalfe ŝ law concerning the network effect.[104] The network effect actually has a dualistic role in the communication of and search for information. The effect has a clear advantage in increasing the possibilities to retrieve information but, at the same time, it threatens the secure transmission of information.[105] Technological development is nevertheless one of the crucial engines of

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100 The regulatory aspects can be divided in four categories, which are the meaning of technology in the society, the possession of technology, the use of technology, and the design of technology. See Lundblad 2000, 12 - 13.

101 The three main phases of this development are concentration, dissemination, and unification. See *Committee Report KM 1988:23*, 7 - 9.

102 In the societal use of technology it is, however, significant that those technologies are to be applied to use. People interact with technology, and in order to understand people ŝ interpretations of technology it is critical to understand their interaction *with it*. ti interact with technology, people have to make sense of it. See Orlikowski - Gash 1994, 175. (Italics added.)

103 See Lyon 1988, 30 - 31.

104 Where information is concerned, it is networking and the evolution of information networks that have the greatest significance in the network effect. For example, the Information Society as a concept is largely based on the existence of different classes of information and the effective utilization, dissemination, and management of information. See Pöysti 2000, 92.

105 The most effective driving force for the network effect is the dynamically evolving information technology that makes it possible to develop novel and innovative operation models. The network society may accordingly be described as a society where the central functions and operations are based on networks that, further, are interconnected. See

societal change as it accounts for a substantial number of the constitutive elements of networking and aspects of networks.

The overall perspective on technological determinism cannot be focused solely on technology or society. In other words, it is not technological determinism alone that causes change. The other rather crucial part of the development is naturally the *use and usability* of the technologies. This usability further arises from the acceptance of discoveries in society: it is always a human being who accepts the technology and uses it.[106] In this respect, technological determinism and the societal acceptance of technologies are always communicative. This is also why the development *is never static* but continuous. Progress is manifested in how we exploit communicative tools and it therefore cannot be considered a static course of development. What is more, this development is the overall basis of the network society, where societal life as a whole is founded on using information networks and telecommunication links.[107] On the other hand, the high priority of information in societal communication contributes to the vertical structure of the state. Verticality is a direct consequence of according information a position in which it creates power.[108]

Technological development and societal acceptance of technological inventions are *based on continuousness*. The governance of both of these elements is crucially based on certain fundamental elements. One is the *need for dominance* as the kernel of any governing structure. Dominance is needed in order to set the pattern for controlling the causality of nature or the behavior of human beings. Both of these chains of events are further based on setting some kinds of limits: in nature the limits are defined by causal laws; in society they are introduced by legislation. In both cases, governance is based on verticality. On the other hand, dominance as a key element of governance makes state governance *static overall*. This static nature is caused by verticality being the very essence of governing these chains of events, i.e., the causality of nature and the behavior of human beings. This is why governance is carried out by the state. There exist, however, some more fundamental

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Castells 2000, 77 - 78.

106 Technology is not meaningful or consequential by itself; it only becomes so when people engage with it in practice. In this respect, technological structures are situationally specific, emerging from practice, rather than embodied in given technological artifacts. See Orlikowski 1999, 27.

107 See Saarenpää 2000, 4 - 5.

108 This may be described in terms of illustrative patterns of differently structured societies. Different eras have produced different kinds of societal orders: *primordial/ancient* societies were patriarchal, with men dominating women and children; *feudalism* produced the structure of lord over land and vassals. The *centralized state* is constructed on an order where a king dominates over taxes, whereas *imperialism* places the major powers over colonies and slaves. In *industrial capitalism,* capitalists have power over labor and surplus value, while in *finance capitalism* bankers and investors control securities and, bonds, derivatives, and interests. In this course, *information feudalism* would be the next stage and be fundamentally based on the power of *infogopolies* and *biogopolies* over abstract objects. See Drahos - Braithwaite 2003, 199.

reasons for the necessary verticality and static nature of state governance. These can be illuminated by examining the divergent but overlapping interests of the state.

1.2 Interests embodied in state governance

1.2.1 Ensuring inventiveness

State governance consists of a layered construction made up of free resources and controlled ones. In this dichotomy the resources are classified as *private or public property*.[109] Public property has its advantages, especially from the viewpoint of consumers, but keeping property public may cause some problems. These problems generally have to do with the allocation of resources in society. For example, numerous problems arise from the possibilities to exclude someone from the use of property. Sometimes the possibility to exclude seems to be almost the most crucial consideration in the production and use of property. This constitutes a clear dissimilarity between public and private property.

The difference between private and public property is one of the most fundamental elements in intellectual property rights. Intellectual property rights have been traditionally considered private property. This is mainly based on the view that an invention belongs to its inventor, who then further receives ownership of it.[110] Intellectual property rights include, however, many elements that distinguish them from traditional ownership. One is their *common character*. This is based on the public, or common, part of all intellectual property rights, whereby any right that is granted by the state implies at the same time that the crucial background information of an invention becomes public.[111]

Defining intellectual property rights as private ones has benefits, however. If the use of a resource is free and no one can be excluded from that use, overuse is almost certain. The resource is used by everyone, with each user pursuing his or her own good, but payment for use is not so common. This is actually the crucial difference between public and private property; the control of private commodities is often carried out privately and problems of common utilization do not occur. This distortion is generally called the *free-rider problem*. The free-rider problem is caused precisely by an unwillingness to pay for goods. A free rider is thus someone who gets to consume a good without paying for it. Yet the production of a good is often rather costly and therefore it is crucial to collect

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109 See Begg - Fischer - Dornbush 2000, 47.

110 This view is based on what is known as the *natural-law thesis*. See Petrusson 1999, 106.

111 The common character is the reason why intellectual property rights have sometimes been included only partly in property rights. See Tolonen H. 2000, 54. The view according to which a monopolistic right is based on exchanging secrets is based precisely on the publication of secret information. The patent-holder then acquires the monopoly as a reward for publishing this secret. See Petrusson 1999, 107.

payments for its production. The free-rider problem applies particularly to public goods that are not sold by anyone but also where the resource is available to anyone to consume. The free-rider problem is the crucial explanation for not producing most public goods on the private market, for it makes it difficult to ensure the production of those resources or a proper quantity of them.[112] The free-rider problem is usually invoked to avoid charging for production despite concrete use. This is basically also the reason for keeping some resources public and under public ownership.

The free-rider problem emerges in intellectual property law as well, where intellectual property rights are normally used to refresh innovativeness. Patents have been used to increase the enthusiasm of inventors to invent, and copyright is an instrument to inspire creators to create; if inventors cannot get their inventions patented, or authors their writing copyrighted, they will have less incentive to invent or create.[113] In this way, patents and copyright are both used as instruments of governmental regulation.[114] They both regulate the willingness to invent and provide one with sufficient reward for one's inventions.[115] Nevertheless, without proper protection the ideas of an inventor could simply be taken and others would benefit from his or her invention at no cost. This is the most serious problem with the new information-based technologies, where industrial applications are costly to develop but vulnerable to rapid duplication.[116] Progressive advances in technological knowhow originating in non-traditional inventions or innovations fit in poorly with traditional patent or copyright paradigms. It is often even impossible to hide the knowhow in these inventions.

Protection through intellectual property rights has even more advantages. For example, it seeks to ensure that the costs put into research and development may be

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112 See Begg - Fischer - Dornbush 2000, 47.

113 Protection through these forms of regulation actually gives the first person to invent some *lead time*. The lack of sufficient lead time is one further problem in rewarding the inventors of new inventions. See Reichman 1994, 2504 - 2505. This is also referred to as a *dynamic benefit of property*. See Landes - Posner 1987, 266.

114 On the other hand, the patent system may not be considered separate from society overall, i.e., industrial and economic life. The patent system has at least economic effects and effects on the competitiveness of enterprises. See *COM (99)42 final*, 8. Systems providing at least some protection, e.g., intellectual property rights, and overall industrial development are interconnected and as such have a reciprocal influence. See Petrusson 1999, 4.

115 The traditional justification of the system of intellectual property rights is that it exists to promote innovation through its awarding of exclusive rights to inventors in return for disseminating their inventions more widely. See Webster - Packer 1996, 1 - 2. Certain regulation concerning patents is based on joint Nordic draft working carried out in parallel in Finland, Sweden, Norway and Denmark. See Bruun 1990, 164 - 165.

116 This is the case especially in computer science and biotechnology. Incremental innovation manifesting knowhow has become the most characteristic sign of the present technological development. See Reichman 1994, 2443.

recovered and the results protected.[117] In this way, protection accelerates technological development at the same time. Acceleration also occurs through the patent system itself. A competitor cannot use an invention that is patented but must aim at more developed and newer applications.[118] This actually summarizes the aims of the reward system, in which the reward takes the form of a monopoly that is granted to the inventor. The rationale for and the very basis of the reward system appear on two different fronts. On the one hand, protection is considered as part of the *profit of the inventor* received for his or her efforts and investments in the invention. The monopoly to exploit the invention is then granted to the inventor as a pure reward.[119] On the other hand, protection may be defined as a *stimulus* whose purpose is to inspire and stimulate creativity and investments in inventiveness.[120]

Here the opportunity to take free advantage of someone else's invention would mean fewer inventors. Similarly, progress in science and applied arts would slow. Intellectual property is not only an input in the creative process but also an output. In other words, increasing the costs of intellectual property increases both the cost of production, i.e., input, and of the incentives to produce it again, i.e., output. The influences that bear on the system therefore come from both inside and outside of it. The balance and change in the system of intellectual property rights directly affects the exploitation and production of intellectual property.[121]

1.2.2 Increasing empowerment

Inventions are privileged by the state through the granting of intellectual property rights. These privileges may be defined as *empowered rights over nature*. Nature becomes harnessed by having limits imposed on it in the form of property rights. On the other hand, filtering technological determinism through intellectual property rights gives the state the power to direct technological, and thus societal, development. Empowerment vis-à-vis nature *institutionalizes technological determinism*. For example, a patent is institutionalized when it is considered as a functional whole. Functionality is realized between the context and

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117 If there were no proper protection or a sufficiently stable reward system, competitors could easily abuse any valuable invention with no financial investment of their own or with only a minimal investment of their R&D resources. See Haarmann 1989, 78. See also Cornish 1996, 26 - 28.

118 According to this view, the most essential task of the patent system is to drive technological development, see Haarmann 1989, 78.

119 This view is more explicitly called the *reward-by-monopoly thesis*. See Petrusson 1999, 106.

120 More accurately this is what is called the *monopoly-profit-incentive thesis*. Both of these views aim at the same goal; the only difference between them is their focus in time. Where reward-by-monopoly focuses on the past, the monopoly-profit-incentive is oriented towards the future. See Petrusson 1999, 106.

121 See Lessig 2002a, 203 - 205.

function of the patent. A patent, when institutionalized, thus creates some tension between the patent system and its framework.[122]

Increased empowerment is also well illustrated in any consideration of protected intellectual property as *individuals 'rights to their thoughts and ideas*. These ideas cannot be freely utilized but must be protected by the state.[123] Intellectual property rights are defined as *property rights*. A patent as a monopoly has been clearly distinguished from a patent as ownership. A patent as property and as part of ownership has been considered a natural part of a person s right to live by his or her work.[124] Ownership is nevertheless a strong right, mainly due to its *absoluteness*. Where property is concerned, absoluteness means that property is protected against interference by all outsiders. Protection is thus completely exclusive. In other words, protection of property is strong and stable and increases the empowered position of the right-holder. Ownership is thus easy to consider as an excludable privilege.

Empowerment through a patent is carried out in a slightly different manner associated with what are known as *second-degree inventions*. The justification for this lies in rewarding and hence renewing inventiveness through proper protection, which is mainly realized through property rights. At the same time, the enthusiasm to invent has to be increased. Rewarding is not, however, completely imperative; there in fact exist some inventions that are *rewarding as such* even without any protection. This applies in particular to second-degree inventions that are essentially market-bound; i.e., those inventions are to be utilized and exploited in the market. These second-degree inventions are ones that teach people to use new technological developments.[125] They are thus a kind of *"instructions for use"* for the overall system comprising the market and inventions together. Second-degree inventions are applications that bring together pure technological ideas and further process them to become new second-degree inventions.

The rewarding of second-degree inventions is thus carried out already when they are approved by the market. Additional protection through property rights increases the empowering by the state. This is also why the need to reward inventions in fact divides inventions into two categories. There are two kinds of inventions on two different levels. The idea of these inventions is to inspire people to learn how to exploit new developments.[126] On the first level are routine inventions or routine business applications,

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122 Tension is also created by the communication of internal elements and external ones. Communication is essentially based on a view whereby the system represents the clarified part and the framework represents the complicated and undisclosed one. See Petrusson 1999, 93.

123 The thoughts and ideas of a person in this sense are property and their protection is considered to be ownership. See Bruun 1983, 158.

124 This has especially been the aim of the *antipatent movement*. See Petrusson 1999, 115.

125 See Dreyfuss 2000, 265.

126 These applications are called *killer applications*. See Dreyfuss 2000, 265.

which are needed to provide new technology and opportunities for those who have learned to use the new technology. Exploiting this knowledge is also fruitful for the economy at large. Patent and copyright may be used for ensuring this development.

Second-degree inventions are rewarded through market acceptance. They acquire value in the market and this is a rather great reward for an invention. These inventions are nevertheless patentable as well. A patent is thus not only necessary in society for motivating technological advantage; it also motivates the restructuring of businesses that is required to take full advantage of new developments.[127] Patenting in these cases actually gives the inventor a dual advantage. A successful invention is greatly accepted by the market and thereafter is patented and protected. *Business inventions*, like business methods, are rewarded twice.

1.2.3 Privileging positions

State governance may create positions for right-holders. These positions are generally based on privileging some of them.[128] State governance in its traditional sense is mainly founded on privilege systems in intellectual property rights.[129] The state grants privileges to inventors in the form of intellectual property rights. This actually creates a rather strong position for the privilege-holder in which he or she acquires something closely akin to a monopoly. Therefore, it is sometimes even thought that intellectual property rights are constituted like monopolies. This is actually one manifestation of verticality in state governance. These privileges are then further employed as instruments of governance, with the governance architecture mainly based on the requirements for granting access to some, and, on the other hand, for controlling the access and behavior of others.

These strong privileges are used for rewarding inventiveness. This is the core purpose of intellectual property rights. A *patent* is a good example of intellectual property rights acting as a monopoly. A patent is a fixed-term monopoly that grants the right to manufacture goods based on a certain invention. This invention and the right to utilize it

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127 See Dreyfuss 2000, 265.

128 Intellectual property rights were first established through granting privileges. These privileges constituted a part of the *mercantilist system* as they were considered exclusive rights to manufacture and trade. See Kekkonen 1987, 11.

129 As a system of creating privileges the first rights management system was purportedly invented by *Johann Gutenberg*, who invented the technology to print the *Pope's grants of pardon*. The grants of pardon, known as *indulgences*, were given by the papacy for such actions as founding a monastery or going on crusade. The indulgences were very valuable, and therefore the authenticity of such a document was a necessity. Gutenberg is said to have obtained permission to reproduce these indulgences from the Archbishop of Mainz, the local papal authority, but without disclosing all the details to him. Gutenberg's invention enabled the rapid creation of copies but at the same time it created a simplified model of a rights management system.
See Davis 2001, http://www.copyright.com/PDFs/ComputerLibraries.pdf.pdf

are the core of the patent. As such a patent is considered a monopoly, where the controlled resources are the ones that are used under the patent and the free resources are all the others falling outside of its scope. Here, a patent may also be considered a means to convert tacit knowledge into a visible and thus utilizable form.[130]

This is the way in which the state governs the *overall utilization* of societal resources, this governance being necessarily vertical. A patent may be granted for a computer program, for example, but this requires that the invention be *technical*. [131]No abstract invention may be included in the sphere of patentability.[132] Abstract ideas constitute a part of natural laws, like mathematical algorithms, that are expected to remain freely accessible to everyone. In this way, the division into technical and abstract entails a distinction between open and closed, with technical applications being closed and abstract ideas remaining free. This explains the essence of the coexistence of free and controlled; it is through a patent that the state grants the patent holder a right to forbid others to utilize the protected invention.[133]

The monopolistic nature of a patent is, however, slightly illusory, for a patent is not a monopoly in the strict sense of the word. The explanation for this lies in the verticality of controlled and free resources. The fundamental definition of a patent is predicated on exclusivity, with all others but the patentee excluded. The reverse side of a patent is to reveal information and thereby make it public. Patented information as such does not belong to the scope of exclusion provided it is not used in novel inventions. Exclusivity as a monopoly to utilize an invention is thus not the entire content of a patent; rather, a patent *becomes complete through opening access* to information. The strictly monopolistic exclusivity and limited access constitute *dual, opposite poles* that reflect the verticality of state governance.

The state can be considered an actor that ensures that inventors get their inventions rewarded. As a stakeholder, however, the state also has its own interests in producing inventions and rewarding them. It is most profitable for the state to create strong monopolies when the state itself is the most important producer of monopolistic products. This has a parallel in innovations and information. It is reasonable to protect inventions and innovations when the *innovation model is linear* or vertical. Innovations are based on

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130 A patent is considered an instrument for turning tacit knowledge into explicit knowledge. Patenting is thus also a product of the commodification of knowledge and creativity. See Suarez-Villa 2001, 7.

131 Here, an illustrative example is the so called EPO twin cases *T* 0935/97 and T 1173/97. In these cases the *European Patent Office* assessed the possibility to patent software *as such* with the result that in Europe software can be patented only through a technical application that is part of an invention. A computer program is thus not patentable as such in Europe unless it includes a technical application.

132 See Klami - Neejärvi 1997, 590 - 591.

133 See Oesch - Pihlajamaa 2003, 69.

linear series of small steps each of which is based on the previous one.[134] The process is primarily vertical and mainly controlled by the state, with the control generally carried out by granting exclusive rights to the inventor. In this respect, the state acts as a "gate" for inventions; i.e., it has a monopoly to approve or prohibit the information included in inventions or innovations. Here, the state holds a powerful position in managing the production of information, inventions, and innovations.

The strength of this position is enhanced due to the significance of state-approved information. State-approved information is used in the linear invention chain and is the basis for additional inventions.[135] All in all, the state holds a *strong monopoly on inventions*. The state is the only institution that has the power to grant privileges regarding intellectual property rights. It therefore holds a monopoly on rewarding inventions by approving some and rejecting others. In other words, as a holder of the patenting power, the state directs inventiveness. This makes state governance characteristically rather vertical and at the same time static.

1.3 State governance as a static force

1.3.1 Verticality as a manifestation of state governance

Verticality is found in several varied elements of state governance. The fundamental basis of verticality rests upon the distinction between *controlled and free resources*. For example, intellectual property rights are an expression of the dichotomy of free and controlled in precisely this fashion. A patent, for example, is a fixed-term monopoly that grants a right to manufacture goods based on a certain invention. At the same time, a patent nevertheless draws clear lines of demarcation between free information, to be accessed freely, and closed information, to be accessed with the permission of the patentee. In this context, state governance determines precisely the way in which controlled resources and free ones are to be separated. The vertical structure is formed by the interplay of controlled resources and free ones. The layered structure of controlled and free resources in state governance is a reflection of verticality.

Exclusivity as a monopoly to utilize an invention is, however, not the whole content of a patent. As a patent is made complete by opening access to information, strictly monopolistic exclusivity and restrictedly opened access constitute opposite poles for the

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134 This kind of innovation model is called the *serial model* and it is fundamentally based on verticality. See Rahnasto 2001, 4.

135 This view is questioned by what is known as the *simultaneous model of innovation*. This model is based on simultaneously occurring innovations that are carried out in various places at the same time. It is thus not based on initial innovations but the cumulativeness of actions. See Rahnasto 2001, 4 - 5.

state governance. These dualistic poles reflect the verticality of state governance. This is part of the overall dualistic pattern that is the foundation of vertical governance structure of state. The verticality of state governance as the core of a patent may be found in the notion of information as both an excluded and an included resource. In this sense *information has a dual role* that is found in the inner scope of a patent.

Information seems to be one of the most common resources in the world. Just how common information is can be clearly seen in a patent when it comprises information as an included and an excluded element. A patent is *not a natural way* to draw boundaries. In nature, for example, where there would be no state, there would be no such thing as a patent. As such a patent is always an *artificial construction*. Accordingly, in pure nature, information would be the freest of all resources.[136] On the other hand, this means that there would be no legal institution such as a patent without governmental interference. Law itself has created the concept of patent and its scope. In this sense, copyright closely resembles a patent: a patent may be granted only for a novel invention; a work has to be original to be copyrighted. This is one further manifestation of verticality in state regulation, with the verticality even written into the requirements for obtaining a patent or copyright.

Society is based on relations, and state governance is often structured vertically in these relations. In this arrangement the state is generally the superior power that has a monopoly to organize rights and circumstances on lower levels. An illustrative example of this is *land ownership in the era of feudalism*.[137] Property essentially consisted of land and there did not even exist any private ownership in the modern sense. The social order and the governmental power relations were also directly derived from land ownership arrangements. Land ownership was thus the foundation of societal power positions. Land ownership was further arranged as *divided ownership,* and there were no restrictions on classifying ownership as a combination of different overlapping ownerships. The conceptual framework illustrated a hierarchical system of divided rights where the dominium - the most fundamental part - could not be shown to be a valid concept of private law. [138]

The hierarchical classification of concepts and the close connection between land ownership and social relations make divided ownership an illustrative example of verticality in state governance. Indeed, divided ownership in this form strongly implies the *fundamental verticality* of state governance. In these circumstances, divided ownership was arranged such

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136 See Lessig 2002a, 95.

137 The *doctrine of divided ownership* is a significant part of the overall conceptual frame of ownership, which in the era of feudalism was closely linked to the control of land. See Paasto 1994, 65.

138 See Paasto 1994, 46. At this time the difference between the two divided ownerships lay in the extent of their context. Property administration was divided between two owners. See Zitting 1952b, 316.

that there was no real owner in the present-day sense.[139] Ownership was complete when all the rights belonged to the same holder of the ownership. Divided ownership was just that. One of two joint owners had most of the ownership proper where the other was only entitled to stable possession and usufruct of landed property. Usufruct was bound to continuous services to the other joint owner. One of the joint owners was the direct lord (*dominus directus*), who possessed the ownership proper and had control of the ownership on the grounds of his part of the divided ownership (*dominium directum*). The other joint owner was called the suppressed owner (*dominus utilus*) and only had the right to use (*dominium utile*).[140] This dualistic existence was also a vertical division of power.[141]

Another good example of the divided character of ownership may be found in *immovable property*. Real estate is fundamentally constructed on absoluteness and exclusivity as the essence of property. In this sense, ownership is unrestricted in favor of the owner; i.e., it is absolute and exclusive control over an object.[142] It is generally impossible for there to be several different rights, or any multiple variation of rights, founded on one and the same object.[143] The absoluteness and exclusivity of ownership, however, appears in a slightly different light if one looks at the utilization of real estate. Utilization is not limited to the excluded right of the owner and there often exist several forms of utilization that are all based on different rights of different owners. In addition to the rights of the owner, there often exist rights of the owner of the neighboring estate. Likewise, everyman's rights give everyone to utilize immovable property.[144]

Divided ownership acts as a good example of vertical state governance if it is juxtaposed with intellectual property rights. Verticality in ownership may be structured as an *exclusive position of the state*. This is easily compared to intellectual property rights as an exclusive position. Intellectual property rights are granted by the state and the state monopoly is the only way to get any protection for an invention through intellectual property rights. No other institution is allowed to grant similar protection. In this sense, the state has a monopoly to accept or dismiss inventions. An illustrative example of this is the coexistence of a patent and information where state has the right to open access to information by granting patents. At the same time, the state uses its power to approve or reject inventions. When a patent is granted, the invention is approved and the necessary

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139 See Paasto 1994, 46 - 47.

140 See Calonius 1998, 217 - 218.

141 This was precisely the theoretical schema that was altered when ownership became defined as total exclusive power over an object. See Wrede 1946, 182 - 183.

142 See Määttä 1999, 193. On the other hand, it is impossible to describe the extent of ownership on the basis of the concept itself. The content is defined through legal norms regulating the owner's behavior and through individual norms set as part of contracting. See Zitting 1984, 649.

143 The other conceivable property rights are the limited rights in rem. Määttä 1999, 195.

144 See Määttä 1999, 196.

information is revealed to the public. This creates a strong and stable controlling function for the state, including the monopoly to direct inventiveness. Monopoly and exclusivity in this sense both reflect verticality in state governance.

The ownership of money can also be divided. Money cannot be destroyed even if it is part of someone's property. Money is thus essentially vertically structured. It belongs partly to the assets of the one who has acquired it, but at the same time it is property of the state.[145] This is well stated in the *law concerning coins*.(In Finland: *Laki metallirahasta* 3§.) One may not use money that is damaged nor does a creditor have to accept damaged money as a payment. The vertical structure of money and the state is reflected in the historical character of money. Money was not considered a valuable object but only an instrument for measuring the value of other things.[146]

1.3.2 Public versus private

Verticality in state governance is derived from the layered construction in governing resources. Those layers consist of free resources and controlled ones. Controlled rights are often called property, either private or public property. According to this dichotomy property may further be divided in two classes, explicitly exclusive property rights and collective property rights.[147] *Exclusive property rights* constitute the sphere of private property, or private goods, where exclusive property belongs to only one possessor at a time. This is the main difference between private property rights and collective ones, which are also called public goods, *res publicae*.[148] Private property rights are controlled by only one owner at a time, whereas *collective property rights* belong to a community. This is the fundamental difference between private property and collective property. Collective property rights allow for several consumers at the same time. Collective property, or *public property*, nevertheless has its implications for commerce when it opens access to communication

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145 This is well expressed in the origins of money, which point to state involvement. This is not to say that there have never been private monies, but in the development of the monetary system it was the government that played an important role in determining what would function as the unit of account. The state defines money as that which it accepts at public pay offices, mainly in payment of taxes. See Wray 1999, 42.

146 See Tolonen, H. 1992, 19.

147 An example of exclusive property is a piece of bread. If one eats a certain piece of bread, everyone else is prevented from eating the same piece. An example of public property could be sunshine, which is free for everyone to enjoy or consume. If one person is using the resource, it does not mean that others are prevented from doing so. See Kuronen 2000, 90 - 91.

148 Actually *res publicae* is an essential concept of Roman law, where the classic examples were roads, harbors, ports, bridges, and rivers. See Rose 2003, 96. Public property is also often referred to as *collective property rights* or *public commodities*. See Begg - Fischer - Dornbusch 2000, 280.

through transmission channels. For example, it increases communicativeness, acting at the same time as an instrument for creating a network effect and, thereby, for creating *societal synergy*.[149]

Private property is characteristically the *more strictly controlled* form of property. Exclusive property is usually *rivalrous and exhaustible*. It cannot be consumed by many at the same time because it may easily be overused. This is why several consumers often compete for use, which makes rivalry precisely the reason to make some classes of property excludable. Making it possible to exclude produced goods is for this reason a sound instrument for governing rights. On the other hand, exclusivity may be examined from a slightly different angle when the focus is on the *costs put into property*. Pure private property belongs only to the one who is responsible for the costs put into it. This entails buying things. When one buys a certain single item, for example, a book, one acquires ownership by paying the price. Buying a book is a typical consumer purchase.[150] Public property differs from private property in carrying the costs put into preserving the property. Another principal difference lies in defining who is responsible for the property. Public property makes it wholly impossible to define only one person who is responsible for the costs put into the property.[151]

In this sense public property may also be defined as *common property*. The costs are often borne together and everyone in society may then use the property or resource. Usually use by one person or even several people at the same time does not affect the possibility of others to use the property.[152] In this way, common property slightly changes the view on exclusivity and monopolies as the basis of property rights. What is known as new property is one more interesting example of the difficulties that arise from the fundamental character of exclusivity and monopolies as the core of intellectual property rights.[153] Characteristic of new property is that it is derived from the dynamics of the economy itself; that is, new property is fundamentally dynamic and hence cannot be constructed on the basis of excludability or monopolies.[154] The objects of new property are

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149 This synergy follows directly from the usability and extensiveness of the network. The more users there are, the more valuable the network is for all its users. See Rose 2003, 97.

150 The purchase of a single good has been considered the *prototype of economic interaction* in the traditional law of property. The background for this view is the notion of rights as complete relationships. See Pöyhönen 2000, 140.

151 See Begg - Fischer - Dornbusch 2000, 280.

152 See Begg - Fischer - Dornbusch 2000, 280.

153 New property is often *based on the future* and the events that are to occur some time later. It thus includes, for example, previously earned social benefits which are realized only in the future. Property like this is rather unlikely to fit into the traditional paradigm of (intellectual) property rights. See Pöyhönen 1999, 52.

154 In the context of new property, property rights often include several benefits that are not traditionally considered property. The scope of property thereby generally depends on the cultural and societal circumstances. For example, integrity and the right to vote may be

not constructed of the elements that are used as the cornerstones of traditional intellectual property.

One divergent factor where the sphere of control is concerned is the *possibility to utilize property*. Using private property excludes this possibility from others, whereas public property may often be used by several users at the same time. Consuming public property does not generally affect the possibility of others to use it.[155] One good example of the divergent characteristics of property is information. Information is usually considered public property but may become private when it is copied for purposes of private use. This actually modifies the nature of information in that there is some subjective factor involved. At the same time, the whole view of information changes, however, as the altered context changes the overall status of the information. This recalls the *dualistic nature of information*, which further underscores its special nature. The use of information may be dualistic, which in practice means that information is *both a private and public commodity* at the same time.[156] Privacy and publicity hence constitute the differing types of resources. State governance is likewise often based on the dichotomy between private and public. This correlates with the differences between the two classes of properties, i.e., public and private. Public property is usually controlled entirely by the government, meaning that the control is generally exercised by the state.[157]

On the other hand, the state has often operated as the main producer of productive resources, whereby it has owned productive power as well. This is the case with public property such as parks, streets, and the other parts of the *public infrastructure*. The tension between publicity and privacy as the core of state governance is thus grounded on the powerful status of state. The state has a powerful position in producing and allocating information. This creates a certain *ownership monopoly* for the state, one applying mainly to commodities that have typically been included in the sphere of public property. An illustrative example of this kind of state monopoly is the public infrastructure. The public infrastructure is a technical structure that makes it possible to deliver goods and commodities. It is mostly constructed of technical channels or passages that are mainly

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included in property. See Wennberg 2001, 137.

155 See Kuronen 2000, 90 - 91.

156 The dualistic nature of information is paralleled in the way in which quantum mechanics studies elementary particles. When analyzed mathematically these particles clearly illustrate wave motion. On the other hand, they also have an essence as particles that may be examined physically. See Kuronen 2000, 92.

157 This is actually a rather strong incentive for consumers to use property without paying anything for its production. In the background lies the well-known dilemma of producing resources for the private market, where consumers may possibly hide their preferences. Property could be used or consumed by anyone at all despite the money that a person has invested in it. On the other hand, no one can be excluded, because of the public - and thus common - nature of property. See Begg - Fischer - Dornbusch 2000, 47.

maintained by the state.[158] The interest of the state here is to preserve a controlling position in order to see to it that public infrastructures are created in the future and maintained.

1.3.3 Control versus access

The very basis of intellectual property rights lies in the positions of the privilege-holder and outsiders. These positions involve free access by the privilege-holder and the privilege-holder's right to control access by all others. In other words, the privilege-holder is free to access and to control access to information. The control thus affects the free as well as the privileged access of the privilege-holder and the access of the others that is arranged as a right to permit access by outside parties. This interplay of *free access* and the *right to control access* constitutes the kernel of the static nature of control-versus-access combinations.

The contrast between control and access may also be examined from a slightly different viewpoint - the divergence between the general domain of ordinary products, on the one hand, and classes of privileged intellectual goods, on the other. The general domain of ordinary goods remains part of the process that is subject to free competition, whereas privileged intellectual goods are subject to the legal monopolies of intellectual property systems.[159] The right to control the access of outside parties to the information constitutes the core of the overall invention. This is the scope of the dynamics that inheres in the communication of access and control. In this sense, defining the rights to control and to access, or the right to control over access, are not carried out in a void; control and access are always communicational rights.

This communication, like the dynamics, is carried out as a combination of the right to information and control over it. *Ulf Petrusson* writes that law actually acts as two overlapping systems, namely a system of knowledge and a system of action.[160] Petrusson compares law, patents and the overall patent system, and concludes that there always exists some degree of dynamics inside these systems. A patent ought to be examined as a *dynamic communicative system of ideas and actions*. Law, and patent law, are best described as ideologies that, in interaction with other ideologies, have a significant influence on the impressions and behavior of individuals.[161] Being this kind of communicative dynamics, the interconnection of control and access is continuous communication that mediates the societal rules of behavior and the protected scope of an invention.

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158 See Westman 1998, 33.

159 See Reichman 1994, 2434.

160 Petrusson writes about knowledge (*kunskap*). See Petrusson 1999, 5. The terms "information" and "knowledge" are nevertheless often used synonymously. See Karvonen 2000, 82 - 83.

161 Petrusson's view is based on the distinction made by Jürgen Habermas. Petrusson also connects his ideas to legal realism. See Petrusson 1999, 6.

This communicative character is actually the kernel of a *patent as a controlling instrument*. The communicative pattern is exactly how a patent operates, as it is used for controlling the information included in an invention. Control is hence firmly connected to constructing positions and including the right to control certain sets of information in these positions. Control of information or knowledge is necessary in order to exploit it commercially.[162] On the other hand, these positions are constructed by state legislation, as they closely resemble institutionalized ways to behave and essentially support the interests of the state. On the basis of this *controlling position*, the privilege-holder becomes capable of accessing information and exploiting it.[163] He or she also becomes capable of controlling access by others and even of excluding it. This is the very essence of the privileged position. This position is to be defined slightly differently when it is examined as a *behavioral concept*. This changes the overall view in that we can no longer discuss creating positions but influencing the behavior of people. The behavioral view may be essentially described as the management of knowledge or governance of knowledge.[164]

The behavioral view is best illustrated by examining it as being parallel to creating positions. The differences and similarities between the behavioral view and the position view may be examined by comparing them contextually. Here privilege as a control/access position is further examined as two diverging, restrictive lines - *monopoly* and *exclusivity*. Monopoly and exclusivity do not completely correspond to each other; they have at least one fundamental difference. Monopoly refers to the case where there is only one producer of a particular good, the monopoly-holder, and there is thus no competition. The monopoly-holder is the only one producing a certain commodity or service. Exclusivity may prevail even if there are additional producers. It is enough for exclusivity that a certain position is defined as exclusive at the level of rights. Unlike in the case of monopoly, in the case of exclusivity there does not necessarily have to be any competition to complete the position.[165]

A monopoly is essentially achieved through a certain market and market dominance. Therefore, where the position-creating is focused on defining statically those who have access, the behavioral view concentrates more on governing behavior. In this way, protection of intellectual property rights is often bound to the control of competition. Privileged positions are one creator of strong competitive forces. Through their privileges the knowledge producers and users endeavor to secure and control the ideas, technologies, knowhow and expertise on which their competitiveness depends. The central concern

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162 See Petrusson 1999, 6 - 7.

163 The control here is actually different from a monopoly. A monopoly is employed for excluding all others from utilization. This is generally realized by keeping information a trade secret. Trade secrecy easily leads to inefficient monopoly, whereas publicity would promote further innovation. See Bone 2001, 100.

164 See Petrusson 1999, 7.

165 See Petrusson 1999, 7.

becomes the long-term security of intellectual property.[166] A monopoly as an instrument to govern behavior or to control behavior is closely connected to the value of an invention. Control of information or knowledge is also defined as a value where the value is derived from the ability to control access to information. This value view resembles rather closely the position view. Control as a position may be compared with *control as a value*, the value-oriented view being more complete. The value of information is actually a rather idealistic view of governance.[167]

1.4 Some anomalies in the statics of state governance

1.4.1 Requirements for horizontality

State governance has preserved its superiority as an instrument to govern the stagnated and bureaucratized state organization. As fixed institutions, vertical and static state governance have clearly been sufficient for governing resources when they were mostly static in nature. The adequacy of static governance was basically due to two reasons. First, the overall schematic frame was static: it was more important to be able to govern the resources themselves than to be able to create dynamic systems of transference. In other words, *utilization was more important than trade*. This is still characteristic of the governance of non-traded resources or commodities.

There exists another approach to the schematic frame, according to which the static nature of the overall governance structure is by no means unnecessary, but rather essential to that structure. Within the scope of state governance, verticality is needed to illustrate the *schematic pattern of dominance and control*.[168] In the changing economic environment, however, the static nature of governance should be complemented through some additional features. The most important source of pressure here is the changing framework.

The framework will change in several ways. One significant way is the changing pressure placed on the characteristic verticality of state governance. Verticality as the core of state governance is directly derived from the significance of human and civil rights. These constitute the very kernel of state governance. Human and civil rights here include

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166 The relationship between the research and knowledge bases and wealth creation is the central concern of science and technology policies of today. The shortening of the product life cycle and development times places an emphasis on being technologically competitive. See Webster - Packer 1996, 1 - 2.

167 See Petrusson 1999, 7. The variety of intellectual property in different positions may also be described through certain *normative keys*. The first is the understanding of intellectual property as communicative actions; the second is the understanding it as regulative norms; and the third is seeing it as value visions. See Petrusson 2004, 13.

168 This may even be described as a command hierarchy where scarce goods are allocated by one central authority and backed up by force. In command hierarchies, social status is primarily determined by access to coercive power. See Raymond 2001, 80.

the traditional civil rights, such as protection of property, freedom of contracts and legal validity of contracts, freedom of occupation and freedom of trade. All these ensure for their part the functionality of the market.[169] On the other hand, the market is not founded merely on vertical communication or verticality in the communicative pattern. This is exactly where the human and civil rights involved change the static character of state governance.

The static nature of state governance is also questioned through the rebalancing of human and civil rights. Human and civil rights have some tasks that are employed as a driving force when the overall vertical structure of state governance is questioned. Human and civil rights also influence relations between individual actors; i.e., they operate *horizontally*. Their direction of influence is thus not exclusively vertical - this referring only to relations between the state and individuals[170] - inasmuch as the influence is also mutual, occurring between all the human beings living in the same community. Society thus operates on the *mutual recognition of rights*. All the members of society need to recognize these rights and accept the recognition of others 'rights to be able to live according to societal laws. Subjective rights are thus no longer fixed to atomistic individuals but are only the operating instruments of the actors in social relationships.[171]

1.4.2 Protection of the strongest position

Intellectual property rights are often considered as ownership. Ownership may be defined as falling into at least three different categories: copyright, patent, and trade secret.[172] All of these categories are different but are nevertheless based on rather similar foundations. All three give the right-holder a strong excludable and protected position. On the other hand, each of these excludable rights constitutes a slightly different position.[173] These positions are not monopolies. The strongest position in intellectual property rights is not founded on creating and protecting the strongest and the most powerful position in the market. In reality, a patent, for example, is not a monopoly, or even a limited monopoly. Granting a patent to an inventor does not imply that there is a market for the patented

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169 See Karhu 2004, 73.

170 See Karhu 2004, 73.

171 Human and civil rights also operate as instruments in the interconnected relationships of the members of society. The priority of human and civil rights and their fundamental focus is thus in horizontal relationships, not in the vertical relationships of citizens and public authority. See Tuori 2000, 100.

172 See Bynum 1998, 284.

173 However, it seems that it is precisely the trade secret that constitutes the strongest position. Trade secrecy may include any kind of information with no categorical subject matter limitations. See Bone 2001, 100.

product. On the other hand, without a market there would be no monopoly.[174] Thus the strongest position does not actually communicate with the market or the society but it is only a *static position*. The strongest position is thus not connected with the communicative character of an invention.

The protection of the strongest position has a slightly different basis. It is provided through exclusivity, which is the core of a patent. A patent only gives the patent-owner the right to exclude others from making, using, selling and importing the patented invention.[175] A patent does not guarantee any success on the market. This is why a patent is more likely to be considered as a possibility to make monopoly profits. Having exclusivity as the kernel makes the protection rather vertical, with verticality closely connected to the right-holder's *privilege to exclude*. This privileged position implies protection of the strongest position.

Protection of the strongest position is also questioned by considering the *project instead of trade* as a cooperative prototype of property.[176] The principal criticism lies in the relative nature of the legal relationship as the core of a project. A project is based on a comprehensive view of the cooperating stakeholders as the active or passive actors in the project. The project view is thus characteristically *rather horizontal than vertical*. Horizontality is realized by the interconnected stakeholders and the cooperation between them. This is precisely the difference vis-à-vis protecting the strongest position, for it is horizontality and the mutual communicativeness of a project that is to be protected rather than the strongest position.

The strict protection of the strongest position is highlighted in the paradigmatic *Magill case*.[177] The focus of the case was the right of a television company to utilize its dominating market position. The television company abstained from licensing the televison program for the following week and thereby restricted healthy competition among the weekly magazines that published television programs. The abuse of the dominating position thus did not occur by abstaining from licensing the television program but by restricting the possibility of other companies to publish the information about forthcoming programs.[178]

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174 See Quinn 2002, 150.

175 See Quinn 2002, 150.

176 When considered as a project, property need not be viewed any longer as a goal-oriented entity. See Pöyhönen 2000, 140.

177 Case *C-241-91P and C-242/91 Radio Telefis Eireann (RTE) and Independent Television Publications, Ltd. (ITP) v. European Commission*.

178 The abuse of the dominating market position occurred when the television company restricted the emergence of the potential market for weekly magazines by refusing to grant licenses without a good reason for doing so. It thereby reserved the secondary market for itself by restricting access to the information used as the raw material for the magazine. See Still 2000, 71 - 72.

1.4.3 The imperative priority of technology

Technology has been considered the driving force of overall development and as such it is one of the most essential factors of change in social cooperation. At the same time, change also affects societal life. Technologies are not significant in their own right but always exist in cooperation with society at large. Societal cooperation is one of the emphases in the crucial priority of technology in overall societal development. The development of technology and society take place in close concert. Technology does not exist separate from societal or cultural institutions but interacts closely with them.[179] The communication between technology and society is actually an essential element in technological development. Technology is still a crucial identification element in social life and societal development, but it is not necessarily the one that drives change. Technology is thus not necessarily considered a *driving force* in society. Accordingly, regulation does not pertain solely to the regulation of new developing technology but sets out the prerequisites for society at large.[180]

The priority given to technology is rather strongly challenged by the communicative character of the complex of technology and society. This communication is one of the most important factors in looking at technology as one of the cooperating elements in societal life. The priority of technology is examined and redefined through two different aspects of patenting. First, communicativeness as the core of technological development affects the *definition of technological invention*. Technological development establishes its scope on the basis of the continuous search for patentable inventions. In this way, each individual invention may be defined as the result of a communicative process.[181] Likewise, technological development cannot be considered as imperative as technological determinism in its purest sense would claim. Rather, technological development is more like a *search for a sufficient interface*. The interface is not, however, static, as in the pure definition of inventiveness, but functional and in *continuous evolution*.

The imperative character of technological development is also examined through the *prerequisites of patentability*. This is clearly seen in the patentability of new areas of technology.[182] An illustrative example is the patenting of business methods, which enlarges the scope of patentability considerably. In business method patents it is precisely the requirement of sufficient technological application that is the basic requirement for

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179 Technological development is actually a combined result of societal, economic, and political circumstances and structures. See Lehtonen, M. 2000, 90.

180 This may still be constituted of new, developing technology. See Lundblad 2000, 12.

181 See Petrusson 1999, 165.

182 See Petrusson 1999, 166.

patentability.[183] Here again, the fundamental prerequisites of patentability and the scope of patentability are in continuous, reciprocal communication. The imperative character of technology is also changed slightly with the modification of the requirements. It is precisely through communicativeness that this change affects the deterministic character of technology. The change in requirements always communicates with the external forces of change and thus it is no longer technology that sets the pace of development.

1.5 Summary: A change in the balance of static processes

State governance clearly tends towards the static when the governing instrument of the state is *based on power*. The power to use power constitutes the sovereignty of the state, whilst this power constitutes the core of state governance in its entirety. Power acts as a connecting link between the state and the different values embedded in state governance. On the other hand, the *value orientation* of state governance, together with its connection to the utilization of power, makes the governance structure vertical. Verticality is based precisely on structure in the form of certain levels in governance. At the same time, verticality makes state governance static. Staticness and verticality are characteristics of state governance in organizing the governed rights at certain levels.

The verticality and staticness of state governance is clearly manifested in human beings 'dominance over both nature and other free human beings. The coexistence of nature and human beings is illustrated in technological development as a transitional force of society. This coexistence can also be described as an *interplay of technology and society*, where the change in the amount of technology and the pace set by technological development are concurrently considered the most powerful driving force. This technological development connects people and nature, however, and establishes their relative priority. In other words, this may also be described as the coexistence and cooperation of technology and society. This is where the first of the pressures for change arises. Technological determinism is never a static development but always dynamic societal acceptance. Technology needs to be accepted by society until it may theoretically become a driving force. Introducing new technology is rather more like the *horizontal spreading* of technology and *dynamic governance* of this. This is where static state governance may prove unsuccessful.

State governance includes some interests that the state maintains or preserves as a stakeholder. First, state interests derive from the distinctions between *controlled and free* resources. Both control and free access partly preserve the interest of the state. Control is often based on monopolies that are granted by the state inasmuch as the state governs the overall utilization of societal resources. This makes governance necessarily vertical with the

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183 Another good example is found in the field of biotechnology, where the view of technological application has also changed contextually. See Petrusson 1999, 166.

balance tilted towards a static state. On the other hand, strictly monopolistic exclusivity and restrictedly open access constitute opposite poles that are part of the verticality of state governance. Control is defined as certain *positions or roles* given to the right-holder. Control may thus be described as a strong position that grants the right to control the access to information. This position may in fact be described as the strongest one, because it grants the position-holder a *privilege to access* the information freely him- or herself. It is then the divergence between the right to access and the right to control access that constitutes the further definitions that are connected to control of and access to information. The privilege-holder acquires the right to govern the overall behavior with respect to the information. These two rights then further create the value of the information or invention, i.e., the privilege as a control position and ability to govern the behavior. None of these positions is significant alone, but they are all *essentially communicative*. They are always used in any communication.

The communicative character of control and access is where the most serious problems or pressures for change emerge in state governance. State governance is basically founded on a certain fixed structure. The foundation of this governance structure is a verticality that is not very communicative, or at least not communicative in as versatile a way as the *architectural communication* of rights would require. If state governance includes any mutual communication, this communication is likewise static and hence vertical. As it stands the governance structure is not sufficient to fulfil the *needs of the communicative network economy*. In the network economy there is a crucial need for dynamics as well. Statics are not, however, completely useless. They are needed for *consolidating the kernel* of the governance structure but must be complemented by some other elements.

State governance is necessary for governing what is a stagnant and bureaucratized state organization. Vertical and static state governance are thus connected and have clearly been sufficient for governing resources when they were mostly static in nature. This has been especially the case when utilization has been more important than trade. In the area of state governance, verticality is needed for illustrating the characteristically vertical pattern of dominance and control. The communicative architecture, however, ought to be developed to become more functional. The *pure vertical pattern* is no longer sufficient to fulfil the requirements of continuous functionality but needs to be complemented by an *interplay of actors*. This indicates that the vertical structure ought to be made part of the horizontal one.

Technology and society are developed in *mutual interaction*, with communication between technology and society essential to this development. Technology is still a significant feature of societal life and societal development but it is not necessarily a driving force in society. The communicativeness of technology and society has made this relationship slightly equivocal. The questioned priority of technology has been redefined through both the altered view on defining technological inventions and the continuously changing requirements for patentability. Both of the fundamental elements of patentability

bring some *functionality* to an otherwise static system. Functionality is thus the most important factor when constructing and refining the architecture for governing functional rights. That architecture is mainly based on plausible cooperation between static and dynamic forces. This cooperation is carried out by combining the vertical elements of state governance and the dynamic elements of markets. Rebalancing is then carried out by making the protected positions more relative to one another. This is possible only by complementing the privileged position of the vertical governance structure by dynamic elements. Lastly, the rebalancing needs to be carried out in a dynamic interchange. This is exactly what is done when the elements of protectability are reexamined and redefined.

2 THE MARKET. MANAGEMENT, GOVERNANCE, OR BOTH?

2.1 The basis of the functionality of the market

A market is communication. Communication in the market is carried out through *exchanging goods and services* on the market and receiving money for those goods and services. This forms the core of the functionality of the market. The market is a *mix of statics and dynamics* consisting of the interplay of both these elements. Statics are reflected in the exchange of goods through the stability of property. Property is transferred to other actors, i.e., exchanged, but the property itself remains essentially unchanged. On the other hand, dynamics come to the fore in the act of exchange itself, which is characteristically dynamic.[184] On these grounds objects get both utility value and exchange value. A market may be examined as o*bject-oriented* when the focus is on the exchangeable goods, or as *subject-oriented* when the fundamental focus is on the cooperation among stakeholders. Such an economy is considered static, with rights generally defined and enforced in terms of tangible property.

An object's utility value is basically derived from its ability to fulfil needs, whereas its exchange value is fixed to its ability to create an opportunity to earn money.[185] Exchange as dynamics and the use of property in an exchange together form the core of the rights governance and rights management systems. Governance is adaptable to the needs of both the state and the market. How governance is implemented differs slightly, however, depending on the circumstances. The fundamental difference lies in the degree of authority in organizing the governance. Market governance is fundamentally organized without state authority beyond the organizational structure. If there does exist some authority, it is different in kind and rests on different bases than the governmentally authorized body of state governance. State governance is generally carried out by the sovereign, the sovereign often being the state itself.[186]

The lack of governmental authority is the fundamental difference between the governing mechanism of the market and that of the state. The most profound difference

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184 This is mainly based on the dualistic usability of objects. Every object has a dualistic foundation in its use. For example, a shoe may be used by wearing it when walking; this is considered to be the *natural use* of a shoe. On the other hand, a shoe may be *used in exchange*, whereupon it takes on an exchange value. See Karapuu 1983, 49.

185 See Karapuu 1983, 49.

186 The similarity of state governance and market governance is clearly revealed if one notes that market governance is also based fundamentally on sovereignty. One difference lies in sovereignty's role as the core of private property, where it is based on the relations between persons in respect of an object rather than the relations between a person and an object. See Drahos 1996, 147.

is based on the implementation of market governance by business organizations rather than state organizations. Market governance is also often called *market management*. The difference between the terms "governance" and "management" lies in the forms of governance. Management usually concerns business and business activities and is focused on effectiveness in *allocating profits* and resources. It is hence often connected to allocating wealth or income. The term "governance" is more likely to be used for describing only the *governmental activities* that need to be organized in a sustainable way. Management is thus usually associated with business or money; governance, on the other hand, is more likely to be described as organizing the rights and duties of citizens.[187]

There exist, however, similarities in these two parallel forms of allocating advantages and rights. Governance and management are rather similar with respect to their formative elements. One fundamental component of both is sovereignty. State governance is crucially based on sovereignty, the sovereign being the one in whom authoritative power is vested. Market management, too, is based on sovereignty.[188] The functionality of the market has communicativeness as its very foundation, communicativeness being needed to connect both governance governing the rights and duties of actors as stakeholders and management sustainable system.

2.1.1 The market as communication

The market is communicative interaction. As a communicative structure, the market fundamentally consists of societal cooperation. Put more generally, the market and the monetary economy may be seen as acting as creators of a certain lifestyle in the sense described by *Georg Simmel*. Money produces certain behavior and this behavior is then produced and ensured for everyone who is operating through it.[189] As such societal life is founded on the economy and social relations are communicated through economic ones. This communication needs to be governed to become a functional and well-organized society, and governance requires an effective governance tool. For the market this tool is money.[190] As a tool of governance it is used as an internal system to reconcile the different interests of market actors. This internal allocation is based on the overall functionality of the market itself.

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187 In relation to the market, management denotes a tool to control someone or something. See Collins Cobuild English Language Dictionary 1987, 882.

188 This is a rather fundamental issue. Sovereignty has usually been considered a concept of public law, while property usually features as an aspect of private property. See Drahos 1996, 147.

189 Likewise, the urban culture creates a certain mentality. See Noro 1991, 14.

190 See Karhu 2004, 77.

Communication within the market greatly illuminates the cooperation and coexistence of governance and management structures. This is especially due to the fixed connection between society and the economy and is derived from the needs of both the governance of behavior and the management of wealth. Wealth is obviously managed through money by allocating income to the relevant people. Wealth management actually constitutes, at least partly, the governance of behavior by money. Money is further used for governing the interplay of divergent interests of market operators. This governance may likewise be described as the *communication of stakeholders in the market framework*.

The market is composed of certain market operations that further constitute the *market framework*.[191] Market operations are based on three definitive prerequisites. A market will be formed wherever there is some *supply and demand*. Both are necessities in creating any communication at all. Further, supply and demand are connected through *exchange*. Only exchange makes a market functional. The third prerequisite for a functional market is that commodities have a *price*. This means that the mere static structure of supply and demand is not sufficient for a market. It is only exchange as a functional aspect and a market price as a contextual aspect that together create a market as a dynamic entity. Dynamics are utterly crucial for the market as a functional whole. In other words, *dynamics are the market*.[192] It is precisely the dynamics in the market that give rise to the requirement of some degree of governance.

2.1.2 The tragedy of commons

The superiority of private ownership over public is based on better economic efficiency or the necessity to govern scarce resources by private instead of common ownership. If a resource is really scarce, and if there are a number of people who have a free right to use this resource, these users will *exhaust the resource* by their overuse. Overuse is caused by free access to resources that are often produced publicly and offered freely for consumption.[193] People often overuse resources that they own in common because they have no incentive

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191 Traditionally, the market was described as a certain *physical place for trading*. The modern market is, however, independent of place, and the concept of market thus sooner describes trade as market operations. See Virtanen 2001, 132.

192 This requires that commodities are produced, or at least that they are placed on the market. Additionally, there must be consumers for those commodities. The supply and the demand frame thus rather essentially defines the market. See Begg - Fischer - Dornbusch 2000, 9.

193 This is generally avoided by excluding external parties from the utilization of property. This is often referred to as a *static benefit of property*. If the owner cannot exclude others from using his or her property (e.g., a pasture), there will be overgrazing because users of the pasture will ignore the costs of grazing. See Landes - Posner 1987, 266.

to conserve them. This problem is often referred to as the *tragedy of commons*.[194] The tragedy of commons is closely bound to individual incentives. Every individual with the right to use common property will have an incentive to be as effective as possible in getting the resource. Put simply, everyone wants to use the resource before others do.[195] Every individual maximizes his or her use in order to maximize his or her share of the property. These tendencies, so the argument goes, will inevitably lead to an unwanted outcome, the exhaustion of the resource. Therefore, and especially in the world of tangibles, rights are generally recognized only when there is a public benefit to be gained.[196]

Restriction on recognizing rights are thus imposed in order to preserve scarce or diminishing resources. The fundamental aim of recognizing private rights only minimally is to prevent the exhaustion of resources, for example, by overgrazing or overfishing. This does not, however, mean that privatization will occur whenever there appears some value that could be acquired.[197] The tragedy of commons is thus closely bound to the *free-rider problem*, which pertains precisely to publicly owned goods that are not produced for trade. Public goods are available to anyone to consume and for this reason they may easily become overused and exhausted.[198] In this respect, public goods and commons resemble each other closely in scope. Both involve the same dilemma of ensuring the production of public or common resources and the right quantities of them.

The free-rider problem emerges in intellectual property law as well, where intellectual property rights are normally used to simulate innovativeness.[199] Without proper protection, ideas could simply be taken and exploited without any cost put on them by any other actor than the inventor.[200] The free circulation of ideas is an essential element in the

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194 The metaphor "tragedy of the commons" was first introduced by *Garrett Hardin* to help explain overpopulation, air pollution, and species extinction. It can briefly described as maximizing one's gain in a free and uncontrolled environment. The tragedy of the commons is examined among herders and it has a positive and a negative component. The *positive component* is a function of the increment of one animal. Since the herders receive all the proceeds from the sale of the additional animal, the positive utility is near +1. The *negative component* is a function of the additional overgrazing created by one more animal. Since the effects of overgrazing are shared by all herders, the negative utility for any particular decision-making herder is only a fraction of -1. See Hardin 1968, 1243 -1244.

195 This is, for example, using nature as a common good. On the other hand, it has sometimes been thought that nature would be better preserved and its diversity better maintained through private ownership. See Wallius 2001, 9.

196 In other words, private benefit has not usually been a sustainable justification for any rights. *Rochelle Cooper Dreyfuss* questions the rationale of business method patents. These patents do not serve any public benefit, as they do not suffer from the free-rider problem nor is there any need for disclosure. See Dreyfuss 2000, 274 - 275.

197 See Dreyfuss 2000, 274.

198 On public goods, see Begg - Fischer - Dornbusch 2000, 47.

199 Constructing intellectual property rights has actually been considered as only one more solution to the free-rider problem. See Dreyfuss 2000, 274 - 275.

200 See Reichman 1994, 2443.

innovative framework of the digital economy and is often referred to as *innovation commons*.[201] It entails threats as well, however, one being the tragedy of commons. In the case innovations, however, the tragedy of commons may easily be avoided by considering innovations and ideas as non-rivalrous resources: as non-rivalrous resources, they are naturally non-exhaustible and therefore no tragedy of commons arises. One sustainable solution to the tragedy of commons would be to *reorganize the mutual relation* of resources and society. The scarcity of resources may best be addressed by removing scarcity, the usual reaction having been to impose strong control that has made the resource even more scarce.[202] This would be very feasible in the case of innovations, provided there is no continuous effort being made to privatize information and knowledge.

On the other hand, the aim is to encourage management of resources and especially the governance of them. The tragedy of commons actually presumes that it is possible to organize the governance of rights on only two different kinds of foundations, i.e., private law or public law. Governance models for any resource thus have only two general options: regulation by public law or the private law market framework. The public law alternative has high transaction costs and may lead to ineffective modes of action. The self-regulation of the markets entails high risks of social injustice and a constant danger of monopolies compromising the freedom of competition. If, instead, a resource is given to someone as private property, that owner will price the resource and therefore have an incentive to keep the resource functioning for all possible users. Other individuals in need of the resource will price their requirements in accordance with how much they value that resource. Such incentives for behavior are economically efficient. Therefore, private property as a means of governance will benefit everyone in the end.

The problem of the tragedy of commons may be examined through its opposite, i.e., the *tragedy of anticommons*. In the tragedy of commons a resource is prone to overuse when too many owners each have the privilege of using the resource and no one has a right to exclude another. Use of the resource is therefore completely free, and thus uncontrolled. In contrast, in the tragedy of anticommons, a resource is prone to underutilization when multiple owners each have a right to exclude others from a scarce resource and no one has an effective privilege of use. As such the tragedy of anticommons partly even complements the concept of the tragedy of commons as it explains the underutilization of resources. The problem of underutilization may easily emerge when governments give too many people

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201 See Lessig 2002a, 23. This kind of innovation commons is well described in the problem of open code software, which is based on the view that every problem is transparent to somebody. Thus, the person who understands and fixes a problem is not necessarily or even usually the one who first describes it. This is in fact one of the huge advantages of open code software. See Raymond 2001, 30.

202 See Lessig 2002a, 47.

rights to exclude others.[203] In this perspective, the threats from the present system of intellectual property rights are clear.

2.1.3 Private property in wealth management

Wealth management is mainly based on the decisions of the sovereign. Sovereignty is generally considered to be characteristic of state organizations as holders of the supreme authoritative power in society. The state as a governing body is likewise usually considered as the *sovereign executive* of the supreme directive force in the state.[204] As a state-based force, the sovereign is entitled to govern the overall behavior in society. State governance strives for dominance and domination may be focused on the behavior of a large group of people, or even the whole country. The sovereignty in state governance is fundamentally based on the vertical relation of the state and the individual. This obscures the foundation of private property.

Private property may nevertheless be described as a sovereign position as well, albeit not completely equivalent to sovereignty in state governance. Private property as sovereignty no longer concerns the behavior of a large group or a mass of people, but is carried out *more in terms of relationships*. Namely, the sovereignty that is the core of private property is based on the relations between persons rather than on the vertical relation of the superior and the suppressed. This relationship is a mutual relationship between individuals rather than a pure relation between a person and an object.[205] The relations of the individuals are further shaped in respect of an object. That an *object is the focus* the relations makes this consortium *characteristically a manifestation of property law*.

The private nature of this complex relationship as one of property is further represented by its stable connection to the rights of individuals. This connection to individual relations makes private property a tool of sovereignty.[206] Sovereignty is therefore derived precisely from the legal relationship that makes up the basis of ownership itself. A legal relationship as the basis of ownership contains the correlative positions of right and duty. Sovereignty is thus constituted of the position of the sovereign in the relations of

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203 Privatization can thus solve one tragedy but cause another. See Hellner - Eisenberg 1998, 698 - 699.

204 See Grewlich 1999, 20.

205 See Drahos 1996, 147.

206 On the other hand, private ownership is based on certain overlapping principles that set the foundation for the functionality of ownership in society. The first is a *combination of effectiveness and utility* as a reasonable way to organize the use, possession and transference of objects. The second consists of *justice and equality* as, on the one hand, a *"floor thesis"* whereby everyone must possess a minimum ownership and, on the other, a *"gap thesis"* placing the limits on the necessary inequality. The third principle is *profit for labor*. Labor is considered a merit that justifies ownership. See Paasto 2004a, 51 - 52.

right and duty. In his or her position as a sovereign the property owner has some capacity to control others. This capacity is explicitly manifested in the owner's right (claim-right) as against other individuals, who have a correlative duty.[207] Private property largely prevents the free-rider problem that may easily apply in the scope of public property and common goods. The free-rider problem is the crucial explanation for not producing public goods in the private market; in other words, public production is precisely the result of an *unwillingness to pay* for goods. A free-rider consumes goods without paying for his or her consumption. This is also why the free-rider problem tends to be applied particularly to public goods: their consumption is different from consumption in the case of private property. Public goods are not sold to anyone, but are available for anyone to consume.[208] Private property is an effective tool for managing wealth when it is crucial to prevent the free-rider problem.

The *right to capital* is one of the defining characteristics of private ownership. The right includes the owner's right to destroy, consume, and alienate the object of ownership.[209] It has even been asserted that whoever has the right to capital is considered the owner of the object.[210] The right to capital has some additional characteristics that have been constituted to secure it: security in possession, security in use, security in management, and security in income have each been considered varieties of ownership.[211] In this sense capital may be variable. Property does not necessarily include traditional capital or property in its traditional sense but is more dependent on society and cultural circumstances.[212]

The role of private property in wealth management can further be explained on grounds that are fundamentally based on the interests of society. Wealth management is based not only on private individualistic interests but more generally on societal interests as well.[213] This is exactly why private property is considered a useful instrument in wealth

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207 See Drahos 1996, 148.

208 The free-rider problem causes problems in ensuring the production of resources or the correct amount of them. See Begg - Fischer - Dornbusch 2000, 47.

209 The right to capital is one of the fundamental elements of private property. The others include the terms of protection, extension, restriction, or elaboration of the right to capital. See Becker 1977, 20.

210 In other words, this means that the other elements of ownership may even be lacking, if only the right to capital remains. In this sense, the right to capital may be considered the most fundamental element of ownership. See Becker 1977, 20 - 21.

211 See Becker 1977, 20.

212 Property rights generally have two significant elements: the value of property rights may be defined in monetary terms, and property rights are exchangeable. In this sense even traditional civil rights may be defined as property, although we do not usually value them in monetary terms. This is exactly the influence of the societal and cultural circumstances. See Wennberg 2001, 137.

213 See Wilhelmsson 1983, 139.

management. The arguments may be roughly differentiated into two categories on the basis of their implementation. First, private property is justifiable when it is *based on activity*. One who has been active in producing wealth has his or her labor rewarded. The reasoning is rather parallel to rewarding creativeness and inventiveness by granting intellectual property rights. Activity thus strives to increase the entrepreneurial spirit and labor. Second, private property is justifiable on the *grounds of rationality*.[214] Rationality in wealth management through private property is based on increasing flexibility and practicality in exchange. This is carried out for example by making the utilization of time and labor more effective.[215]

2.2 Interests in the market

2.2.1 Commodification as creating property

The market is communication. As a communicative framework the market is essentially based on the *coexistence of certain functional elements*. It is the union of supply and demand. In the market framework, the connection between supply and demand has some further implications. One of the fundamental prerequisites is the *existence of exchangeable goods*. A market typically requires that there exist some goods to be exchanged. Static resources are not enough for a healthily functional market. Resources as such are essential for a market as well, but their principal problem is that they are not yet necessarily in the form of commodities; i.e., they have not (yet) been commodified. Exchange that is based on such resources is relatively uncertain. Therefore, for the sake of the market and smooth exchange, there exists a crucial requirement that some resources be converted into commodities. The commodification of resources thus derives from the fundamental needs of the market.[216]

The commodification of resources has some other advantages from the viewpoint of the market. The most crucial of these is the *functionality of the market* and the *price of goods* in it. The proper pricing of goods further ensures that goods may be brought onto the market and exchanged. This is one of the principal advantages of the commodification of resources. Since commodified resources can be properly priced, they may likewise be properly exchanged. As such they may further be defined as property when commodification is carried out by converting resources into property. Commodified property has some further qualities that make it fairly stable, and thus usable in market

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214 See Zitting 1951, 120 -121.

215 See Renner 1949, 84 - 85.

216 The present framework of the market is fundamentally based on three overlapping and changing elements: marketization, commodification, and extensive exploitation of technology. The most widely employed technologies are electronics, computer software, and biotechnology. See Tepora 2004, 181.

exchange. One is that such property is absolute and exclusive, which means that the owner is free to decide how it is utilized.[217]

To be utilizable, property often needs to be in a tangible form. Accordingly, commodities are often characteristically *associated with tangibility*, and commodified resources are often treated as physical objects.[218] Tangibility is also often considered the core of intellectual property rights. Ideas and creations are rather impossible for society to exploit as such and therefore they need to be converted into tangible goods to be utilizable for the needs of society; i.e., they have to be commodified.[219] Therefore, when commodified, even intellectual objects are made to look like and to serve as physical tangible goods.[220] Their commodified character makes them exchangeable and marketable. Without a commodified character, intellectual creations would easily be left out of exchange. Commodification is effected by creating control through intellectual property rights themselves. On the other hand, things that are by their nature incapable of ownership, i.e., *res communes*, must be turned into *res nullius*, i.e., things that are not yet owned but are capable of appropriation.[221]

Commodification is thus a means of *converting resources into goods* and commodities, forms in which the resources are better suited to the needs of markets and exchange.[222] Thus the most significant advantage of commodification is that it makes it possible to view intangible resources as tangible, and thus as *transferrable* ones.[223] Commodification is closely

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217 Absoluteness and exclusivity constitute the core of private property. See Tolonen, H. 2004, 205 - 206. The owner thus possesses all rights that are not excluded. See Zitting 1984, 649.

218 However, pure commodification has its counterforce, branding. In the market, branding ensures that commodities do not have to remain mere commodities but are increasingly sold under heavily advertised brand names. See Kotler 2003, 425. The capitalization of material values is more and more complemented by a focus on capitalizing the intellectual values related to the use of products. In this way, a car understood as a material phenomenon will be distinguished from a car understood as intellectual property. See Petrusson 2004, 24 - 25.

219 On these grounds, the main task and starting point of intellectual property rights are often considered to be converting ideas and intellectual creations into means of production and exchangeable goods. See Bruun 1983, 161. On the other hand, the fundamental prerequisite for reproducing knowledge is the ability to convert it into a commodity. Commodifying knowledge is thus a vital prerequisite for knowledge to gain exchange value. Under technocapitalism, knowledge takes on the properties of a private commodity. See Suarez-Villa 2001, 5.

220 *Niklas Bruun* provides an illustrative example: when *Gutenberg* invented the art of printing, he produced a new invention as well - the book. See Bruun 1983, 161.

221 See Rose 2003, 95. Sometimes things that are part of res nullius may also be considered *res omnium* (property of everyone). The appropriation would be carried out in a certain community possessing a piece of land. See Paasto 2000, 349.

222 For example, converting knowledge into a commodity is the core of its reproduction. The very act of reproducing knowledge turns it into a commodity, whereby it also acquires some exchange value in addition to its utility value. See Suarez-Villa 2001, 14.

223 One good example of this is patenting. The growth in the number of patents and the growing importance of patenting during the twentieth century reflected the rising value of technological knowledge as a commodity. See Suarez-Villa 2001, 7.

connected to ensuring that goods are exchangeable. Commodification has, however, one more implication that is even more salient than converting intangibles into a tangible form. Namely, commodification has a direct connection to the *control of access*. Commodified resources are often easy to control. This is evident, for example, in the commercialization of public-sector information.[224]

Information also provides a counterexample. The change in the *balance of commercialization and commodification* is totally invisible in the interpretation of copyright in the digital framework. Culture has been commercialized by enabling right-holders to circulate copies of their work for a certain fee. Information, however, was never turned into a perfect commodity, because of the limited controlling power of the right-holders.[225] The character of copyright has nevertheless changed towards maximizing the profits of the right-holders. This implies that all the economic potential of the information is to be utilized. Indeed, it is now customary to speak of the *information market*, meaning that information has become a complete commodity that brings with it a set of rights to control all access to and utilization of information.[226]

2.2.2 Scarcity as increasing value

The amount of resources in society is variable.[227] In this variation, commodification is usually used for drawing boundaries with regard to resources. Boundaries are drawn despite the quantity of a resource, i.e., regardless of whether it is plentiful or insufficient.[228] In all these cases the boundaries to be drawn always *create some restrictions* on the use of the resource. In other words, the use of a resource or a commodity is made controllable. Commodification thus clearly correlates with scarcity in that resources that are commodified are at the same time *made scarce*, with scarcity then increased by controlling

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224 Public-sector information has several qualities that make it suitable for commercial services. It is usually comprehensive; it has been collected over a long period of time; it serves essential purposes of the infrastructure; and it is usually collected by a neutral body. See Burkert 1993, 12.

225 Copyright law has always had exceptions that are based on the limited controlling power of the right-holder. See Elkin-Koren 2002, 83. An example of these limits is *private use*, in Finland set out in *Copyright Act 12§*. These limits are also realized through free speech, which is included directly in the copyright system. See Oesch 2005, 364.

226 See Elkin-Koren 2002, 83 - 84.

227 It is illustrative here that knowledge and creativity have been considered the scarcest resources today. They are scarce because they can only be acquired over long periods of time and through great effort and persistence. See Suarez-Villa 2001, 5.

228 The fundamental difference between gift cultures and exchange cultures lies precisely in their different view on scarcity. Gift cultures differ from exchange cultures in that the exchange cultures are characterized by scarcity whereas the gift cultures are more likely to be based on abundance. In gift cultures, social status is determined by what one gives away, not by what one controls. See Bergquist - Ljungberg 2001, 305.

the use of the resource. Control and restrictions in the utilization of resources play the main role in this scarcification.

The ability to control the utilization of resources correlates with the market value of the resource. The more valuable it is, the more exchange of it there will be.[229] Scarcification is especially fundamental when the resource is originally plentiful. This means that in nature the resource in question would not be insufficient even if everyone were consuming it. Among the plentiful resources of the world, sunshine is seldom scarcified, whereas language more often is. For example, copyrighting language truly makes it scarce.[230] It is possible to copyright even the words of a language, although they have to be in the form of a list. According to *Supreme Court of Finland* in case *KKO:2005:43* (S2003/594) a list of words making up part of a textbook was protected through copyright.

> KKO:2005:43. A textbook used for studying a foreign language included separate reading and vocabulary sections. Company X had, without permission of the copyright-holders of the textbook, copied the vocabulary on a computer-readable diskette and begun to market it, whereby the company, according to Copyright Act 2 §, infringed the copyright of the author of the textbook.[231]

Scarcification is thus employed as a tool to *create value* for commodities.[232] It is property especially that is expressly made scarce. The value of a scarce resource is best illustrated when scarcity is *contrasted with plentifulness*: the two have a fixed mutual relationship.

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229 This is based on the *pattern of supply and demand*, which is further based on the interplay of utility and scarcity. Utility is the first requirement for an economic object to exist, with scarcity added as a second determinant factor if the object is to acquire a specific value. Supply would thereby correspond to scarcity and demand to utility. See Simmel 1978, 90 - 91.

230 Scarcificaton of a language is often complicated. According to the Copyright Council of Finland the words of a language are not considered copyrightable. See *Copyright Council of Finland TN 1995:16*, 1. The Copyright Council of Finland consists of the principal copyright-holders and users of copyrighted works. Everyone is free to ask for an opinion of the Council. The opinions are, however, not binding but only recommendations. The status and task of the Copyright Council are based on the *Copyright Act (442/1984), article 55*: "The Council of State shall appoint a Copyright Council, the function of which shall be to assist the Ministry of Education in the handling of matters pertaining to copyright and to issue statements regarding the application of this Act. "

231 Article 2, subsection 1 of the Copyright Act of Finland reads as follows: "Subject to the limitations stated hereinafter, copyright includes the exclusive right to dispose of the work by making copies of it and by making it available to the public, in either the original or an altered form, in translation or adaptation, in another literary or artistic form or by other technical means. "

232 This applies to physical goods, where there is a direct correlation between scarcity and value. For example, gold is more valuable than wheat. The case is, however, often precisely the reverse. Most intellectual goods increase in value as they become more common. This is precisely due to the importance of familiarity in the area of intellectual goods.
See Barlow 1994, http://wired.com/wired/archive/2.03/economy.ideas_pr.html

Plentifulness is often converted into scarcity in order to create some value for the resource, whereas scarcifying resources that are already scarce strengthens the proprietary character of a commodity. Thus scarcification does not concern only plentiful resources but may concern scarce ones as well. Occasionally, different degrees of scarcification may be distinguished. Scarcification occurs more readily when the resource is already characteristically scarce. The gradational difference in scarcifying scarce versus plentiful resources is further connected to another fact: scarcifying is often *artificial*. This means that the boundaries are drawn artificially, with scarcification often carried out by law. When a resource is scarce by nature it is often *valuable as such*. A good example is pure nature, which contains some value for everyone of us. An even more relevant example is gold and other precious metals. Scarcifying takes place when creating value for those resources that are already scarce by their nature.

Making resources scarce is crucial for creating property given the value-creating character of scarcification where resources are concerned. Scarcity directly represents the value of a commodity: only scarce resources may be valuable and this places scarcification at the core of the overall value-creating process. Property rights make it possible to allocate scarce resources. This is one of the most fundamental explanations of the fixed correlation between scarcity and property. Scarcity is created by imposing restrictions on the utilization of resources. Creating scarcity entails an increase in the controlling power of the possessor of the scarce resource. In this respect, scarcifying resources increases the exclusive power over the resource. Exclusivity is also used as a tool to create value and thereby correlates rather closely with scarcity.

Scarcification does not, however, work alone, but must be complemented through some additional mechanism. In order to become useful for market purposes resources need to be modified. For market purposes modification is carried out first by *classifying* resources. Classification is thus a basis for creating scarcity in resources; it is carried out by separating scarcifiable resources from resources in general.[233] Separation is carried out though exclusion, which then acts as an instrument to create scarcity in the excluded resources. Exclusion has another close connection to classification; namely it makes the resource *definable* and specifiable. Further, an excluded and thus defined resource may again be considered a commodity and as such a single object. Definability thus makes it possible to construct property rights attached to a commodity and to own it.[234] Accordingly, making a product scarce means making it *suitable for possessing*.

Suitability for possession and the governance of resources are often bound together. Often there is a tendency to govern the amount of resources by converting plentifulness into scarcity. This is the essence of creating property rights, of which possession is the very

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233 Separation is carried out in practice through fencing. The distinction of included and excluded is one of the most crucial means when creating property. See Mackaay 2002, 137.

234 The capability of defining an object precisely is also considered one of the main prerequisites for private property. See Tolonen, H. 2004, 205.

kernel. On the other hand, property rights are a useful instrument for governing scarce resources. Some of these resources are plentiful as such, but scarcification is still used as an instrument to govern them. These resources might also be governed, however, by keeping them plentiful and uncontrolled, whereby access to certain resources would be preserved for all people. One illuminating example of such resources is information, which is certainly a plentiful resource.[235] Information governance is nevertheless increasingly based on making the information involved scarce and inaccessible.

2.2.3 Rivalry as exclusivity

Private property is often founded on the *characteristic rivalrousness* of resources. Rivalrousness as the core of private property may also be considered a means of governance.[236] Rivalrousness implies an effective controlling system, exactly like scarcification. The control of rivalrous resources is needed for assuring that the resources will not become depleted. In other words, resources need to be *properly produced* but at the same time *not overused*. Both of these threats pertain precisely to rivalrous resources. Rivalrous resources are often traditional tangibles, such as land or pieces of movable property, whereby governing them is also often carried out through traditional property rights. Conversely, it may be said that there is no need for ownership without rivalry for the scarce resource.[237] Scarcity as such is not, however, a sufficient reason for creating ownership; it needs to be properly justified.[238]

Governance that is based on rivalrous resources is squarely based on private property. Property in this sense is founded on two main prerequisites, the principal requirements of *individual property rights* overall. The first is *absoluteness*.[239] Absoluteness is the core of property inasmuch as it entails that resources are treated as individual property and

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235 The plentifulness of information is often referred to as the *information overload*, which has caused *inflation in information*. There exists a lot of information, whereby its value and significance have decreased. See Vakkari 2000, 12 - 13.

236 Property rights have often been considered an answer to scarcity, because they are generally established for scarce goods. There is no need to establish a property right to something that is abundant. See Mackaay 2002, 134.

237 See Korpijaakko 1989, 75 - 76. This is the case also in the area of intellectual property, where there have been efforts to analyze traditional knowledge and cultural expression in conventional intellectual property terms. Indeed, this kind of property is not considered as being owned at all but rather as based on certain responsibilities to show respect and maintain a reciprocal relationship with the people, animals, plants and places. See Blakeney 2000, 253 - 254.

238 Another crucial factor in constructing the paradigm of ownership is how it is justified. One possible reason lies in the fundamental character of labor in receiving ownership. Labor has great significance in converting free nature into capital and hence into property. See Korpijaakko 1989, 75 - 76.

239 See Tolonen, H. 2004, 207.

nothing else. Absoluteness has further implications. It requires that ownership may generally *belong to only one subject* at a time.[240] Absoluteness may thus well be considered the kernel of governing rivalrousness.[241] The crucial nature of absoluteness is even better explained by the power that it grants the owner.[242] Namely, it implies undivided power over an object, i.e., property.[243] Absoluteness also implies that the owner of an object is privileged to use the property freely according to his or her wishes.[244]

Absoluteness seems to lend some *fundamental strength* to the core of ownership. Absoluteness is, however, strengthened through another crucial foundation of ownership, *exclusivity*. As the determinative elements of ownership, absoluteness and exclusivity intersect; the two complement each other.[245] Absoluteness always requires some degree of exclusivity, perhaps even by definition. Absoluteness and exclusivity together constitute the basis for controlling the system of private property.[246] Exclusivity ensures absoluteness by prescribing that there may excludably be only one right concerning one particular object.[247] In this way, property rights may not in fact be divided. These two property functions, i.e., absoluteness and exclusivity, are thus rather essential in creating individual property rights. In this respect, they have often been considered even impossible to separate.[248] In other words, absoluteness defines exclusivity and exclusivity describes absoluteness.[249]

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240 The justification of the single owner has varied. The most significant arguments are based on *occupation* (or appropriation), *labor*, and *agreement*. See Paasto 2000, 343.

241 The priority of private property and private ownership is inscribed in their very definition. On these grounds, persons are classified as owners and non-owners. See Paasto 2000, 339.

242 The controlling power of the owner is absolute, which implies that the owner is principally entitled to absolute and complete power over the object. The owner thus holds all the rights that are not expressly excluded. When restricted in favor of a third party, ownership will be restored to its original extent. In this sense, ownership is *elastic*. See Paasto 2004b, 1295.

243 Absoluteness is considered the kernel of the owner's right to use. This right is made certain by excluding third parties, which means that the right is protected in a static sense. In this way, the concept of private property actually binds together absoluteness and exclusivity. See Zitting 1951, 27.

244 See Tolonen, H. 2004, 205.

245 The state operates as the basic institution when creating ownership. The state protects private ownership and is thus significant for it. See Paasto 2004a, 43.

246 Exclusivity serves as a tool for establishing and protecting various personal goods, among them autonomy, personality, self-respect, self-esteem, liberty, control, privacy, and individuality. See Munzer 1990, 90.

247 See Tolonen, H. 2004, 205.

248 In the modern research on ownership, it has become more reasonable to construct and represent ownership as different factors. This does not render the basic definition of ownership obsolete. Ownership can still be defined as essentially absolute and excluded power over an object. This pertains to ownership in its static sense. See Zitting - Rautiala 1982, 208.

249 See Tolonen, H. 2004, 207.

Absoluteness and exclusivity as the kernel of ownership have significance in the exchange of property as increasing predictability.[250] On the other hand, ownership is adapted to the societal circumstances and it is thereby variable and flexible.[251] Exchange proceeds more smoothly when the object of exchange is clearly defined. This is in fact the task of the strict definition of ownership.[252] Absoluteness, complemented by exclusivity, is thus the kernel of rivalrousness as one means of governance.

Absoluteness and exclusivity are the main elements of individual property and thereby the very basis of intellectual property rights. Intellectual property rights are based on two divergent purposes that at the same time constitute the rules of governance and the collaboration of rights. First, the purpose of intellectual property rights is to protect the results of intellectual labor. This is basically founded on rewarding inventors; if there did not exist an effective and sufficient reward system, inventions would compete with each other. Sometimes inventions are non-rivalrous, e.g., when they cannot be depleted. In these cases, exclusivity is used to ensure that the resource is created.[253] Second, the purpose of intellectual property rights is to encourage the development and dissemination of new ideas.[254] Information goods are, however, considered non-exclusive and without the ability to exclude others, the creators of information would be unable to charge for their creations. Accordingly, there would be inadequate incentives to create.[255]

The uncontrolled spread of ideas also leads to rivalrousness when the collaboration of rights is left ungoverned. Both of the purposes of intellectual property rights are based on absoluteness and exclusivity. Rivalrousness of resources is generally based on the *coexistence of collaborative rights*; it is rivalrousness that indicates the need for governance and, further, that the rivalrous resources could principally be used by several users at the same time. In practice, this means that there are several persons pursuing different uses for the

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250 Absoluteness and exclusivity are therefore significant precisely from the viewpoint of exchange. In practice, both of these elements are blended by not describing the use of property as a monolithic whole: it is completely possible that there exist two ownerships in the same object as long as they are not identical. See Määttä 2000, 23.

251 Ownership thus has different functions in different societal systems. The ownership that we have in the market economy makes it possible to constitute a market and thereby supports the optimal development of market forces. Contrasting with this is traditional peasant society, where ownership was not constituted for exchange, but for utilization. Preserving utilization value was the most important aim of ownership. See Numhauser-Henning 1988, 30.

252 The definition includes absoluteness, exclusiveness, and completeness. The focus in on the shift from a society based on utilization towards a society based on exchange. See Määttä 1999, 208 - 210.

253 The system of control that we create for rivalrous resources (tangibles, land, pieces of movable property) is not necessarily appropriate for non-rivalrous resources (ideas, music, expression). Having the same system for both kinds of resources may do real harm. See Lessig 2002a, 95.

254 See Koepsell 2000, 94.

255 See Boyle 2003, 42.

same object. The resulting conflict of rights is the basis for rivalrousness as the foundation of exclusivity. Exclusivity is thus created by property rights in their reserving to the owner the power to decide what is to be done with an object.[256] On the other hand, the rivalrous character of a resource may be used as a supporting medium. This is carried out in practice by granting a person an exclusive right over his or her personal and real property.[257]

Rivalrousness thus entails competing interests. The counterargument to rivalrousness is found directly from these competing interests. Namely, one force countering rivalrousness is the digitization of information and the ease of replicating works in the digital framework. The ease of replication is directly linked to the nature of ideas and information. Despite the free nature of digitized information, it is costly to produce but cheap to reproduce.[258] In this respect, information is definitely non-rivalrous.[259] The contradiction of rivalrousness may be illustrated through examples. When someone reads a book, no one else can read that book at the same time. This is where the digitization of books comes in and has clear implications for the *threat of overuse*.[260] Namely, a book may be read on a network by several readers at the same time, with this use not being rivalrous in practice. The other factor revealing the rivalrousness of traditional tangible objects is *virtuality*, which is one more essential implication of the compactness of digital information.[261] As related to rivalrousness, the implication of virtuality is closely connected to the *generality of information*. Virtual information may be represented in compact form and may therefore almost never be revealed all at the same time. The difference compared to information represented in physical form is enormous.[262] The generality of information consequently affects the rivalrousness of intellectual objects.

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256 The right to utilize and decide what is to be done with an object may be granted to a single person or a larger group of persons. Property rights are in this way complemented by the exclusion of all others, preferably with the right to transfer that power to someone else. See Mackaay 2002, 134 - 135.

257 See Lessig 1999, 131.

258 Analog and digital are contradictions of sorts. Information is analog when it is defined as a continuous quantity. Digital information, for its part, consists of discrete values, either 0 or 1. See Järvinen 2001, 156. See also Negroponte 1995, 14 - 15.

259 This may be examined through the different kinds of commons, with the tangible (earthy) commons usually rivalrous but the commons of the mind generally non-rivalrous. Many uses of land are for example mutually exclusive. See Boyle 2003, 41.

260 The problem of overuse is therefore more likely to be threatening in the realm of tangibles and rivalrous resources (fields and fisheries) than in the case of informational or innovational commons. See Boyle 2003, 41.

261 Actually compactness appears in a slightly different way in the background of virtuality. The other consequence of virtuality is the essential need for technical devices, which then creates greater dependence on user interface systems. See Samuelson 1990, 336.

262 The generality of information is best revealed when comparing printed works with intellectual ones. See Samuelson 1990, 335 - 336.

2.2.4 Privatization as sovereignty

Property rights are based on exclusivity and absoluteness, which are the core elements of ownership and possession.[263] These fundamental elements characteristically imply that property rights *create a control position* for the right-holder.[264] In the market this control position is founded on the ability to manage exchange and it is generally also characteristically private. Privatization of rights is thus rather an essential element when considering ownership as an illustration of market interests. Further, privatization may be examined as a classification of resources into controlled and free. In this classification, free resources are defined as belonging to the sphere of commons, whereas privatized ones form the sphere of controlled resources.[265]

The major role of privatization is played at the borderline of private property, i.e., private property and the freely usable commons. Privatization is even generally defined as a return of state enterprises to private ownership and control.[266] Privatized resources are generally used for *disciplining markets*, which implies economic power for the right-holder. Associated with this is a tendency that whenever there appears some value that could be acquired, it is gained through privatization.[267] Privatization grants the right-holder a strong dominance, which is realized through sovereignty, the kernel of privatization. Privatization creates a sovereign position for the right-holder, i.e., the owner. Sovereignty, in other words, is created by granting the owner an *absolute and exclusive right* over the privatized resource or commodity. Sovereignty thus has a close and fixed connection to the core of private property, which then has further implications. Namely, sovereignty over private property is founded on the relations between persons in respect of an object.[268] These relations then appear as the essence of sovereignty.

Absoluteness and exclusivity as the core of an owner's sovereignty have additional implications that can be readily seen for example in the privatization of information. The

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263 The essence of the new economy, i.e. a new entrepreneurial agenda, is often described as the privatization of knowledge or, conversely, as the collectivization of property concepts. See Petrusson 2004, 3.

264 The controlling position is solidly based on the owner's rights over the object. The owner holds all the rights over the object if they are not excluded on the grounds of law, orders of the authorities, or a legal act. Limited rights in rem, on the other hand, may be used as another definitive element if these include only the rights that are directed to the holder of the limited right in rem. See Paasto 2004b, 1298.

265 See Ghosh 2002, 466.

266 This change has been sometimes called *deregulation*. See Begg - Fischer - Dornbusch 2000, 312.

267 See Dreyfuss 2000, 274.

268 See Drahos 1996, 147.

ability to discipline markets is applicable in the case of information, which is considered to have become increasingly central to the human experience.[269] Information has often been considered to be privatized by being converted into knowledge. The rationale of privatizing information is not to be able to share knowledge, but to *achieve the power to discipline markets*.[270] The owner of privatized information may achieve a dominant position in the market, which clearly correlates with sovereignty in market relationships.

All intellectual creations may be only *partly privatized*. Privatization may apply to the context as well as the form of presentation or the distribution channel. Privatization thus does not have to be carried out completely, i.e., with respect to the whole object. Even a partial right is generally enough for granting the right-holder a completely privatized right to utilize the object. One example is parallel privatization at several different levels, in which privatizing distribution only may lead to control of the overall context.[271] It is often completely sufficient to privatize only a small portion of an object to give the owner the possibility to use his or her rights over the whole thing.[272] This entails risks, however, one of the most serious being the risk of *privatizing ideas* by granting excessively broad patent protection. Patenting mathematical algorithms is a case in point. Algorithms are sets of logical instructions that are not as such connected to the physical world. They do not embody any ideas, theories, or insights into the physical world, but are instead mere ideas that are programmed into a computer. These ideas are then privatized by creating property rights in their use.[273]

The priority of privatization affects the whole sphere of ownership by affecting private property. This is well illustrated by examining the instrumentality of private property. Private property always has certain functions that are to be carried out. The functionality of privatization entails the existence of some ends to be reached through ownership.[274] Granting ownership, or a fragment of ownership, to an object is a device to the end of using that object, or taking advantage of it. In the mutual construction of

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269 This is at least partly paralleled by informatization. It was no longer tangible commodities and the ownership of tangible goods that were used as the measurement of market power but information. Furthermore, the potentially decentralized nature of online information markets affected the market players 'attempts to acquire legal rights for exercising control over information markets and protecting market domination. See Elkin-Koren 2002, 79 - 80.

270 This is the basis of strong positions that are created through privatizing information. A good example is knowledge cartels. See Drahos - Braithwaite 2003, 55.

271 Privatization of distribution may be carried out at least in terms of the timing, format, and context in which the works are made available to the public. See Elkin-Koren 2002, 86 - 87.

272 See Ghosh 2002, 466.

273 See Kerr 2002, 55.

274 This is clearly seen in the institutional protection of private property. The Constitution generally protects ownership and maintains that it is to be preserved as an institution of private law. See Zitting 1984, 656.

different spheres, of property the purpose of privatizing might mainly be considered as weakening the sphere of commons in favor of private property.[275]

2.2.5 Exhaustibility as controlling utilization

Interests in the market are often collaborative, which is one reason why the realization of these interests is mainly based on *managing* different kinds of resources. Rights management takes the form of allocating resources in order to keep them non-exhaustible. Rights management is best realized by basing the management system on a clear systematic framework for equal distribution. In this respect, the grounds of distribution are clearly derived from the amount and significance of the resources in society. Resources have different relations to the society in which they are used and it is precisely the interrelated communication of resources and society that affects how resources are treated.

The exhaustible character of certain resources is based on the classification of resources. Resources may be distinguished on the basis of the *prerequisites for producing* them, i.e., whether they are exhaustible or non-exhaustible. Exhaustible resources are characteristically ones that may well be overused or depleted, whereas non-exhaustible ones may be consumed freely without any fear of their running out. In this sense exhaustibility is closely related to the rivalrousness of resources in that exhaustibility and rivalrousness often correlate with each other. Further, a resource that is rivalrous is often exhaustible. In this way, the possibility to compete for and thereby exhaust a certain resource affects the justification of exclusivity. On the other hand, a non-rivalrous resource cannot be exhausted: once it has been produced, it cannot be undone. If a resource is rivalrous, then we have to worry both about there being sufficient incentive to create it and about whether consumption by some will leave enough for others.[276]

The collaborative character of market interests is generally based on the varying quantity of resources. Exhaustible resources are often also scarce, whereas non-exhaustible resources are plentiful or even cumulative. Cumulativeness well illustrates non-exhaustibility, information being a good example of a cumulative, non-exhaustible resource. In the case of information, cumulativeness means that information that is embodied in the creation of one person or invention is often used by someone else in developing another creation or invention.[277] Thus cumulativeness often reinforces non-exhaustibility. Non-exhaustible resources are often *collective goods*. This implies that such resources are produced

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275 See Ghosh 2002, 466.

276 See Lessig 2002a, 21.

277 See Mackaay 2002, 135.

jointly and that the production process is fundamentally collective.[278] One good example of collective goods is intellectual property rights, whose collectiveness derives from their special nature as a manifestation of information. In the area of intellectual property rights, it is precisely information that so closely links exhaustibility and collectiveness. Exhaustibility is manifested in the costly production of information, which may make information exhaustible. As information is nevertheless cheap to reproduce, it remains in the sphere of non-exhaustible resources.

The close connection between the collectiveness and non-exhaustibility of information is further based on the *generality of information*. Namely, it is often rather difficult to exclude people from using information once it has become available, for information characteristically becomes collective and non-exhaustible. Moreover, use by one person does not preclude use by another. In this respect, information has become a new commodity that is mainly based on its non-exhaustible character and as such also changes the commodity markets and the very logic of those markets. In other words, a consumer can never actually own information; he or she can only pay for its use. In addition, every information transaction may attract a fee and transactions may be repeated innumerable times.[279]

The non-rivalrousness of ideas implies their other essential feature of belonging naturally to everyone. Ideas are a *naturally common resource*. This characteristic of ideas allows for the possibility to exclude someone from access to an idea. If one person takes another's idea, the first person still has it. Similarly, if one reveals one's idea to someone else, one still has it. In this way, an idea is *imperfectly excludable*, which means that it is often difficult to exclude people from using information once it has become available.[280] Something can be kept secret and people can be excluded from it, but once a secret is revealed it cannot be taken back. Information is therefore non-exhaustible; it can be shared without giving it away. Ideas can also be kept secret. Keeping an idea secret is the only way to prevent others from using it.[281]

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278 Inventiveness as a collective process has been the focus of patent law, especially in the justifications for rewarding inventiveness. The criticism has rested on two different bases: Is there really need of rewarding inventiveness, or is the patent itself a sufficient reward? Both of these arguments are fundamentally based on the collectiveness of inventions. See Petrusson 1999, 115.

279 See Drahos - Braithwaite 2003, 58 - 59.

280 See Mackaay 2002, 134.

281 Lessig challenges the view that ideas are excludable because they can be kept secret. See Lessig 1999, 132.

The exhaustibility of resources may be excluded from the *public domain*.[282] This applies particularly to ideas and information which have a mutual association in that domain. Namely, the more implications of information are to be defined as ideas, the more they will be part of the public domain. Conversely, the generality of ideas may cause their exclusion from the sphere of private property. This is the essence of the non-exhaustibility of ideas. Ideas are functional in a different way than concretely defined objects. Non-exhaustibility is clearly illustrated in the consumption of ideas in their being non-rivalrous. This implies further that ideas can be shared with no reduction in the amount consumption by the owner. This applies to ideas at least. Another's consumption of an idea does not lessen my consumption of it. Accordingly, my knowing something does not lessen another's knowing of the same thing. No technology could make it possible to share ideas without harm to someone else. The non-exhaustibility of ideas lies exactly in the intellectuality and intangibility of ideas. Unlike physical entities, ideas are something that cannot be taken from a person without diminishing what he or she has.[283]

This non-rivalrous aspect of ideas is one of their most essential attributes as a non-exhaustible resource. The nature of ideas as non-excludable and non-rivalrous resources tends to guarantee that ideas spread freely from one person to another. This is how and why information and ideas acquire their value also as public goods. The value is realized in the cumulative character of information. Information that is embodied in the creation or invention of one person is often used by someone else in developing another creation or invention.[284] Cumulativeness is in fact rather essential for innovativeness and the free spreading of information given that cumulative value is characteristic of information. The interests that are implied as part of the market are at the same time the essence of smooth exchange and functionality in the exchange-based society. Therefore, these interests are further used in constituting the market governance. Market governance is based on the exchangeability of goods and on the smooth operation of that exchange. This is the focus of the study of the market in the following section.

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282 The public domain is defined functionally. *Yochai Benkler* defines the public and enclosed domains as follows: The *public domain* is the range of uses of information that any person is privileged to make, absent individualized facts that make a particular use by a particular person unprivileged. On the contrary, the *enclosed domain* is the range of uses of information as to which someone has an exclusive right, and that no other person may make absent individualized facts that indicate permission from the right-holder, or otherwise privilege the specific use under the stated facts. See Benkler 1999, 362.

283 See Lessig 1999, 131- 132.

284 See Mackaay 2002, 135.

2.3 The core of market governance - smooth exchange

2.3.1 Resources in the market

A market is communication that needs to be governed. Market governance is founded on the allocation of wealth, which is generally based on private property. Private property is then predominantly built on *individual ownership*, which is defined as the right-holder's, i.e., the owner's, absolute, excluded, and complete right over the owned object. The categorization of private ownership underpins further the larger *private property system* that is based on property and ownership. Private property is owned by individuals, partnerships consisting of individuals, or juridical entities, such as corporations.[285]

The system of private property is further linked to the economy as a whole, where private property constitutes the main focus. Ownership is not only used to govern societal resources but also acts as a fundamental requirement for a properly functional market.[286] The fundamental core of private property is to ensure that an individual can exclude others from the use of a benefit of something.[287] Therefore, excludability constitutes the essence of private property. The possibility to produce or possess property privately further constitutes a complete system that is also based on the significance of private property. The system is thus a whole in which the means of production are mostly privately owned and the market performs distributive functions. In this system, income and wealth are mainly assigned to individuals.[288] Private property is thus the core of the management of incomes and the governance of wealth; it also always ensures some *controlling power* for individuals.

The controlling power of private property is based on the possibility to confine the use of property to a single person in the form of ownership. The individuality of ownership is hence one direct implication of the market interests examined in the previous section. All of those interests, i.e., commodification, scarcification, rivalrousness, privatization, and exhaustibility, support the individuality of ownership, each in its own way. The fundamental characteristic of private property as a bearer of market interests derives from the nature of traditional tangible objects. This may actually be considered as the *prototype*

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285 See Munzer 1990, 89.

286 This functionality is based, according to ownership, on freedom of contract. The other two freedom-based principles that are closely bound to the reorganization of ownership are the freedom of trade and the freedom of competition. See Numhauser-Henning 1988, 46.

287 In this sense, private property contrasts with common property that is created by the guarantee to each individual that he or she will not be excluded from the use or benefit of something. See Macpherson 1978, 5.

288 According to *Stephen R. Munzer*, all private property economies are private property systems, but not vice versa. See Munzer 1990, 89.

of property. The objects of ownership are essentially individually specified tangible objects. Further, an owner can legally exclude others from using his or her property. This is the most integral element of the right to use, the privilege to exclude being the core of ownership overall.[289] Exclusion is one of the most essential elements of private property; it is carried out by defining who is included and who is excluded, which requires at least some degree of fencing. Fencing is thus an essential element in defining the borderlines of ownership.[290]

In the field of intellectual property rights, fencing has natural restrictions that require some legally effective means. Intellectual property is generally based on communicatively shared beliefs concerning the existence of intellectual property.[291] The natural tool for preventing misuse of content - and thus a tool for fencing - has traditionally been the *physical nature* of the product.[292] Products were usually tangible goods and fencing consisted of only defining those goods as *legal objects*.[293] The break with physicality changed all this, however: the digitization of products made physical fencing impossible and prompted an acute need for an effective and stable rights management system. On the other hand, fencing may not be assumed. Without fencing the right-holder may not have any claim-right, which means that he or she has no means to defend his or her right. This is the reason why drawing the borderlines of that right is essential. In this respect, fencing can be seen as part of the foundation of property.

Fencing can be stronger or weaker and it is never completely free; the freedom to fence is limited. The limit is set by forbidding interference with the existing rights of others; i.e., previously existing rights limit fencing.[294] Fencing and creating new objects ought to

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289 See Mackaay 2002, 136. Exclusivity is not the same as exclusion, because owners might not use the power to exclude. They have free choice to exclude others or not. Exclusivity is not the same as exclusiveness either. Often several persons have a legal interest in the same thing, meaning that exclusive power is not necessarily absolute. See Munzer 1990, 89.

290 Ownership is crucially based on certain defined and restricted objects. For example, ownership of land is differentiated by drawing clear boundaries. This is in fact the conceptual premise of ownership. Drawing boundaries and declaring one's right in this way are actually one form of communication. By drawing boundaries, the owner endeavors to prevent unjustified use by others. See Korpijaakko 1989, 406 - 407.

291 In this sense, intellectual properties are "fuzzier" than physical properties; i.e., intellectual property has no existence in itself. The concepts of intellectual property only exist because of the common belief of society that they exist and because of common loyalty to these beliefs. See Petrusson 2004, 53.

292 See Ellicksen 1991, 26 - 28.

293 In other words, the physical boundaries of, and thus also the restrictions on, the utilization of products have been erased. With this development, the protection of intellectual property has become more complicated than when its protection was based on the physical attributes of products.
See Barlow 1994, http://wired.com/wired/archive/2.03/economy.ideas_pr.html

294 See Mackaay 2002, 137.

respect objects that have already been invented, i.e., *excluded from common use*. A good example of fencing in the digital age is *encrypting*, which is becoming a part of copyright and an instrument for excluding rights.[295] Encrypting is an extremely strong fencing technology. By definition, encryption implies translating data into a secret code in order to keep it concealed. Further, to read an encrypted file, one must have access to a secret key or password that enables one to decrypt it.[296] Encryption as a means of rights management is not only an instrument of the digital age, however. Some representative examples can be found in daily life. For example, a simple padlock is a means of rights management and, roughly speaking, an example of encryption. A padlock is easy for the owner to use and requires special tools for opening unless one has a key. Another classical and simple rights management system is barbed wire, which is used as a fencing tool for real estate.

The significance of encryption technologies has been emphasized recently, also for the purposes of fencing and excluding. Encrypting is an instrument of digital rights management today and accordingly has become a tool for fencing.[297] These techniques are often used for controlling access to copyrighted content as a part of digital rights management systems.[298] This is the fundamental reason for narrowing the scope of free resources in favor of controlled ones. Encryption increases the tendency to create restrictions on free circulation of information. In the digital environment, the free circulation of information, as well as all of resources, may easily be governed through digital rights management. In this respect digital rights management is an extension of the

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295 Encryption in the sense of rights management falls under technological measures and rights management information in *Directive 2001/29/EC* of the European Parliament and of the Council of 22 May 2001 on the Harmonization of Certain Aspects of Copyright And Related Rights in the Information Society: *Article 6: Obligations as to technological measures*. This is also included in the *Digital Millennium Copyright Act* H. R. 2281: Section 1201.

296 See Webopedia http://www.webopedia.com/TERM/e/encryption.html. At the systemic level, access may be denied through *conditional access.* See *COM (2003) 198 final*, 5 - 6.

297 Encryption or *cryptography* involves the translation of data into a secret code and is the most effective way to achieve data security. Cryptography has been widely used in society in intelligence, diplomacy and warfare. Today, cryptography may be used likewise to authenticate computer users, ensure the integrity and confidentiality of electronic communications, and keep sensitive information safely stored. Thus cryptography has emerged from the earlier secret military technology to become a key technology for all participants in the Information Society. See Koops 2001, 33.

298 *Digital signatures* are used to authenticate that a particular file has been sent by the proper sender and that it has not been altered. This kind of security is naturally very essential for electronic transactions on open networks. The technology is derived from encryption and is called *public key cryptography*. Digital signature technology is integral also for electronic commerce when securing the information being transmitted. See Koops 2001, 55 - 56.
A closely related system is *digital watermarking*, which incorporates into a file identifying information that cannot easily be dissociated from it. This is what is known as *copyright management information*, i.e., information about authorship, copyright ownership, date of creation and terms and conditions of authorized uses. See Samuels 2000, 113.

technical tools used to protect digitally expressed copyrighted content, with encryption playing an essential role in that process.[299]

Fencing is highly dependent on the *character of the protected object*. Fencing may be either physical or legal.[300] Traditionally, physical fences are the most common because of the essential physicality of fencing. This is an implication of carrying out fencing through physical barriers, for example, by surrounding a yard with a wall. Fencing here is *realized explicitly*. Physical fencing is also seen in the *pure manufacture of goods*. Manufacturing actually draws physical boundaries for objects. This applies to all property that is in physical form, for example, a book. The fencing and the physical restrictions are created along with the object itself.

Intellectual property differs where fencing is concerned. In intellectual property there never exist any physical fences; *boundaries are created by law*. Intangible property is always created at the level of rights.[301] There is no intangible property that is not first defined through legislation, or at the level of rights. This is also manifested in the view that rights are not at all a relation between the right-holder and an object but rather relations between two or more persons. In other words, rights may be ascribed to persons only, not to objects. The task of intellectual property as a system is also to act as a tool for assigning rights and duties.[302] Physicality is one distinguishing factor between intangibles and tangibles in fencing.

Fencing may also be examined from a slightly different viewpoint. Physical fencing *imposes some restrictions* on the different uses of objects and is thereby one of the most effective means to prevent the copying or reproduction of things.[303] This is best seen in

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299 In the digital environment these restrictions can only really be effectively implemented by technical measures. The main purpose of rights management systems is not, however, a simple request for protection or simple distribution of content. Digital rights management is often reduced to a description of merely these elements or, alternatively, document security and data protection. See Davis 2001, http://www.copyright.com/PDFs/ComputerLibraries.pdf.pdf

300 These means include, for example, *physical fences* or *ditches* (land, goods, other physical objects), *encryption* and *watermarking* (digital products), *legal restrictions* (circumventing rules), *marketing techniques* (regular updates, on-line assistance), or *contracts*. See Mackaay 2002, 136.

301 Protection in the intellectual environment is likewise implemented by technical applications. Those applications are used to restrict access to the content of any kind of information products that require protection. There exist several technologies capable of protecting works on open networks and in the other digital environments. Especially on open or semi-open networks digital rights management systems are said to have become very important for future business life. See Välimäki - Pitkänen 2001, http://www.hiit.fi/de/mobileipr/wiapp_paper.pdf

302 See Helin 1978, 650 - 651.

303 Copying was both laborious and expensive. Printing presses were expensive and massive machines and they required considerable skill and expense to operate, while hand-copying was a time-consuming activity and useful in general only for making single copies of the work. The use of a printing press was economical only when multiple copies were

intellectual digital objects. At the time of analog copying, copies were not even close in quality to the original and the quality of the copies decreased each time a copy was made. Copying itself was therefore an uncertain undertaking and not profitable. As a result of digitization the copying of information has become easier and cheaper.[304] In sum, the two most important changes brought by digitization - the ease of copying and the difficulties in restricting copying - directly affect the ability to fence and exclude.

2.3.2 Possession as the core of exchange

Fencing and the exclusivity of objects constitute the basis for the *trade and transferability* of objects. In market governance, the focus is on the control function of private property, where control is expressly the controlling power of the owner. Control is further realized through exclusivity; i.e., since the owner has the right to exclude others, he or she has substantial control over what he or she does with the property in question.[305] This actually entails a rather strong *freedom on the part of the right-holder*. For example, landowners are free to enter their piece of land and use it as they wish. Similarly, patent-holders are free to exploit their invention and use it according to their preferences. In sum, *freedom of use* is the core of ownership in its static sense. This right may further be defined as legally protected, and thus an ensured right to use, i.e., freedom with respect to the object.[306]

Freedom of use is further defined in terms of two parallel aspects, namely the *way of using* and *certainty of using*. In this classification these aspects have slightly divergent reciprocal functions. The way of using defines the context of a right and is thus essentially a relationship between the right-holder and an object, i.e., the user and the object of use.[307] The way of using is thus referred to, for example, when the copyright-holder utilizes his or her right to manufacture copies. Thus, in the distinction between way of using and certainty of using, it is precisely the way of using that describes the internal context of rights, whereas the certainty of using describes the legal protection of utilization. The

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made and could be sold. The copies made by hand were often of poor quality and not even close to the originals. See Samuelson 1990, 325.

304 Declining quality in copies thus does not prevent reproducing at all. Each digital copy is exactly like the original one. Digital recordings are high in quality and very durable. The quality of saved information is high: in other words, the copies are as good as originals. See Samuelson - Davis 2000, 7 - 8.

305 See Munzer 1990, 91.

306 See Zitting 1951, 26.

307 This is one illustration of the abstractness and universality of the traditional system of property rights. The group of potential legal subjects was always the same: natural and legal persons; the legal objects are likewise always the same: persons and objects; and legal relationships are described according their type as obligatory relationships, property rights, intellectual property rights, and so on. See Pöyhönen 1997b, 540.

certainty of using, for its part, is defined as against third parties and is in this way protection against their interference in the right-holder's right to use. This protection is called *static protection*.[308]

Static protection in this sense describes essentially the owner's undisturbed right to use. Static protection is an essential element of the context of rights, as is the right to use. Both elements, i.e., the way of using and the certainty of using, constitute an *undivided entity*. They may be separated only as abstract factors. The way of using and the certainty of using form the context of the right-holder's right in the static sense. The owner's right would not be undisturbed without both of these elements.[309] Further, it is only legal protection that creates a protected possibility to use a legally protected right to use.[310] This combination as the context of rights further establishes the legal position of the right-holder in its static sense. This combination of rights in its static sense constitutes the possession of the owner. Possession describes actual control of property, which further is combined with the owner's intention to use the property as his or her own. Possession hence means an exclusive and thus statically protected freedom to utilize an object. Possession is further a rather central element in the legal status of the owner inasmuch as objects are generally nearly always possessed by someone.[311] Moreover, possession as the core element of ownership is supported by the view that *rights always have an object*.[312]

An object is thus a fundamental prerequisite for constructing any ownership at all. This requirement that there be an object is the explanation for the physicality which is considered the core of the prototype of property. Possession as the kernel of ownership is based also on the relationship between human beings and nature. Objects of nature are considered unfree, whereas human being as a free actors may receive domination over any unfree object. This is exactly where the concept of object is needed; i.e., the concept of legal object was created precisely to illustrate and explain the relationships between the human being as a free actor and unfree physical nature.[313] Further, this is the very

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308 See Zitting 1951, 26.

309 This implies that the owner has a right to control others. The right to control is derived directly from the owner's right to decide how he or she uses his or her property or who is allowed to access it. In this way, the owner's exclusive control also affects the behavior of others and those whom he or she allows to make use of his or her exclusive possession. See Munzer 1990, 91 - 92.

310 Static protection may vary in strength but there always exists some degree of protection. On the other hand, an unprotected possibility to use is only a de facto possibility, not a right. See Zitting 1951, 26.

311 It is in fact fencing or the drawing of boundaries for resources that ultimately establishes possession. See Mackaay 2002, 137.

312 All rights must have an object. Traditionally the object of intellectual property rights has been intellectual and abstract. This has been the main difference between intellectual property rights and general property rights. See Helin 1978, 647.

313 See Pöyhönen 2000, 36.

foundation of the owner's right of possession. It also makes possession the very kernel of ownership. This right of possession is transferred when an object is exchanged.

Possession has a close relation to rights governance. Sometimes possession itself resembles rights governance. One typical example of this is possession by someone other than the owner. In certain legal acts related to movable objects there are some essential legal effects which are attached to the transference of an object. The main rule is that legal protection against an assignor's creditors, e.g., protection against loss of title, is bound to possession. This requires that normally the object ought to be removed from the control of the assignor and transferred to the possession of the assignee. Further, this separation should be carried out in such a way that the assignor cannot factually dispose of the object anymore. This may be considered the normal realization of the rights governance of tangibles. However, this transfer may also be carried out by means of transfer of possession subject to declaration (*traditio longa manu*) or by what is known as short-hand assignment (*traditio brevi manu*). In these cases, the assignee already has possession of the object on some grounds, and when assignment is carried out all that he or she receives is a notice of assignment.

This example reveals the difference between transferring rights of intellectual property and transferring physical property. In other words, physical property has to be physically and concretely received by the assignee: i.e., the assignee must get the property him- or herself in order to get legal possession of it. Often it is even crucial to possess the thing to be able to take advantage of the rights attached to it. These relationships are rather well illustrated in another example that concerns possession of a *blank bond* and its transfer. In the case of a blank bond the right to a claim is always based only on a mere relationship, whereby it is intellectual property. The right to a claim is then simply a demand for the debtor to *behave in certain way*, i.e., to pay back his or her debt.[314] Possession as the essence of ownership can thus also be considered the foundation of rights governance in the market and as such as the governance of certain behavior.

2.3.3 Exchangeability

Exchangeability is a key element in the *functional market*. In the conventional liberal market economies, commodities by definition have no value if they cannot be brought within the scope of exchange. Pure exclusivity in its static sense is thus not highly interesting from the viewpoint of the market, nor is it crucial for the overall construction of functional market

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[314] Possession of the right to a claim and intellectual property rights are very different in how they are linked to the context of rights. Intellectual property rights always have a certain object, even if this object is abstract, as it always is. The right to a claim does not entail this kind of object but is only a demand that someone else behave in a certain way. See Helin 1978, 651.

governance given that the focus is on the dynamics of the market. This does not, however, mean that exclusivity is completely irrelevant. Exclusivity has its own significance within the dynamics of rights. It operates as the anchor for rights and is further realized through possession. In sum, exclusivity is *essential in creating market dynamics* despite the focus on the dynamics of exchange.

Possession, however, constitutes the essence of dynamics. This is based on the *necessary statics of the traditional dynamics*. In other words, as dynamic as dynamics may be, they are always at least partly based on statics. The statics of the traditional dynamics are predicated on the fact that it is still always contextual rights that are to be transferred and exchanged. It is, in other words, the context that the owner sells and transfers and that the buyer buys and receives. Another aspect of the context consists of the owner's possession. The basis of dynamics lies in the owner's possession. Possession is further constructed of the factual relationship based on the *owner's right to use*. Possession does not, however, require any concrete *de facto* possession. The owner does not have to concretely possess the object; concrete possession would sometimes even be quite complicated.[315]

Possession and exchange are nonetheless closely bound together. In exchange, factual possession has one crucial task. Namely, possession entails, as a rule, a the presupposition that the *possessor of an object is also its owner*. This is clearly manifested when examining *assignment*, where the assignee is to be legally protected and the protection is bound to his or her good faith. This is actually one essential prerequisite for protection against loss of title. Protection requires that the assignee is still acting in good faith at the time when he or she receives possession. This is precisely the factor that makes possession very significant, inasmuch as possession and good faith are closely connected. Good faith may only be well-founded if the assignor still has possession when the assignment is fulfilled. Possession provides the basis for the *owner's right to transfer* his or her ownership. The transfer concerns the whole complement of rights; i.e., it is the entire statically protected legal position that is to be transferred.[316] The right to transfer an object, and thus the right to transfer ownership in its entirety, is one of the most crucial elements of ownership overall. It is fundamentally based on the *owner's power* to bring about a change in the legal relationships.[317] In other words, the owner holds the power to affect the behavior of others by transferring the object.

The right to transfer constitutes the core of exchange. This right is called *competence*. Competence represents the authorization to legally dispose over ownership. In this respect competence clearly differs from mere possession, which is defined as a legally protected right to use. Competence explicitly manifests some *more dynamic aspects*, such as capability,

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315 For example, possession of real estate is based on registration and the public trustworthiness of the system of land title registration. See Kartio 2001, 706.

316 This legal position is always transferred as a whole. This position includes the owner's right to use as a legally protected right. See Zitting 1951, 28 - 29.

317 See Zitting 1951, 30 - 31.

authority, or the power to effect the transference of an object from one owner to another.[318] These features make competence the core element of dynamics. Competence is, accordingly, the essence of exchange. In the market economy it is essential that objects can be transferred and that subjects have the ability to transfer them. Ownership without any possibility to use the object openly is not functional for business purposes. In order to ensure free and undisturbed exchange, it is thus crucial to ensure that objects can be used freely and that they may be made available to other persons. This ought to be carried out without the owner permanently losing control over his or her property.[319] This is the simplest system of rights management and is based first on drawing the borderlines of assignment and, second, on creating the conditions for assured transfer.

2.3.4 Dynamics as governance

Possession is thus founded on the owner's legally protected privilege to utilize an object, which is the basic element of the right to use it in its static sense. This is defined as the static element of ownership.[320] The pure static right does not, however, operate as a tool of exchange, despite the crucial nature of possession as the basis of the owner's ability to assign. In other words, ownership without any *concrete opportunity* to use one's property freely and openly in exchange relationships is not useful for business.[321]

Ownership may be defined as a tool of governance. As such ownership is rather strong. Its strength is based on the *stability of ownership* as a legally protected position. This relatively strong legal protection is a consequence of the third element of ownership in addition to possession and competence. This third element in fact binds together both the stability of ownership and its legal protection and is called *dynamic protection*. Dynamic protection refers to legal protection that is manifested when two or more *legal rights are in collision* and neither or none can be realized. Dynamic protection is directly bound to personal relationships and does not depend in any way on the content of rights.[322]

Dynamic protection is based on the dynamics of rights and is directly linked to the legal protection that is realized in dynamics. The protection is called *dynamic protection*. Structurally, the legal protection of the dynamic aspect closely resembles that of the static aspect, the difference between them lying in their applicability. Static protection illustrates legal protection that is absolutely valid, whereas dynamic protection is closely bound to exchange. Contextually, dynamic protection concerns the validity of the legal basis when

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318 See Zitting 1951, 30 - 31.

319 See Mackaay 2002, 137.

320 See Zitting 1951, 26 - 27.

321 See Mackaay 2002, 137.

322 See Zitting 1951, 43.

rights are in collision.[323] Dynamic protection, at least at a certain level, is characteristic of the full ownership. For example, even if the assignee has already received possession of a thing, he or she is not really considered as having acquired ownership until he or she is entitled to all of these three elements. Thus, dynamic protection is rather decisive if ownership is to be developed to its full extent.

Ownership is protected at two different levels through the two different forms of protection, static and dynamic. The existence of these two parallel forms explains, at least partly, the strength of ownership as a tool of governance. In the case of ownership, *strength correlates with stability*: fully matured ownership creates a rather stabilized position for the owner and this position then becomes the core of governing rights. The strength of ownership is further illustrated when a collision of rights is to be resolved. The most durable legal basis is a right that is founded on an individually defined object. If there is a collision of two individually defined objects, the collision must be resolved in favor of the temporally prior one, i.e., according to the *time priority rule*.[324] If the collision is one of individually defined rights and abstractly defined ones, it is the individually defined rights that prevail.[325] In other words, the priority of individually defined rights clearly illustrates the strength of those rights. Ownership is one such right and may therefore be considered as a tool of rights governance.

2.4 Some anomalies in the digital framework

2.4.1 The breakdown of the concept of legal object

One catalyst of economic development is *digitization*. Digitization has a profound influence on the products to be used, and the ways in which those products are utilized and delivered. This influence partly affects the changing context of products.[326] One of the most significant factors in this regard is the opportunity that has emerged with digital media, and their profound impact on distribution in the network environment (the *World*

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323 See Zitting 1989, 10.

324 See Tuomisto 1993, 45.

325 A collision may likewise occur between two abstractly defined objects, with the collision being resolved according to the concurrence principle. The right is granted to the one who is the first to realize it. See Zitting 1989, 11 - 12.

326 There are some factors in particular that change the essence of intellectual property: (i) the ease of replication of digital material, (ii) the ease by which this material can be transmitted, (iii) the ease with which it can be manipulated and changed, (iv) the "equivalence" of works in digital forms, (v) the "compactness" of digital material, and (vi) the combination of material in "digital space" by third parties (e.g., via hypertext). See the list in Webster - Packer 1996, 6.

Wide Web, *Internet*).[327] The World Wide Web is often considered one of the most successful media for electronic publishing, and a consequence of digitization.[328] With the expanding networks, the transmission and distribution of information has become more effortless, and communicativity has become the most important operation.

Legal positions, on the other hand, are fundamentally based on subjective rights. The object of a subjective right is generally strictly defined and protected. This is due to the status of possession as the core of ownership and, further, the need for a precisely defined essence of possession. One of the main problems that the content industries confront in the present day stems partly from the changed requirements for *defining content*. It is precisely recent technological evolution that has caused some radical shifts in the economics of information.[329] Information in digital form has changed the requirements for reproduced information at the same time as computer networks have changed the conditions of distribution.[330] For example, the *Finnish Supreme Court* drew a line in case *KKO:1999:115* (R98/308) ruling that an electronic mailbox used for distributing computer programs was considered prohibited.[331]

> *KKO:1999:115.* A maintained an electronic mailbox by keeping up its operativity and accepting its users. The main prerequisite, set by A, to be accepted as a user of this mailbox was that each user had to copy copyrighted computer programs to be made available through the mailbox. In return, A allowed the users, among other things, to copy the computer programs that the mailbox contained. In this way, A distributed to the public copies of copyrighted works, i.e., the computer programs.

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327 The *World Wide Web* is even seen as being enlarged and modified towards a *World Wide Grid*, or *WWG*. The World Wide Grid is based on distributed computing over networks, with geographically dispersed scientific research and industrial areas enabled to share data and computing infrastructure and collaborate. The WWG is thus based on the further development, integration and validation of technology that enables the seamless integration of networks, computers and information storage. See *COM (2000) 330 final*, 8.

328 The World Wide Web provides a means of accessing the resources on the open networks without requiring the user to know how those resources are stored and transmitted. See Major 1998, 78.

329 This is often referred as the trio of technological development steps, which are digitizing, open networks, and globalization. See Samuelson - Davis 2000, 7.

330 A representative example here is the *Napster case*, where Napster included software that enabled anyone to copy, download and transmit music. See *A&M Records, Inc. v. Napster*, Inc., 114 F. 2d 869 (9th Circuit 2001). The court stated that Napster should not assist others in copying, downloading, uploading, distributing, or transmitting the copyrighted musical compositions or sound recordings that belonged to the plaintiff in this case. Napster has been followed by some even more sophisticated, and legally acceptable, applications, such as *iTunes*, maintained by *Apple* and *MSN, Music* by *Microsoft*.

331 Access to copyrighted material may be created through a hyperlink. See *Copyright Council of Finland TN 2001:8*, 3.

The quality of products has been improved by the use of digital technology to become far better than that of analog information or even of the original source. The increasing quality of copies is due to the mutual independence of information units as a system. This system is based on discontinuous data or events.[332] Digital representations consist of values measured at discrete intervals, whereas the principal feature of analog representations is that they are continuous.[333] Consequently, copying information in digital form has become easy and cheap. Each copy corresponds completely to the original and it is usually impossible to distinguish a copy from the original. Copying is also easy - often pushing only one button is enough. On the other hand, preventing or restricting copying is extremely difficult.[334]

At the same time networking has changed the conditions of publication.[335] These factors shape the relationship between technological evolution and intellectual property rights, especially copyright. New technological measures offer increasingly new tools for circumventing protected rights and at the same time have an influence on defining the object of possession. This is the most fundamental reason why this development is challenging for the traditional view of an object as the kernel of rights. One factor in changing the close connection between an object and the real context of rights is the separation of information and its physical, commodified representation. We may also often speak of the *informatization of commodities*. The increased ease with which digitized information can be manipulated has changed the ways of viewing the connection between information and commodities. This has likewise affected the view of legal objects.

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332 Computers are digital machines because at their most basic level they can distinguish between just two values, 0 and 1, or off and on. There is no simple way to represent all the values in between, such as 0.25. All data that a computer processes must be encoded digitally, as a series of zeroes and ones.
See Webopedia http://www.webopedia.com/TERM/d/digital.html

333 Webopedia describes the difference between analog and digital as follows. Almost everything in the world can be described or represented in one of two forms: analog or digital. Digital watches are called digital because they go from one value to the next without displaying all intermediate values. Consequently, they can display only a finite number of times of the day. In contrast, watches with hands are analog, because the hands move continuously around the clock face. As the minute hand goes around, it not only touches the numbers 1 through 12, but also the infinite number of points in between. See Webopedia http://www.webopedia.com/TERM/a/analog.html

334 Copying is also easy and may usually be done by pressing only one button. Often it is also quite hard to forbid or restrict the copying of digitized information. Copying the analog products has involved some natural restrictions. The most effective prevention has been the poor quality of copies and the lack of distribution channels. See Järvinen 1996, 143 - 144.

335 Information in digital form radically reduces the difficulty and cost of reproduction. Moreover, it produces perfect replicas, each of which is a seed for further perfect copies. See Samuelson - Davis 2000
http://www.sims.berkeley.edu/~pam/papers/digdilsyn.pdf

Information can thus be separated from the physical applet in which it has traditionally been embedded.[336]

The traditional view is rather extensively linked to the *solidity of objects*. This means that rights need to be complete before they may be assigned to anyone; an *incomplete right* is rather impossible in the traditional system.[337] This is precisely where the problems of networking and evolving network relations arise. Implications are found on three different levels but all are connected to the need to assign incomplete rights to someone. This is an artefact of the traditional legal system, where a right must have an object and a subject. First, information representing different kinds of data can be *loaded up and combined*. This is due to the fact that all digital data is represented in an incompatible form that does not depend on its actual content. Second, information can be *delivered more effortlessly* and more globally. This is carried out, for example, through the global open networks. The third implication of the incompleteness of rights *derives from the ease of producing* and working on information.[338] The context of rights, as well as the strict prerequisite of an object as the necessary core of rights, has become more flexible and blurred.

The manipulation of information has some additional implications. One of these is the easy reproduction of digitized context. The binary form of digital information results in information being in rather *compact form*. Because of this compactness, copying a book, for example, is handier and much faster using a computer than a photocopier. This affects the other ways of utilizing and exploiting information. This has a direct impact on the requirement that there be an object and accordingly sets some necessary requirements for rights governance. Compactness has made it nearly impossible to *govern a work only contextually*. The explanation lies in the ease of transferring information that has further tipped the means of control *towards controlling access* rather than controlling the content.[339] This has its implications also for the delivery of content in that there ought to exist exchange even in the intellectual framework.

Effective exchange requires that there ought to be effective measures for managing and protecting the release of new works into the digital environment. The communication of digital information is carried out through digital networks, where large amounts of

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336 Physical information applications are for example books, CDs, or photos. Digitizing does not, however, always mean that physical products are converted into digital ones. It is possible to incorporate digital products also in physical applets. In traditional forms, information is transmitted in printed form, for example, when it is bound in books, magazines, or other publications. See Westman 1998, 25.

337 See Pöyhönen 2000, 55.

338 See Lindberg - Westman 1999, 155 - 156.

339 The distributors of intellectual property tend to have more interest in controlling access to and the use of works that have been protected through intellectual property rights. See Samuelson 1990, 334 - 335.

information can be compressed and transmitted rapidly.[340] Here, digitization reinforces the information infrastructure by increasing the possibilities to separate information from a tangible object even more. The collapse of the strict requirement of an object further requires that there exist some other tools for rights management and rights governance. These requirements arise additionally from the potential *combination of digital technology and distribution power* on open networks.[341]

Digital technology and the distribution power of a network have prompted changes that have brought about the collapse of the strict prerequisite of an object. One significant factor affecting this collapse is *convergence*. Convergence is defined as making objects, as well as supply channels, similar and thus compatible.[342] Convergence makes digital works become rather consistent with each other, as the traditional boundaries and distinctions between works collapse.[343] Convergence also refers to the ability of different network platforms to carry similar kinds of services, which makes different consumer devices converge toward multi-functioning terminals.[344] At the same time, it has become even easier to take bits of information out of a work and reuse them. Convergence also influences different classes of intellectual property rights. The digitization of information creates a

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340 It is in fact essential for the Information Society to be able to handle and transfer information effectively. This is best carried out using information and communication technology. See Tapscott 1996, 49.

341 Acts supporting rights management have emerged from three dimensions. State regulation as national and international legislation is generally directed towards updating the fundamental copyright principles to include digital acts and uses in the legislation in an effective way. The reform of legislation also includes the strengthening of the position of right holders. The fundamental aim is to establish the ability of authors and copyright owners to implement and protect their works by taking advantage of these new technological measures. This ought then to promote electronic commerce in copyrighted works. If we are to have undisturbed exchange of copyrighted works, we must have tools - both legal and technological - to provide copyright owners with the means to prevent piracy. See Sand 2002, 2.

342 The convergence of networks may be examined through and defined as the capability of networks to carry a range of data, voice and video services at high speeds, and two-way interactivity. See Grewlich 1999, 37. Convergence is carried out at several levels, for example, as media convergence, equipment convergence, service convergence and convergence of contents. See *NOU 1999:26*, 32 - 34. A good example of the convergence of equipment and content is the ring tones of mobile phones.

343 The purpose here is be able to treat each kind of copyrighted work in a certain way. For example, some categories of works do not have the same sets of exclusive rights as do others. On the other hand, certain privileges to copy are available to certain classes of copyrighted works but not to others. See Samuelson 1990, 332.

344 These consumer devices are telephones, TVs, personal computers, stereos, cameras, game consoles, radios, and faxes. Further, interlocking technologies induce convergence in the underlying industries, as the established actors merge or form strategic alliances across sectoral boundaries. On the one hand, firms seek to take hold of a larger share of the value chain and, on the other, strive for specialization and networking. Finally, convergence gives rise to new services stemming from cross-sectoral fertilization. See Paija 2001, 14 - 15. Convergence is also carried out at the level of equipment, with the same equipment potentially utilizing the same content. See *SOU 1999: 55*, 36 - 37.

certain contextual convergence for different intellectual property rights. Traditionally, there has existed a clear distinction between patenting and copyright. Basically, patents have been used for protecting hardware applications (*hard technology*), whereas copyright is more likely to be associated with softer applications (*the soft mind*).[345] The distinction is disappearing not only because the two are coming closer together but also because the concept of a work as a whole has weakened, a consequence of the plasticity of information that enables multiple uses of it.

An example of convergence and the plasticity of information is *sampling* in the music industry. Sampling is based on technologies where sounds are recorded as a series of discrete numbers that are further processed by a computer.[346] These numbers are then converted into digital recordings and stored on computer disks through the use of a sampler.[347] The collapse of the object is evident if one considers the consequences of digital sampling: it allows one to cut a sound recording up into sound bites that can be re-mixed and/or combined with sound bites from other recordings to produce a new one.[348] Sampling actually illustrates the most paradigmatic change in viewing the concept of a legal object.

Ownership has offered one of the most fundamental ways to construct the relationship between a legal object and legal subject. Now that ownership as a unified concept is collapsing, it is even easier to see the *divided character of a legal object*. The traditional way to consider a legal object as an absolute and exclusive undivided entity has thus been called into question by recent developments. A legal object is no longer defined as a unity that includes only one, undivided right. Rather than being a strictly defined object, a legal object is a combination *of opportunities*. These opportunities are further described as the

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345 See Dommering 1991, 15.

346 Sampling is another technique that uses digital information and information technologies. The digital recording process is used for storing, processing and generating audio signals. The computer-processed numbers may then be stored for retrieval or further processed by mathematical algorithms in order to modify the waveforms they represent for musical effect. See Giannini 1990, 510.

347 Digital processing can also be employed to compose and render music using sounds which have no conventional instrumental counterpart. A composer may utilize sounds from the environment, conventional acoustic instruments, a computer synthesizer or pre-existing recorded sounds. The sampled new products are not usually recognizable as derived from the original recordings. With digital techniques it is possible to capture any sound in the universe. When the sound is sampled once it may be reproduced exactly or altered in any way. At least two questions arise here: Are individual sounds or short passages copyrightable, and does the use of individual sounds from another's work in a new recording constitute copyright infringement? See Giannini 1990, 509 - 511.

348 By using sampling technologies it is possible to lift one or more sounds or an entire passage of an already existing recording and insert it into one's own recording. Other data that can be processed are photographs, which can be manipulated digitally, or computer programs, which can be re-engineered. See Samuelson 1990, 330.

positions of several actors and are seen as interrelated. A legal object conceived of as this kind of constellation of opportunities may be also described as a *position* (*positio*).[349]

2.4.2 Gradual changes in the concept of legal subject

Rights are assumed to be the link between subjects and objects and thus to *bind the parties of a legal relationship* together. According to the traditional legal system, there should always be someone to whom rights and duties are directed. The traditional system was further built on the liberty and freedom of subjects to act.[350] This is the foundation of the dichotomy of legal statics and dynamics as seen from the traditional point of view. The digital economy, however, affects both static and dynamic rights and changes the characteristics of both slightly. The most fundamental change is that seen in the context of dynamics: the kernel of dynamics is balanced with *functional cooperation*, where right-holders actually have to work for their stakes.[351]

As such the parties to a legal relationship operate more or less as active stakeholders. Where traditional dynamics rest on the strength of legal positions, modern dynamics are founded on *activity in cooperation*. In other words, the right to attain or reach a stable position that was traditionally created by law is now replaced by activity to fight or work for that position. In all cases, the coexistence is a form of communication. The pure subjects of legal relationships are replaced by cooperating parties, who may even have contrary interests, at least partly. This undermines the established concept of the legal subject, exactly as happens in the case of the legal object. A legal subject is defined more through the communication of the active parties and the passive ones as the essential framework of operativity. These parties may further be defined as *stakeholders* (*intressitaho*). The focus is set on the interconnected interests of the stakeholders, it being equally significant whether the stakeholder has been participating in the cooperation project him- or herself or whether he or she has formally been considered an outsider. The fundamental element

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349 Also characteristic of this combination is that it is only temporary, in which respect it differs from the traditional definition of a legal object. Accordingly, it is characteristically bound to operativeness and activity. See Pöyhönen 2000, 56.

350 See Pöyhönen 2000, 53.

351 An illustrative example is a peer-to-peer network, where the operational framework and content providers actually become more and more of a unified entity. See Still 2002, 305. According to Webopedia a peer to peer network is a network in which each workstation has equivalent capabilities and responsibilities. This differs from client/server architectures, in which some computers are dedicated to serving the others. See http://www.webopedia.com/TERM/p/peer_to_peer_architecture.html

here is the essential *interconnection of interests*.[352] An illustrative example of this is offered by networking, where single legal subjects are replaced by the overall network as an actor.[353]

The interconnection of legal subjects may be examined in terms of convergence. Convergence affects content delivery even more fundamentally than by only changing the requirement for a strictly defined object. One essential consideration is the distinction between communication media, which has its consequences for the statuses of legal subjects. These media have greatly affected how different works are made available to the public. Some works may be shown as motion pictures, while others are more suitably presented as tape recordings. Although motion pictures also require a machine to be presented, they are significantly different as a medium from sound recordings. The differences arise also in the technology by which the different media have been created. Floppy disks are a medium created differently from printed books. The third divergence is that of the distribution channels by which the different media are distributed to their particular public.[354] Books, for example, are made by a printing press and then sold widely in bookstores. All of these changes in medium affect the subjects of the operations involved.

Media convergence has also had impacts in that it has resulted in the collapse of overall diversity in communication. Any work that can be represented in some other medium can now be represented in digital form.[355] In this form it may be used to operate a computer or other data processing unit, or to perform some other function. Therefore, once in digital form and hence protected by copyright, works will become less and less differentiated by type and more and more equivalent to one another. They will now all be available on the same medium.[356] This digital equivalence will make it ever easier to combine what have been thought of as *separate categories of works* to create works that will be

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352 See Pöyhönen 2000, 53.

353 This means that the rights and duties are focused on the networks instead of on single actors as legal subjects. On the other hand, a network often consists of several different actors or organizations that vary continuously with the surrounding circumstances, e.g., the economic framework. See Ebbesson 2001, 11.

354 See Samuelson 1990, 332.

355 The institutional development of copyright can be seen clearly in the consequences of the blurring of the firm distinction between data and machine. Computer programs have made this distinction more difficult to define, and the institution suffering from this change is copyright. Computer programs are often quite mechanical or technical, and as such they are not necessarily a good object of protection for copyright. Accordingly, patents are also issued for methods of representing, organizing, and manipulating data in computer programs. See Samuelson 1990, 334 - 335.

356 See Samuelson 1990, 332 - 333. On the other hand, representing analog information in digital form may cause interpretation problems. For example, the right to transfer a table of contents into digital form has been considered reproduction and as such an exclusive right of the copyright-holder. See *Copyright Council of Finland TN 2000:13*, 2.

difficult to classify.[357] The digitization of products and convergence of distribution channels thus both pose great challenges for rights management. Development has mostly affected the distribution of content, which has changed from an offline model to online one. The two means of distributing content are based on essentially different business models. Many of those models have been, or could possibly be, enabled or improved by digital rights management technology.[358]

Further, digitization makes it possible to combine many different forms of information to create *multimedia* documents. Multimedia is another example of the functional cooperation of stakeholders.[359] This development here is described as a breaking down of the physical boundaries between products, in which even the traditional ways of defining products must be changed. Multimedia is seen as constituted of several different types of information, which makes multimedia products *information products*. Multimedia may include text, sound, still and moving images, and data.[360] In digital form, traditional stand-alone products or works may be composed of several different fragments or even pieces. On the other hand, according to *The Supreme Court of Sweden* in case *NJA2000:87* (B4402-97), a video game was considered multimedia and could not be protected as a motion picture.[361]

> *NJA 2000:87.* A person had distributed video game cassettes as part of his business in an unlawful way. The video games were made available to the public as a part of this business. The games included audiovisual elements as well as a computer program, which was an integral part of them, and thus could not be protected as copyrightable motion pictures.

In the broadest sense, this kind of product can be a collection of many separate creations. As such multimedia is rather hard to consider as an asset of only one individual subject but is sooner to be seen as a communicative process among several stakeholders. One additional implication of the increasingly undermined concept of the legal subject is found

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357 One important consequence of this is the elaboration of distinctions that are made among different kinds of works. This especially concerns privileges that allow exceptions that would otherwise be unauthorized uses of copyrighted works. These exceptions will lose much of the significance they had when media were not differentiated. See Samuelson 1990, 334.

358 See Rosenblatt - Trippe - Mooney 2002, 19.

359 Another illustrative example of the continuous cooperation of several different stake-holders is *open-source software*, where all the producers are at the same time users as well. See Bergquist - Ljungberg 2001, 308.

360 Multimedia makes it possible to create some *interactivity* for the users. Interactivity means the ability of the user to receive and to alter the content in real time. See Grewlich 1999, 57.

361 A video game could thus be protected through copyright when the protection was attached to the computer program as a literary creation, the music as a composition, and the images as visual art. See *Copyright Council of Finland TN 2001:15*, 6.

in direct networking. Information networks are usually built up in digital form. The global network is constituted of an overall network of a great number of links that lead the information searcher from one site to another. This mass of information constitutes a network of texts. This networked text is called *hypertext*.[362] Hypertext is built up of links that are connected and mutually operative.[363] Hyperlinks constitute a fundamental part of the infrastructure of the open network as a means of decentralized online information flows. Hypertext connections work through the links themselves, which actually create the hypertext.[364] Thus hypertext is essentially networking text in which the networking is implemented directly through linking technologies.[365]

2.4.3 Expansion of the legal relationship

The concepts of legal subject and legal object are bound together through the concept of *the legal relationship*.[366] Legal relationships are predicated on a twofold schema. This twofold character is essential to a legal relationship because there exists only one right-holder and one duty-bearer at a time. This connection between the two parties is considered the core

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362 Hypertext in fact constitutes the core of the Internet, as this global network would not even exist without the possibility to construct a network of hypertext links. See Herler 2000, 51.

363 The Internet as a *hypertext-based medium* actually increases the ability of users to obtain information. The World Wide Web thus provides easily downloadable and manipulable information, dynamic Web pages, and larger immediate audiences. The dynamics of the Internet are strengthened through the non-linear character of electronic publishing. Non-linear text allows the user to surf freely through a hypertext document by selecting different links. See Major 1998, 83.

364 Digitization thus increases the capacity to search for text or link texts together in order to find suitable information. This places the focus on *search engines* for controlling access to information. Search engines are seen as becoming the new "virtual gatekeepers" of cyberspace and as such may also play a key role in shaping the information environment. See Elkin-Koren 2002, 94.

365 One good example of the opportunities offered by hypertext is a method of organizing an index for a text, which has not traditionally been patentable. Patent law has not allowed patenting of printed material, even if it is technically manufactured. Under this common rule, methods of organizing indexes in printed works would not be protectable. Yet the very same method, when put in digital machine-executable form may be turned upside down, i.e., become patentable. Other good examples are methods of footnoting, methods of linking parts of a text together, methods of symbolically representing how to search a text, and methods of displaying information on a computer screen. See Samuelson 1990, 339.

366 This is the basis of justice in general that is implied in the form of law. Justice in this sense is defined as a social order and is then further characterized through its public nature. Justice is a *construction of social relationships* and it is thus based on multilateral relationships established between people and founded on law. See Tolonen, H. 2003, 10.

of the overall legal relationship.[367] This view is rather point-oriented, however, making it impossible to take any external factors into consideration. It in fact implies that a legal relationship defines only the facts that are significant in this particular relationship.[368]

The twofold structure of the legal relationship is further called into question by networking as the basic cooperative form of the digital economy. Legal relationships may no longer be seen as individual relationships but rather as based on a *comprehensive interpretation*. A legal relationship will thus no longer be based on a clear and strict duality but on a functional network. This is more like a puzzle of different possibilities to act, or like a set of incomplete operations being carried out continuously. Different circumstances must be taken into consideration fully; i.e., all the significant elements of any cooperative project should be accommodated. A comprehensive interpretation hence utilizes an *operational framework* (*toimintaympäristö*) that describes the nature of the collaboration among significant operations, as well as a *governance of collaboration* (*kokonaisjärjestely*) that accommodates the cooperative interests of the stakeholders.[369]

A good example of the expanding view of the legal relationship is the case of information and its commodified character. Information is characteristically dynamic, as will be any activity that is bound to information. One of the most significant implications of the dynamics of information is that information is an *experience good*. Information needs to be experienced rather than possessed.[370] Even if information is uploaded onto a physical medium, it needs to be experienced in order to get its message. This dynamic affects the view of the legal relationship. A corresponding example is open-source software when considered as a social community. In the open-source community, the rules of social behavior are set by the overall networking community, with the value of shared information assessed in terms of the social context where the information is communicated.[371]

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367 On the other hand, a legal relationship is no longer necessarily a relationship between two different actors but rather is defined as *intersubjective communication* that is carried out between the actors in a social relationship. See Tuori 2000, 100.

368 This is questioned by the expansion of the single legal relationship towards a cooperative model as the prototype of operations. This may be seen as a *tripartite* rather than a bipartite *relation*. Rather than being an either-or question, a tripartite frame is an assessment by degree of the responsibilities of the participating parties. See Pöyhönen 1997b, 549.

369 These elements and circumstances may be derived from the origin of the legal relationship or they may materialize later. The legally binding force is thereby defined only as based on the circumstances where the legal relationship is realized. See Pöyhönen 2000, 56.

370 See Barlow 1994, http://wired.com/wired/archive/2.03/economy.ideas_pr.html

371 Open-source licenses thus ought to ensure free use of software without any discriminating restrictions, copying and distribution without any royalties, modification without any royalties, and open and easily available source code. See Välimäki 2005, 113 - 114. One of the most crucial issues in the gift economy of the open-source community is found in the social context of the gift giving and the meaning of the gift in it. Basically, in these communities the value of a gift is dependent on the *amount of attention* the giver gets from the receivers that choose to make use of the gift. See Bergquist - Ljungman 2001, 314.

2.5 Summary: A change in the balance of the dynamics

Market communication is founded on the exchange of goods and services, with exchange constituting the core of the functionality of the market. On these grounds, the market may be defined as a *mix of statics and dynamics* in that it consists of the interplay of both of these elements. Statics are implied in the exchange of goods through the stability of property. Property is the kernel of exchange and it is thus property that is transferred to other actors and by these means exchanged. In this context, property itself remains generally unchanged. On the other hand, dynamics are highlighted in the act of exchange itself. This makes the market essentially communicative. This communication is further composed of certain prerequisites that constitute the very framework of the market. First of all, a market is formed wherever there is some supply and demand, these both being necessary constituents of any communicative market. Further, supply and demand are linked together through exchange, which makes the market functional. The third prerequisite for a functional market is that commodities have a price as a definitive part of their value. This is the very core of market dynamics. The static structure of supply and demand is not sufficient to create a functional market. It is only exchange as a functional element and market price as a contextual one that together make the market dynamic.

Market governance as allocation of wealth is generally carried out through *private ownership*. The superiority of private ownership over public is based on better economic efficiency or the necessity of governing scarce resources by private ownership. If a resource is really scarce, and if there are a number of people who have a free right to access and use this resource, these users will exhaust the resource by their overuse. Overuse is usually caused by free access to resources that are often produced publicly and offered freely for consumption. This represents the prototype of the tragedy of commons. It is precisely governance through private property that has been considered the solution to the *tragedy of commons*. Rights governance is generally based on the mutual relation of resources and society. It seems to be the *interplay of resources and society* overall that obscures the sustainable answer to both of those problems, namely the tragedy of commons and rights governance. These issues also arise where the amount of resources is restricted and it seems that the scarcity of resources may best be addressed by removing scarcity. The variety of collaborative interests is generally based on converting resources into an exchangeable form. This means that resources need to be treated as goods and commodities although as such resources are better suited to the needs of the market and exchange.

There exist some anomalies in the digital framework that are changing the utilization of property as a rights governance system. Digitization in fact contributes to the *breaking down of the concept of the legal object*. It thus has a profound influence on the products to be used, and the ways in which they are utilized and delivered. This influence thus partly

focuses on the changing context of products, whereas the traditional view is rather extensively linked to the solidity of objects. This means that rights need to be complete before they may be assigned to anyone. An incomplete right is rather impossible in this traditional system. This is also why the traditional way to consider the legal object as an absolute and exclusive undivided entity must be criticized in light of recent development. The legal object is hence no longer defined as an entity including only one undivided right but rather is seen as a combination of opportunities. These opportunities are further described as interrelated positions of several actors.

Further, rights are considered to be the *connective link between subjects and objects* and thus as binding the parties of a legal relationship together. According to the traditional legal system, there should always be someone to whom the rights and duties are assigned. The traditional system is thus predicated on liberty and, more precisely, the freedom of subjects to act. This is the basis of the dichotomy of statics and dynamics as seen from the traditional point of view. The digital economy, however, affects both the statics and the dynamics of rights and thereby changes the characteristics of both to some extent. The most fundamental change occurs in the context of dynamics. Namely, the very core of dynamics is balanced with functional cooperation, in which the right-holders actually work to make their contribution as active stakeholders. Where traditional dynamics rest on strength of legal positions, modern dynamics are founded on *activity in cooperation*. The pure subjects of legal relationships become replaced by cooperating parties, who may have even opposite interests, at least partly. This development has eroded the monolithic concept of the legal subject, exactly as has occurred in the case of the concept of legal object.

The concepts of legal subject and legal object are *bound together through the concept of the legal relationship* as a twofold construct. This is further questioned by networking and the governance of collaboration as the basic forms of collaboration in the digital economy. Legal relationships may thus no longer be seen as single relationships but rather as based on a comprehensive interpretation. The legal relationship will no longer be based on a clear and strict duality but on a functional network that is more like a puzzle of different possibilities to act or a set of incomplete operations being carried out continuously. Different circumstances are to be fully taken into consideration; i.e., all the significant elements of any cooperative project ought to be accommodated. The comprehensive interpretation of a legal relationship is hence carried out by utilizing the operational framework to describe the collaboration of significant operations.

3 SOCIETY. COMMONS AND COLLABORATION

3.1 An excursion into commons

Commons are generally defined as resources that are *common to all members of society*.[372] As such commons are preserved for the use of everyone, with this use typically free. At the architectural level, commons may thus be defined as resources that are free. "Free" here does not mean that access to commons is granted at no cost but that if there is a cost, it is imposed on a neutral or equal basis. A good example of commons is public streets. One is free to enter public streets whenever one likes and one may go in any direction one wishes. This occurs without any certificate or authorization from the government. Another example is open-source software, where the source code is available for anyone to take, use, improve, or pass on. No permission for this is needed.[373] Public streets and open-source software are commons because they are within the *reach of the members of the relevant community* and access to them is not subject to permission from anyone else.[374]

Commons are often described as *the public domain*. The public domain does not, however, comprise all the uses that can be privileged to a user but only the unprotected ones. For example, information is in the public domain to the extent that no person has a right to exclude anyone else from using the specified information.[375] Products and articles in the sphere of commons are designated for utilization by everyone. On the other hand, the sphere of commons may be likened to the scope of *standardization*. Standardization applies to the non-individualization or mass production of a class of identical items.[376]

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372 The term *"commune"* is Latin and means common property or state commonwealth. Further, *"in commune"* is for the public good or *"for the common use"*. *"Communis"* means shared, common, general, universal, and public. See Simpson 1977, 121.

373 Open source software covers both the right to copy source code freely and the right to distribute it. These rights belong to everyone as members of a community. See Välimäki 2002, 851. Open source software is also developed in non-commercial, voluntary projects where a number of developers create, test, improve, document and maintain computer programs and program modules. For this purpose the source code needs to be accessible. See Holtgrewe - Werle 2001, 45.

374 The point here is not that no control is present but rather that the kind of control is different from the control we grant to property. See Lessig 2002b, 1788. Another good example is nature globally and its resources as a *common heritage of mankind*. See Wallius 2001, 89 - 90.

375 The public domain constitutes the area of commons that includes the aspects of copyrighted works that copyright does not protect. Information is in the public domain if all users are equally privileged to use it. See Benkler 1999, 360 - 361.

376 Standardization may be contrasted with *customization*. Customization involves individualization, production of an unique item, or attention to a particularized person or application. For example, clothing may be either customized or standardized. Custom-made

Attention is not paid to any particular person or application; rather commons are preserved for use by all people.

The sphere of commons is, at least partly, based on an *altruistic view* of society.[377] In order to be functional, society needs to cooperate and communicate and the pursuits of individuals ought to be carried out for the good of the overall community. In virtual communities, this takes place for instance by giving away written texts.[378] The altruistic character of commons is best described using the hypothetical example known as the *prisoners 'dilemma*.[379] The dilemma is based on the capture of two burglars. Both have to choose whether or not to confess and implicate the other. If neither confesses, both will be jailed for two years. If each confesses and implicates the other, both will go to prison for five years. However, if one burglar confesses and implicates the other, and the other burglar does not confess, the one who has collaborated with the police will go free, while the other will go to prison for ten years.[380] The solution to the prisoner ś dilemma is based on rational decisions: both burglars want to minimize the time they spend in jail. Burglar A reasons as follows: "Two things can happen: burglar B can confess or remain quiet. If he confesses, then I get ten years if I don't confess, five years if I do, so it ś better to confess. On the other hand, if he doesn't confess, I get only two years if I don t confess either or go free if I confess. Either way, it ś better if I confess. Therefore, I will." But the other burglar can and presumably will reason in the same way, so that they both confess and go to prison for five years each. If they had acted "irrationally" and kept quiet, they each could have gotten off with two years each.

The prisoner ś dilemma belongs to *static game theories,* where the amount and quality of information to be utilized is complete. All the actors know all the options at the very beginning. The problem arises with the simultaneity of decisions. The actors have to make their decisions at the same time, without knowing the decision of the other. The actors know all the options of the other party: the only uncertainty is the decision of the other

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clothes are made to order, individualized, and tailored to suit a particular person; off-the-rack clothing is mass produced. See Radin 2002, 101 - 102.

377 This implies that in the sphere of commons, if described as *altruistic*, no one is allowed to behave selfishly, i.e., look after only his or her own interests. An altruistic view prescribes that everyone take care of others and their benefit and consider his or her own good as only secondary. See Airaksinen 1987, 118.

378 A good example of a virtual community is the community created and maintained by the developers of open-source software. In the open-source community, the giving of gifts is also focused on giving pointers and advice. Accordingly, such communities are often described as "a marriage of altruism and self-interest ". See Bergquist - Ljungberg 2001, 309.

379 The prisoners 'dilemma is a theoretical construction of *A. W. Tucker* from the 1950s and is the most famous illustration of game theory. The name is derived from a dilemma where there are two prisoners speculating on their possibilities of getting as light a sentence as possible. See Airaksinen 1987, 152 - 153.

380 See Airaksinen 1987, 153.

party.[381] This is due to the unmatched character of the decision-making, which means that there does not exist any information about the behavior of the actors in previous similar cases.[382] The undesired result in the prisoners' dilemma is caused by a *lack of communication*.[383] If all the actors pursue only their best interest or act rationally only for their own good, their common advantage will seldom be realized.[384] Pursuit of the common good and wealth is generally the focus of the sphere of commons, whereby the commons should be based on fluent communication. On the other hand, a lack of communication often entails an *asymmetry of information;* i.e. one party does not give sufficient information to the others.[385] In exchange and market operations information asymmetry may even be necessary for creating innovation and growth.[386] For cooperative relationships it is rather disadvantageous, however. Asymmetric information changes the overall operational pattern in such a way that it becomes impossible to predict the acts of the other party.[387] Both parties act only for their own good. This does not work for the good of the community, which implies that increasing mutual communication and thereby decreasing information asymmetry is best for society overall.

The scope of commons thus includes the need to communicate as the key to *symmetrizing information flows*. Commons are crucially based on the coexistence of cooperating stakeholders and thereby reconciling their mutual interests. This implies rather free utilization of the commons. As such the sphere of commons is *slightly dualistic* in character, defined as located between totally free natural resources, such as pure air, and totally controlled resources, such as ordinary commercial goods. This is well illustrated in some

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381 See Virtanen 2001, 38.

382 This is characteristic of *static game theories*. In static game theories, the number of moves is restricted and the actors have to make their decisions all at the same time. See Virtanen 2001, 38.

383 Some communication may arise when a static game theory is replaced by a dynamic one. Dynamic game theory is hence based on the continuity of the game which is not one-turn, but consists of several opportunities to act. Because of the continuity of the game in dynamic game theory, it is always possible to exploit background information and make decisions based on this. See Virtanen 2001, 40 - 41.

384 This, however, occurs rather rarely in modern society. There exists legislation to ensure that the operations crucial to the existence of society are carried out as smoothly and reasonably as possible. Altruistic behavior does not always seem individually reasonable. See Airaksinen 1987, 154.

385 On the other hand, the party possessing more substantial knowledge than the others, should, within certain limits, be offered the possibility of benefiting from his or her advantage in this respect. It may be considered a prior choice not to obtain more information. Accordingly, a party losing a deal because of lesser knowledge cannot always receive compensation. See Pöyhönen 1999, 53. Then again, all the market actors ought to have equal changes to get information if considered as ideal actors from the viewpoint of civil law. Actors are considered to have all the information that is needed for rational choices. See Häyhä 2000, 41.

386 See Lamberton 1998, 328 - 329.

387 See Virtanen 2001, 38 - 39.

further descriptions of commons, e.g., access to information and to its foundational background structures in today's digitized and informatized society. Information thus should be as functional as possible. In order to become sufficiently functional, information needs to be based on some rules for circulation and access to it. An inventor is thus entitled only to the limited ability to retain exclusive control over his or her invention, with the rest deemed to belong to the sphere of commons.[388]

This look at commons requires one additional element, one that derives from commons themselves. This is the use of ideas as completely free resources, with free utilization best illustrated in contrast to the corresponding utilization of tangibles. The free use of tangibles, even if they are commons or part of the public domain, differs substantially from the free use of intangibles. The use of ideas does not restrict anything, whereas the use of tangibles still usually consumes the utilized resource.[389] Ideas are not rivalrous in the sense that tangibles are, provided the traditional framework remains in place. The framework, however, has been changing along with communication in the transition to open networks.

3.1.1 Commons as free resources

The scope of commons is crucially based on communication. Communication is necessary as an instrument for eliminating information asymmetry. This entails some requirements for rights governance; the sphere of commons may be described as a governance structure where no one has the right to exclude others from access to commons. On the other hand, unrestricted access is largely based on an overall *ability to control*. The sphere of commons is controlled by no one, as such resources are generally free for all to use. Commons are thereby often described as non-rivalrous by their very nature. For example, a mathematical theory is non-rivalrous in the sense that use of it does not compete with use by others; it may be used by several users at the same time.[390] Accordingly mathematical algorithms are a part of commons and may generally not be patented as such.

The free character of commons is originally derived from their relation to society at large and its organizations. In Roman Law the scope of commons was known as *"res extra commercium"* or *"res communes"*, due to some resources being incapable of acquisition or any other act of exclusive appropriation.[391] In society some resources are *completely free*. All

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388 See Rose 2003, 95.

389 See Lessig 2000, 6.

390 See Lessig 2002a, 20 - 21.

391 In Latin, the term for "republic" is *"res publica"*. See Simpson 1977, 814. For example, the oceans and the air are considered as res communes. They are hence generally impossible for anyone to own. See Rose 2003, 93.

societies in fact have resources that are free and resources that are controlled. In this complex, free resources are those that are available for taking freely. "Free" in reference to the status of resources implies that the resource is free not in the sense of free commodities, but in the *sense of free speech*. A resource is free first if it may be used without permission of anyone else or, second, if permission, although needed, is granted neutrally.These free resources are further defined as commons.[392]

One particular facet of commons is *their collective character*. This is well illustrated in the way people learn to do new things. Learning is characteristically collective and occurs through imitating and copying others. Copying and imitation are thus central to the general process of learning and acquiring skills.[393] Copying and imitation are thus the essential way to obtain a great deal of socially valuable information. The creator of an innovation is always a borrower of ideas and information. Ideas and information need to be exchanged if they are to increase in quantity. [394]Free resources have always been crucial for innovation and creativity. There does not, however, exist any correlative relation between the production of a resource and the granting of access to it. In other words, the production of a certain resource by no means entails granting access to that resource. In ths way production differs completely from mere consumption.[395]

Free resources are also essential to society at large. These socially essential free resources include reference works, for example, which are supposed to remain in the public domain. Some information is fundamentally common in that it may not be owned in any way. One crucial argument for this policy is the generality of information stated in the case of *Feist Publications*, where copyright protection of a telephone directory was denied.[396] The denial was based on a clear distinction between expression and idea.[397] Information itself

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392 In the digital age, the central question is whether resources should be regulated at all. Stricter control has become possible, but this does not mean that just because control is possible it is justified. However, producing resources always costs money, even when a resource is free for its users. Everything but use involves expense. See Lessig 2002a, 12.

393 Production seems to derive directly from the mutual communication of workers, whereby the level of production is generally set by social norms rather than physiological capacities. Further, non-economic rewards and sanctions significantly affect the behavior of workers in that they largely limit the effect of economic incentive plans. Nevertheless, workers often do not act or react as individuals but as members of groups. See Etzioni 1964, 35.

394 In the case of learning, intellectual property rights transfer information from the area of commons towards the private realm. This is mainly carried out through putting a price on information and raising the cost of borrowing. See Drahos - Braithwaite 2003, 2.

395 Governing consumption is organized in various ways. The ordinary rule for most of the goods is the *"pay me this for that"* model. In the digital environment this takes the form of pay-per-view or pay-per-listen. Cable televison or a music jukebox are good examples of the *pay-per-view* model. See Rosenblatt - Trippe - Mooney 2002, 26 - 27.

396 Among other things, there can be no valid copyright in facts that are understood universally. See *Feist Publications, Inc. v Rural Telephone Service Co.* (1991) 111 S. Ct. 1282, 1290.

397 See Loughlan 2002, 35.

ought to be preserved in the public domain; expression is the only thing to be protected.[398] This clearly implies that the free circulation of information is a fundamental element of free resources. The free circulation of information is thus crucial to the sphere of commons.

The free flow of information as the core of commons applies also to the distinction between the *expression and the information* itself.[399] This is well illustrated in the case of a collection of information where there is no original written expression. It is only the compiler's selection and arrangement that may be protected; the facts themselves may be copied freely. The dichotomy of idea and expression thus has great significance in keeping ideas in free circulation. This actually seems to suggest a deeper division between private and public. The private sphere contains purposes that are amenable to market relations and individual ownership, whereas the public sphere defines the public domain as being beyond the reach of any private ownership. Those purposes characterized as ideas are a part of the public domain, whereas the protected form of expression characterizes private ownership. Expression is commodifiable but ideas are not.[400]

The sphere of commons is sometimes even more fundamental in that the plane of pure *categories of ideas* may fall into the public domain.[401] These categories mainly consist of basic societal information and ideas. Both are further considered to be so fundamental for societal coexistence and overall functionality that they simply cannot be excluded from common use. One example of crucial information as the kernel of society is the *compulsory license* in patent law. A compulsory license is defined as permission ensured by a court of justice. The purpose of such a license is to place the patented invention at the disposal of society. The compulsory license system exists precisely to ensure possibilities to exploit certain socially critical resources. The exclusive nature of a patent is reduced through a compulsory license. On the other hand, a compulsory license sets the interests of state or

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398 An illustrative example is *Sony Corp. of America v. Universal Studios, Inc.* 464 U.S. 417 (1984), the so-called *Betamax case*, where the viewers of a videotaped program were considered to commit copyright infringement by videotaping programs and watching them at a later time. The Supreme Court of the United States determined that this activity fell within the fair use exception (17 U.S.C. §107 (1994): Limitations on exclusive rights: Fair use). According to the holding in the Betamax case, when a Web page is made freely available there should be no copyright infringement, because a fair use exemption applies. See Major 1998, 95.

399 This is the difference between owned, and thereby legally protected, original text, and information that is available freely either as a part of the public domain or as a fact that does not approach the limit of originality or creativity required for inclusion in copyright protection. See Leith 2000, 360.

400 See Loughlan 2002, 42.

401 At least ideas, schemes, systems, functions, facts, procedures, methods, mathematical concepts, processes, methods of operation, concepts, principles, and discoveries are excluded from the sphere of copyright protection. See Loughlan 2002, 36.

community above those of the patent-holder and thereby ensures the spread of information.[402]

3.1.2 Control of commons

Information as a free resource constitutes the *essence of ideas*. The free circulation of ideas and information is the basis of commons. The free flow of information is derived directly from nature, where there are no boundaries limiting the spread of ideas or information. This is well stated, for example, in defining the *boundaries of intellectual property*, where the law fixes and shapes the internal meaning of intellectual property rights. Without the state there would be no patents, copyrights, or any other intellectual property rights. Intellectual property and the rights concerning intellectual property are thus always *fictions* that are created by law. This is in fact stated in the scope of protection provided by intellectual property rights. Copyright law limits itself to protection of expression, and in this way makes the author's ideas freely utilizable as public domain resources. The function of patent law is precisely the same: it concerns the physical applications of technological knowledge rather than that knowledge as such.[403]

The other defining factor in constituting the control of commons is the need to *be able to define the boundaries* of certain protectable inventions. This definition ought to be carried out in strict terms. However, the different domains of intellectual property rights and their boundaries have been changed by digital media, making protection more and more difficult.[404] Indeed, digitization has changed the essential prerequisites for producing and using information. Different kinds of information may be combined and information in general may be reproduced easily. The difference involves more flexible use of information, as both producing and reproducing it has become much easier. In this way digitization partly reduces the distinction between protected works and unprotected information. The scope of control is realized in accordance with this variation.

The control of commons is nevertheless necessary. Here one important factor is the rivalrousness of commons. Rivalrousness implies control to some degree of the scope of commons in order to organize their use. Even more significant for constituting and justifying the control of commons is the character of a given resource and the way in which it relates to the community. This means that any resource may be defined as being or becoming a part of commons by simply reserving it for common use and thus defining it

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402 See Oesch - Pihlajamaa 2003, 86.

403 See Thomas 1999, 10.

404 It becomes hard to find the most appropriate form within which one's intellectual property should be filed to become/remain protected. Inventions to be patented, for example, may be based just as well on biotechnology and genetic engineering as on software and computer code. See Webster - Packer 1996, 5.

as a part of commons. However, society cannot afford to make all resources common ones. There always exist at least two crucial questions: first, *which resources* should remain commons and, second, how should this *common use* be organized reasonably enough.[405] It is thus not only the test of rivalrousness that determines commons but at least as much the significance of the resource in the community. One established answer in examining control of the commons is ownership.[406] In the tangible world, resource distribution and the control of tangible resources is realized by fencing. Fencing thus corresponds to the drawing of boundaries in order to define the scope of ownership. A good example of this kind of fencing and, at the same time, of fixing the line of demarcation between controlled and free resources, is again found in the case *Feist Publications, Inc. v. Rural Telephone Service Co*. Uncreative compilations of facts were considered unprotectable and thus out of the scope of ownership.[407] On the other hand, this strengthened and enlarged scope of the public domain.[408]

In the case of commons defining ownership involves difficulties however. The most serious problem arises precisely with regard to the *common character of commons*; i.e., the organized utilization of the commons always requires defining the scope of utilization by fencing. When carried out properly, fencing is usually founded on sharing arrangements. In the case of commons, sharing is the only way to organize the utilization of a common resource, because of the character of the resource and its relation to society. Such resources are usually free and thereby *uncontrolled*. For example, it is difficult to reserve a free-swimming fish for any individual member of a community. A free animal usually remains free. As such a free fish is a part of *res nullius*, i.e., things that naturally may not be defined as non-exclusive.[409] A fish can, however, be reserved for the community as a whole, when it is reserved to exclude a group of outsiders. The right to fish may then be developed

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405 See Lessig 2002a, 21.

406 In the case of commons, ownership may seem irrelevant. If no one controls commons, then everyone owns them. Furthermore, if no one controls the commons then it is irrelevant who owns them. Ownership is, however, an important source of controlling power. See Ghosh 2002, 472

407 *Feist Publications, Inc. v. Rural Telephone Service Co.* 499 U.S. 340, 363 - 364 (1991).

408 A good counterexample of the varying scope of the public domain is the protection of *databases*. Database protection has actually reduced the extent of the public domain and strengthened the ownership of information. See *Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the Legal Protection of Databases*. A database may also be protected as a *collection of information*, with the protection being no longer only the protection of labor or how the information is organized but rather being extended towards protection of the information itself. See Kemppinen 2001, 14 - 15.

409 Characteristic of such resources is that they may be appropriated but the appropriation has not yet occurred. See Rose 2003, 92.

within the community through rules regulating how much each member is allowed to catch.[410] In this way controlled resources are distinguished and separated from free ones.[411]

This is in fact exactly the extent of control where commons are concerned.[412] The controlling function of ownership is even more clearly employed in the network environment. Ownership in a network is strictly *bound to the structure* of the network. It is the structure of a network that defines ownership, with ownership then affecting the control of the network. In this way the network architecture may become a part of its ownership. Owning the network is further carried out through the computer code that constitutes the kernel of the network. If the code is owned, it may be controlled. If it is not owned, control is more difficult. On the other hand, a lack of ownership in the network, in the sense of lacking property rights, implies an inability to direct how ideas will be used. This further implies that the presence of commons is actually a significant tool for limiting certain forms of governmental control.[413] On the other hand, the sphere of commons may be treated exceptionally when compared to a traditional tangible resource. The sphere of commons does not consist of things, nor are commons even treated like things. Commons generally consist of the capacity of their users to communicate and as such are renewable resources that form an input into the value that is to be maximized.[414]

The sphere of commons is also well described through *new forms of utilizing property*.[415] Here, the focus is set on who is entitled to introduce and exploit these new forms of utilization. These forms may arise as expansions of the scope of previously owned property as new definitions, or as new ways to exploit property are to be invented. Namely, it may be that new uses are not exploited even by the owner. An owner's use may be restricted in favor of the common interest, with that use preserved exclusively for the use of the whole

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410 See Mackaay 2002, 142.

411 Generally, where fencing is insufficient for establishing individual property rights, resources will not be left with open access. The limited common property regimes avoid the dangers of overuse and underproduction. Thus the sharing arguments are not primarily set up for the pleasure of sharing but for better property rights because of the fencing problems, when one must still manage scarcity. See Mackaay 2002, 142.

412 The question should no longer be whether the state or the market should regulate the resources but whether the resources should be controlled or free. In a democratic and equal society, there is a general pursuit of some kind of self-governance. Self-governance implies individualistic autonomy, on the one hand, and political self-governance, on the other. These aims are attained in different ways and through different means of distribution. There are, however, some stable and sustainable explanations for preferring commons over both a privately owned communications system - whether or not regulated as a common carrier - and a publicly owned one. See Benkler 2002, 293.

413 See Lessig 1999, 7.

414 This applies especially to wireless communication networks and their utilization. See Benkler 1998, 359.

415 This view has been used for describing ownership paradigms. See Määttä 1999, 268.

society.[416] An illustrative example here is sampling, which is one of the new forms of digital assets. Sampling is a means to alter and modify already existing digital content, for example, music. If expression is defined by what the content does, it no longer counts as the same expression in the new context. In other words, the expression is not employed similarly in its new role. Context affects purpose. The old expression is no longer the same expression, and not even the same idea, if the context changes radically.[417]

3.2 Some common interests

3.2.1 Communication and communicative signs

Society is communication. Societal communication is crucially based on communicative signs.[418] These communicative signs and communication are both crucial for societal life overall. In the present day these communicative signs are usually *written characters*. The language in which we communicate is mainly represented in a written form where the scripts correspond closely to the phonological rules of speech. Written text thus has a close relationship to organized uttered sounds.[419] Language is, however, not realized only through writing but is more fundamentally focused on communicating with others.[420]While communicative signs may be significant in themselves, they always have a certain basis in the framework in which they are used.[421] An illustrative example of this in the exchange economy is the *bill of exchange*. The meaning of signs is hence founded directly on

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416 The question is interesting in environmental law, for example, because the legislation in this sphere often concerns new and previously unknown ways to utilize property. For example, building underground may be questionable. On the other hand, according to the concept of ownership the rights of the owner are undefined, whereby novel forms of utilization would also be included in ownership. See Määttä 1999, 268- 269.

417 See Vaidhyanathan 2001, 145.

418 The communicativeness of society is clearly based on the fundamental character of communication. Communication is considered as the basis of society in that a society has always been considered to exist when several individuals begin to communicate with each other. See Simmel 1999, 20.

419 Generally it is speech that in the Western philosophies of language has been assumed to have come before writing. Writing was first developed as a means of pictorial representation and alphabetic writing established an effective means of representing sounds. The superseding of pictographic by alphabetic writing may be considered as evidence of cultural progress. See Mengham 1995, 29 - 30.

420 Messages were communicated to others for example through signs in nature or drawings on objects. Colors were/are also considered signs. See Lehtonen, M. 2000, 15.

421 A good example of the framework and signs used in it are *legal abbreviations*. Abbreviations have several functions in addition to making a text easier to read or sentences simpler to understand. From the perspective of language their fundamental task is to hide meanings from those who do not understand this particular language and to symbolize those meanings. See Mattila 2005, 4.

communication and the framework in which the signs are used.[422] In this respect language is the basis of societal communication.

The significance of language as the central means of communication is *based on relationships*. It is only the relationship between a sign and its bearer that makes the relationship understandable and significant.[423] In this way the relationship actually attains some value. Additionally, signs have a clear significance in the tangible world. Signs always have some reference in that world, this reference being effected by connecting certain signs and certain objects to each other.[424] In other words signs have a connecting task. It is precisely this task that is employed in the domain of trademarks. It is the connective function of signs that makes communication the central focus of societal life.

In addition to the value of their interrelationship, signs are used as a means to explain and interpret the world and reality. Human beings are hence most definitely *interpretive creatures*, meaning that they need to make conclusions on the basis of reality. These conclusions and interpretations are then used as explanatory references to the existing world.[425] With communicativeness as the basis of society, societal and cultural creations become *intersubjective*. Relations play out with reference to subjects and the meaning of the symbols which are used in communication. Society, as well as culture, even requires that there be more than one subject associated with any communicative activity.[426] Societal communication is also based on the awareness of those active subjects; i.e., it requires that all the participating subjects are aware of the signs used for communication and understand what the signs used stand for. Signs connect otherwise separated subjects to each other.[427]

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422 In this sense, Web graphics were not copyrightable when they consisted of words and square boxes with search terms. See *Copyright Council of Finland TN 2004:10*, 4.

423 One significant relationship is based on the text itself, where the text is articulated using certain characters. The text consists of a significant, which is further made up of letters organized as words, sentences, paragraphs, and chapters, and a signified as the definitive meaning of the text. See Barthes 1993, 172. The distinction clearly corresponds to that of *sign* (signe), *meaning* (signifié) and *significance* (signifiant). See deSaussure1967, 97 - 100.

424 A characteristic example is found in the area of trademarks. Trademarks closely connect the market and language. Trademarks have even a renovating task in language when they increase the significance of names by making communication more economical. Trademarks create new generic words and at the same time enrich the language. See Landes - Posner 1987, 271.

425 See Lehtonen, M. 2000, 16.

426 Social activity is based on communication. Habermas classifies society in terms of two different spheres: communicative activity (*Lebenswelt*, *lifeform)* and strategical activity (*System*). These together constitute a functional society. Societal integration is also divided into social and systemic aspects. Lifeform is based on communication through language, communicative activity and the corresponding social integration. See Tuori 2000, 91.

427 These signs do not, however, have the same meaning all over the world, or for all people. This discrepancy implies that communication is often rather culture-bound. For example, in Western societies owning things has been considered an indicator of wealth and success. In contrast, for some American Indians ownership has rather the opposite meaning:

The interrelated symbolic meanings of signs mean that signs and their significance in communication constitute the core of social relationships. Social relationships, further, always involve power. Power is used for reaching certain desired results, for example, buying or selling things, or making people obey.[428] In fact all forms of power are based, more or less, on signs and language, whereby these communicative elements may well be used as instruments for realizing power.[429] All these examples of signs and meanings indicate that these elements are functional. As such they constitute a part of a *functional communicative framework*. Signs are not objects as such but rather functions or processes. Moreover, they are active creations, which are related to other active creations as the basis of societal communicativeness.

Communication thus has a close connection to language. Language constitutes one of the central elements of the right and ability of human beings to communicate with each other. Yet, communication is possible only if all the communicating parties are able to understand each other. The language used has to be common for everyone and, on the other hand, there cannot be any such thing as private language.[430] In other words, language must be standardized in order to make communication smooth and possible overall.[431] Communicativeness is primarily based on the capability of others to understand the language used. In this respect language is based especially on its communicativeness in particular. Language is thus communal, its communal character being well expressed when a language is defined as an official language in a certain country. At the same time, the choice to declare a language an official language affects the societal circumstances in that it distributes advantages and disadvantages in society in a particular way.[432]

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owning or having property was considered misery. The amount of property implied a lack of friends with whom it could be shared. See Lehtonen, M. 2000, 18.

428 This is precisely the core of the legal language, where power is actually *built into* the language itself. Legal language is based on the capability of legal conceptual systems to produce only legal decisions that do not cross the borderlines set by the legal concepts. See Eriksson 1999, 39 - 40. On the other hand, form and style are always the most essential elements when creating influences on justice. See Ljungstöm 1998, 199.

429 This is actually not necessarily, or not even generally, carried out using any force but by making people want the same aim as the powers are pursuing. This indeed makes language a powerful tool for influencing. See Lehtonen, M. 2000, 22 - 23.

430 The functions of a language may be seen as an interplay of customization and standardization. In a language nothing is wholly customized, because there is always a requirement of understanding. Complete customization would imply a kind of complete nominalism that would make meaning impossible. On the other hand, nothing is wholly standardized, because that would imply a kind of rule-like structure in which all the details are specified in advance. See Radin 2002, 103.

431 At the least there is a requirement of a community acceptance of common descriptions and their meanings in recurring contexts. Thereby, each different language is a standard in itself. See Radin 2002, 102.

432 See Lagerspetz 1999, 77 - 78.

3.2.1.1 Language

Language has traditionally been defined as an instrument that is used by people for *communicating different messages* to each other.[433] This definition is, however, rather narrow. It reduces language to an instrument that is used for sending and receiving messages, with language defined only as a passive tool of communication. Language is more than this, and the variations in the significance of language are based on its intersubjectivity. Another essential aspect of language is its *ability to create and define relations* between people.[434] In this task, language operates as an intermediary.[435] It is also functions as an intermediary in that it links people to the world and reality.[436]

Language as such is clearly communication but in addition to this it has a clear threefold task in society. It operates as a producer, an instrument and as a product. Language *operates actively* as part of the functional interplay of human beings. Language is an essential instrument when creating relations between the members of a society. Language constitutes an integrated element of social communities, which are in fact precisely derived from the active character of language. In these roles, language acts as both a condition for and product of certain activity. This is precisely what requires activity as an essential functional element of a language and, on the other hand, does not allow language to remain only as an inactive tool. Language thus operates in order to constitute significance for meanings by defining the meanings themselves. Meanings get their inner content through language. On the other hand, language also defines reality by defining those meanings.[437]

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433 This definition, however, includes some generalizations that do not necessarily hold. First, the definition requires that there is a chronology of thinking and creating speech in which thinking comes first. Second, the definition presupposes that spoken language exactly refers to the thoughts of the speaker. Third, the definition is based on the idea that linguistic activity generally is a two-party societal activity where one party is an active speaker and the other is a passive receiver. Lastly, the definition presupposes that the speaker has total power over the language; i.e., the speaker is able to express whatever he or she wants to. See Lehtonen, M. 2000, 29.

434 In this sense, for example, law is very much a communicative process. Law is characteristically a linguistic process, with all legal operations expressed in linguistic form. As a communicative process, law is utilized for creating relationships between people. See Tolonen, H. 2003, 10.

435 See Renner 1949, 70 - 71.

436 Reality is always defined as lingual or non-lingual. It is always constituted of symbols and signs and, on the other hand, elements that cannot be defined as symbols or signs. See Lehtonen, M. 2000, 30.

437 Language is not a passive medium between the outsiders and these who use the language. See Lehtonen, M. 2000, 35. In this sense language creates society. See Simmel 1999, 17.

Language is thus by no means a passive instrument, but an active operator. In this respect language has an ability to constitute networks.[438] It is precisely the active character of language that acts as a driving force in creating networks. On the other hand, the ability to construct networks is basically *fixed to the significance of the context* as the core of language. Language does not exist as abstract phonology, grammar, or vocabulary: the very kernel of language lies in its usability.[439] Language acquires its force and power from everyday use. In this respect language may well be considered the *foundation of all human communication*.

Language is crucial to the system of intellectual property rights. The closest connection is drawn through examining *language in its written form*, i.e., as text.[440] In written form, text may be considered a physical entity or a semiotic entity. The physical character of a language embodies its communicativeness, which means that texts are used as means of human communication.[441] Semantics has to do with what a text refers to. Text always refers to something that is external to the text itself. A text and the world it refers to are both significant in the construction of the text. Both of these elements are closely bound together in the text, whose fundamental purpose is to physically illustrate a semiotic world. In other words, texts as such are physical, but semiotics is embedded in the physicality of the text. This connects texts and societal communication together closely. Written texts are hence *communicative instruments* that are produced by people for communicative purposes.[442]

Language has further significance as a system encompassing the main concepts and rules of societal communication. An illustrative example of this is legal language, which is mainly based on constitutive rules. Legal definitions belong to the category of constitutive rules, as the task of those definitions is to illustrate the scope of the legal order.[443] One example of this is copyright. A copyright is founded solely on a constitutive rule establishing that certain acts and occurrences produce a work. A copyright is then further bound to this rule by an enactment that if there exists a work, there is likewise a copyright.

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438 For example, legal language is dynamic and has even been described as polyphonic. The legislator, the authorities, the courts of justice, and the attorneys-at-law each have their own specific way to use the language. See Eriksson 1999, 35 - 36.

439 See Lehtonen, M. 2000, 52 - 53.

440 Text may, on the other hand, be examined as parallel to *written work*, such as a writing or a script. A written work is a piece of materia, whereas text consists of methodology. In this sense, a writing is an imaginary extension of text. See Barthes 1993, 160 - 161.

441 The physicality of a text is clearly illustrated in the technologies that are used for producing texts. The material forms of texts reflect the producing technologies. For example, when text was carved by using knives and axes, it was not possible to produce very long or extensive texts. See Lehtonen, M. 2000, 106.

442 The material form of text is a direct outcome of the relevant main technology used for producing it. The earliest technologies that were used for producing text were knives and axes and they were used for carving signs in wood or stone. Quills and parchment made it possible to produce totally different texts. See Lehtonen, M. 2000, 106 - 107.

443 In the legal order this makes it possible to set out the legal consequences. See Helin 1999, 49 - 50.

Legal language hence creates a copyright and expresses by these means the functionality of language. The intellectual property industry overall may hence be considered to be based on a constitutive rule that makes it possible to define work.[444]

3.2.1.2 The digital framework

Language is dependent on the framework in which it is expressed. In traditional daily life, language is expressed as writing and speech, but the digital framework imposes some additional requirements on communication.[445] In open networks, communication is founded on *digitized language*. A digitized representation of information is a kind of language. The representation model as such is basically individual. In formal representation, information is expressed using the binary number system, in which it is expressed in terms of two discrete values, either 1 or 0. In this respect, information consists of bits.[446] Bit is short for "binary digit", which is the smallest unit of information on a computer. Bits make up the core of *digitized communication*. A single bit can have only one of two values, 0 or 1, which means that the binary system constitutes the basis of all digitized information.[447] More meaningful information is obtained by combining consecutive bits into larger units. For example, a slightly larger information unit, the byte, is composed of eight consecutive bits and as a unit of storage it is capable of holding a single character.[448] In linguistic terms a byte may be considered the basic unit of information; information consists of bytes much as traditional language consists of syllables.

These smaller entities are packed together in constructing more representative information units.[449] This actually constitutes larger entities where information is *more*

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444 Copyright is further protected through behavioral norms and it is the prohibition norm that forbids all others except the owner to exploit the work. See Helin 1999, 50.

445 One factor creating more effective transmission channels is the emergence of digital services. These services also require investments in transmission channels in order to increase delivery capacity. See *NOU 1999:26*, 24.

446 The term was first used in 1946 by *John Tukey*, a leading statistician and adviser to five presidents. See Webopedia http://www.webopedia.com/TERM/b/bit.html. A bit itself, however, is not information, but only a medium by which information is represented. See Koepsell 2000, 86.

447 The converse of digital is analog, a form in which information is defined as a continuous quantity. Examples of digital information are the photos in the memory of a digital camera or digital transmissions on radio and television. See Järvinen 2001, 156 - 157.

448 On almost all modern computers, a byte is equal to 8 bits. Large amounts of memory are indicated in terms of kilobytes (1,024 bytes), megabytes (1,048,576 bytes), and gigabytes (1,073,741,824 bytes).See Webopedia http://www.webopedia.com/TERM/b/byte.html

449 These units are called packets and they are communicated through packet-switching networks. A packet in the packet-switching model is a piece of a message transmitted over a packet-switching network. One of the key features of a packet is that it contains the destination address in addition to the data. In IP networks a packet is often called a *datagram*.

representative. In binary form, digitized information does not, however, reveal very much to the people communicating. Communication is not realized until the assemblage of bits is further *organized to become information*.[450] In other words, information is organized data, data being the most foundational of the three units in the theory of knowledge: data, information, and knowledge.[451] Data also has a communicative aspect, however, when it can be described as representation of facts, concepts or instructions. Structurally data is often defined as the physical or logical order of the internal elements of the data itself. This structure is then further designed to support the special processing of data.[452]

The representation of data is carried out in a *formalized manner* that is suitable for communication, interpretation, or processing by human beings or by automatic means. In this form, data may be described as a language. At the level of normal human communication, however, these representations are actually only signs that can be combined by the receiver to form an informative message.[453] In this sense, data and information have a close connection. Data constitutes the kernel of information in general, with information in this context being slightly closer to human communication. Information is thus more systematized and compared to data implies an organization of substance and energy.[454] Typically information is connected conceptually to language or other systems of signs. As such it is defined as *compacted and interpreted data* and constitutes at the same time the third level of information structure: knowledge.[455] Knowledge is considered to be the collection of all organized information which additionally has contributions of the human mind.[456] Increased information is thus not increased knowledge, nor is the increased potential to receive information an enhanced capacity to acquire knowledge. Knowledge always contains a more processed and individualistic aspect.

See Webopedia http://www.webopedia.com/TERM/p/packet.html

450 The term *"information"* comes from Latin and it means news or intelligence; *"to inform"* means to give form or shape to something. See Simpson 1977, 738 - 739.

451 Data is called the raw material of information. It consists of signs or combinations of signs, and it can be stored, saved, transferred, or transmitted using computers or the digital communication infrastructure. See Niiniluoto 1997, 236.

452 See Niiniluoto 1997, 236.

453 See Dommering 1991, 14.

454 Data is considered to be raw numerical data, such as mere observations, and as such it lies at the bottom of the hierarchy of knowledge. Transformed data is data in context, which then becomes information. see Cho 1998, 28 - 29.

455 Niiniluoto distinguishes three different definitions for information in its conceptual form: syntactic, semantic and pragmatic. Syntactic information refers to the random value of the variety of signals being transmitted through a certain communication channel; semantic information refers to the content and the number of signal lines; pragmatic information refers to the personal or cultural background of the message. See Niiniluoto 1997, 236 - 237.

456 See Cho 1998, 29.

Knowledge is thus processed information. As such knowledge may be considered a belief that is assumed to be true and that concerns how the world-order is structured. Mere belief is not, however, sufficient; to become knowledge a belief needs to be well-grounded and truthful.[457] In this sense, knowledge and information are generally considered synonyms. There exists, however, at least one fundamental difference in the *communicativeness of these two categories*. Information usually refers to transmitted or communicated messages, whereas knowledge, or knowing something, does not necessarily have this communicative element.[458] Something can be known without its being told to anybody. Information, on the other hand, is generally communicated by informing others.[459]

The binary form of digital language has one more implication for intellectual property rights. Digitization makes the *language rather flexible*. This flexibility in turn makes it possible to give less meaning to the originality of works when granting copyright. Accordingly, there are an increasing number of works that are represented mathematically whose originality does not take on so much meaning in their manifestation.[460] On the other hand, the possibility to present several different works in digital form *unifies the interpretation*. Digital technologies hence blur the distinction between technology and the system of signs. Technology no longer necessarily refers to machinery or apparatus but, rather, to certain code systems.[461]

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457 Niiniluoto 1997, 237. Knowledge has also been defined as a justified true belief. To become knowledge, a belief must be justified on some grounds. See Lammenranta 1993, 79 - 80.

458 The use of knowledge implies one more classification in the pattern. This is wisdom, which refers to the correct use of knowledge. Knowledge may also be defined as a intermediate form of reasonableness and rationality. Reasonableness may also be called wisdom and rationality knowhow. See von Wright 1978, 33 - 36. Knowledge may also consist of concepts such as knowing how to act (*savoir-faire*), knowing how to live (*savoir-vivre*) or knowing how to listen (*savoir-ecuter*). These definitions imply that knowledge is much more than simply defining the truthfulness of a belief. See Lyotard 1979, 36 - 37.

459 Information is often considered as something new, as a synonym for "news". Sometimes information may even refer to a message that alters our view on, or understanding of, something. See Karvonen 2000, 83 - 84.

460 See Dommering 1991, 15.

461 See Lehtonen, M. 2000, 95 - 96.

3.2.1.3 Computer code

Computer code is communication, precisely like language.[462] The communicativeness of computer code lies in its two-dimensional character: a piece of computer software may be defined as a *device* or as a *form of speech*.[463] The foundation of computer code is data, with many computer commands involving the movement of data. The place from which data is moved is called the *source*, whereas the place it is moved to is called the *destination,* or target.[464] Computer code closely resembles a formal language, as it is generally written in a special programming language. On the other hand, computer code is a set of symbols for representing something, and can appear in a variety of forms.

The communicativeness of language can be seen in the kernel of a segment of computer code.[465] The code contains written computer instructions and can appear in different forms.[466] The dual form of computer code lies in its two different levels of codes: source code and object code. The code that a programmer writes is called source code, which is a combination of words, symbols, and numbers. On the other hand, object code appears as a series of zeros and ones and can be read only by a computer.[467] To become understandable to a human being object code needs to be executed.[468] In this respect, the

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462 Computer code is written in a special language. There actually exist several of these programming languages, of which the best known are Java and C++. See Grewlich 1999, 394. These are both what are known as object-oriented languages and are rather close to natural language.
See Webopedia http://www.webopedia.com/TERM/J/Java.html

463 This underlies the classification of software, where the structure and definition of speech are fundamental issues. One aspect of these issues is whether a text that is a part of a machine falls within this definition. See Burk 2000, 6.

464 See Webopedia http://www.webopedia.com/TERM/s/source.html

465 A computer program is considered to be both text and machine. The development of computerized languages, such as XML, has created a certain area of functional digitized texts. See Radin 2002, 117. The advantage of XML is that it allows both presentation and structuring of documents. This is considered an important prerequisite indeed for information management. See Kirchberger 2005, 55.

466 The overall communicativeness of the digital network is founded on computer code. The code determines how information flows online and who can control it. See Shapiro 1999, 14.

467 These characters are used by the programmer to describe and provide the basis for the object code of a particular program. See Anawalt 1999, 127.

468 Briefly, a compiler is a program that translates source code into object code. The compiler gets its name from the way it works, looking at the entire piece of source code and collecting and reorganizing the instructions. Thus, a compiler differs from an interpreter, which analyzes and executes each line of source code in succession without looking at the entire program. The advantage of an interpreter is that it can execute a program immediately. Compilers require some time before an executable program emerges.

difference between these two kinds of codes lies in the communicative background of the code itself. Object code is used only by a computer and is ready to run. It is hence called executable code, or machine code, whereas source code is more like human-usable language.

Computer code is primarily still written by humans, in which case it is called source code. Source code includes program instructions in their original form.[469] Computers, however, can only execute the instructions written in a low-level language represented in a machine-readable form, i.e., object code. In order for computers to understand the code it has to be translated, or compiled. This is the interface between the two levels of computer language. At the same time, this constitutes the mutually communicative existence of those two levels of code. The relationship between these two codes is indeed in its *intelligibility for humans*. Object code is computer-readable and is considered the core of the computer program. It is the essence of communicativeness at its lowest level. Source code, which is compiled into object code, is often considered human-readable computer code.[470]

The interest of these two codes on varied levels is based on the *interaction between them*. They are linked together inasmuch neither is able to operate alone. The human level and the computed level create their own and special common functional and communicative positions, both of which are equally essential. This existence of a computer and a human level enables certain structures of interaction, one being human-computer communication. The different levels of code make it possible to structure the communication between a human and a computer. This is naturally essential given that communication is more and more based on interaction between computers. Computer code is also increasingly used as a tool to implement social order and control.

See Webopedia http://www.webopedia.com/TERM/c/compiler.html
In the compilation process, high-level language instructions are translated into object code. Object code is often the same as, or similar to, the computer's machine language.
See Webopedia http://www.webopedia.com/TERM/o/object_code.html

469 Code often refers particularly written computer instructions. See Webopedia http://www.webopedia.com/TERM/s/source_code.html

470 On the other hand, source code is the only format that is readable by humans and it is never readable by computers. When one purchases a computer program, one usually receives it in machine-readable form. This means that one can execute the program directly, but cannot read or modify the program.
See Webopedia http://www.webopedia.com/TERM/s/source_code.html

3.2.2 Discourse and knowledge

3.2.2.1 Knowledge and ideas

Knowledge is communication, as is language. Both knowledge and language are based on continuous communication giving a close connection. Knowledge is often embedded in the form of language and is generally communicated by using language. The communicativeness of knowledge differs slightly from that of language. The most salient difference lies in the *creative character of ideas*, as ideas constitute the very essence of knowledge itself. It is precisely an idea that makes knowledge regenerate and increase.[471] An idea itself is creative when it is novel, surprising, and valuable. An idea is defined exactly in terms of its creativity and communicativeness. Therefore, the fundamental societal communicativeness of an idea lies in its *property of being creative*.[472] An idea cannot, however, be creative alone without any connection to its surroundings. As such ideas are generally always presented as *related to society*. This is also why it is communication that supplies ideas for the use of society as a community. Without any mutual communication, ideas would remain only individual hidden thoughts.

Knowledge has its basis in technology, to which it is closely bound. In this context technology is considered a resource-based and resource-expending undertaking and it necessarily uses or generates knowledge as a driving force. *Knowledge and technology thus have a mutual relationship* as communicative counterparts. The content of technology may also be described as an interplay of knowledge, methods, and other resources.[473] Technology is generally contrasted with other human activities. In this sense, technology usually involves the use of knowledge of the properties of its input resources.[474] This draws on energy, information, tools, and human skills with the further purpose of generating material products and procedural systems. In this respect, technology acts a gateway to make knowledge available for societal use. The function of technology is likewise seen in the use

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471 Knowledge as such is not an exclusive good; there is always a need for property rights to exclude others from using knowledge. In the academic and scientific context, however, knowledge has traditionally been developed as a public good. See Holtgrewe - Werle 2001, 44.

472 This quality is essentially associated with ideas. A person, or even a computer, may be creative, with this is dependent on the person's or computer's ability to produce creative ideas *sometimes.* A person's creativity lies in his or her ability to produce creative ideas. See Boden 1998, 309.

473 These interconnected resources are then further used for making a particular kind of product or in creating a particular procedural system. See Thomas 1999, 42.

474 The interaction of human beings and technology is even considered a behavioral concern. If information systems are not built up in a human-centered way, they may cause deficiencies where the effective use of systems is concerned. See Isomäki 2002, 20.

of knowledge. Technology is used in order to produce, manage and use material objects and to control and enhance the other forms of human activity.[475]

The communicativeness of knowledge is best revealed through examining in parallel the *different levels of knowledge*. Knowledge is defined in several different ways. According to the traditional definition, knowledge is a *true belief of the world*. This actually subjects knowledge to certain rather stringent prerequisites. Namely, in order to be described as knowledge, pure information or data need some additional features. Knowledge has to be *justified and truthful*, making the definition actually rather rigid.[476] Knowledge may nevertheless also be defined functionally, whereby it can be placed in between reasonableness and rationality. Reasonableness is often called *wisdom*, which is something more than mere knowledge. To become wisdom, knowledge needs to acquire some personal or subjective aspects. On the other hand, the rationality of knowing, or *knowhow*, complements knowledge with a practical view, whereupon it is defined more as a way to do things.[477] The communicativeness of knowledge is then mainly expressed in terms of practical knowledge with its subjective view.

Innovativeness is often considered the most fundamental capital of an enterprise. Innovativeness and knowledge as its core may be defined as a larger concept whose core elements are tacit knowledge as an *innovation resource* and the *knowledge capital* of an enterprise as the combination of these resources. This whole is often called *skills* or *knowhow*. Knowledge is then increased by estimating its usability, value, and general significance. It is no longer only technical or instrumental, but is defined as more *objective-oriented*. Knowledge is assessed in terms of its goals and values. The largest and most challenging element of knowledge and skills is generally called *wisdom*.[478] Knowledge as wisdom implies a social element in both knowledge and innovativeness, meaning that in a social context mere technological innovation becomes a *social innovation* as well.[479]

Ideas are nevertheless the basis of knowledge and as such they frame the kernel of communication. Communication consists of receiving and sending information that is

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475 See Thomas 1999, 42 - 43.

476 Niiniluoto 1997, 237. Knowledge is also considered as *justified true belief*. In other words, the justification ought to be especially well-grounded. See Lammenranta 1993, 79 - 80.

477 See vonWright 1978, 33 - 36.

478 Wisdom consists of knowing, understanding, and general skills, augmented by an overall estimation of its importance and objectives. In addition, wisdom includes common sense and the ability to see knowledge as part of a larger whole. Wisdom includes the individual's understanding and view of the world overall and the interrelationship of things as a logical whole. Wisdom is thus a part of constructing a holistic conception of the world. See Holma - Lappalainen - Pilkevaara 1997, 10.

479 Here a good example is open-source software, where the professional norms and industrial strategies of openness are utilized for the collaborative development of software. See Holtgrewe - Werle 2001, 49. In this respect open-source software is a community where software projects are established and programmers communicate and contribute software elements to each other via the Internet. See Potter 2000, 2.

basically founded on the ideas. On the other hand, the significance of ideas is manifested in the *incompleteness of information*. This incompleteness is based precisely on the interconnected relationship of knowledge and ideas. Information that is transmitted is not necessarily eventually processed. Information may also be presented in an *unprocessed form,* with much of it remaining at the *level of images*.[480] An image is an element that connects knowledge and an idea and contains a great amount of unprocessed knowledge. An image thus adds a *subjective view* to an idea due to the image being a subjective understanding that draws on knowledge, experiences, views, and feelings that someone subjectively has.[481]

3.2.2.2 Tacit functionality

Even knowledge itself may be defined as having divergent aspects. Knowledge is basically classified in two different forms, *explicit knowledge* and *tacit knowledge*. These two forms of knowledge are always closely bound together and as such they are generally realized in an interconnected manner. These forms of knowledge are thus seldom separable, although in daily use it is usually explicit knowledge that we speak about and that we refer to when we speak about knowledge. These two forms of knowing are together closely connected to the communicative structure of society. Explicit knowledge is the visible part of knowledge itself.[482] The most interpretative definition of explicit knowledge is one that explains in terms of *understandability*.[483]

It is explicit knowledge that may be expressed in words. Explicit knowledge constitutes the particular form of knowledge that can be expressed in an understandable and transmittable form.[484] Therefore, it is explicit knowledge that may be communicated and utilized for communication. Explicit knowledge is hence generally considered communicative knowledge. In addition to explicit knowledge, there exists knowledge in implicit form. Knowledge is often implicit when it is tacit knowledge. Tacit knowledge by definition constitutes the opposite of explicit knowledge, although they are complementary

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480 Increases in, and the openness of, information resources strongly affect marketing. Most marketing today is carried out in images. *Image marketing* aims at giving a positive picture of the enterprise. See Rope - Vahvaselkä 1997, 62 - 63.

481 Marketing is not linked to the product itself but to the image. See Hintikka 1993, 95 - 96.

482 Further, the characteristics of explicit knowledge are detectability, independency of operations, an external view on things as objectivity, and a clear distinction between object and subject. See Scharmer 2000, 38 - 39.

483 Contextually explicit knowledge characterizes things descriptively. The formal shape of it is external and detectable. These elements make the explicit knowledge transferable, with the transfer usually occurring in the form of numbers or words. See Ståhle - Grönroos 2000, 32.

484 Explicit knowledge is also easy to share because access to this kind of knowledge is possible. See Nonaka - Reinmöller - Senoo 2000, 89 - 90.

elements in the overall framework of knowledge. The difference lies mainly in the invisible form of tacit knowledge. Tacit knowledge is principally embedded in people's minds and in *patterns of communicative behavior*. It may be found in ways of doing things. In this sense tacit knowledge is characteristically rather practical.

Tacit knowledge is thus functional and communicative in essence, but it is still often rather impossible to express in words. It is precisely tacit knowledge that further constitutes the *basis of communicativeness*. Tacitness is linked to the lower level of communicational structure, in which communication takes place on several interconnected levels. Some communication, e.g explicit knowledge, is clearly visible and processed through clear communicative patterns. Tacit knowledge is communicated at a clearly lower level, where the communicative processes are not visible in the same sense as they are in explicit communication. Additionally, the mutual expressions of these two forms of knowledge differ considerably from each other. The principal distinction lies in arranging words in speech as against observing someone doing something. There is at least one connecting level in between these two clearly separable ones, where the communicative processes are mutually more active and the functionality is based jointly on the expressions and functional patterns.

The communication of tacit knowledge is mainly based on common social behavioral patterns. Indeed this is one of the most important factors in considering tacit knowledge as a part of commons. Namely, it is most characteristic of tacit knowledge that it cannot be transmitted in any understandable form.[485] It is, however, included in daily life in different ways despite its being impossible to explain contextually or illustrate formally. For the most part we know much more than we can explain.[486] The core of tacit knowledge is therefore embedded in concepts and actions.

3.2.2.3 Communicating with tacit knowledge and ideas

Tacit knowledge may only seldom be expressed in words. It is characteristic of tacit knowledge that it cannot be expressed verbally, or in any other definable form.[487] The abiding incapability to verbally express tacit knowledge generates some fundamentally different ways to express it. This links tacit knowledge closely to *human creativity* and ideas

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485 The mutual existence of explicit knowledge and tacit knowledge has been compared with an iceberg. The visible (explicit) part would comprise only 10 % of all knowledge. See Ståhle - Grönroos 2000, 32.

486 This is considered to be the most essential characteristic of tacit knowledge. See Polanyi 1966, 4 - 5. See also Scharmer 2000, 36 - 37.

487 Often tacit knowledge comes out in the daily routines embedded in personal understandings, views, or feelings. It is also often hard to express and explain tacit knowledge to outsiders. Working interactively using tacit knowledge is hard as well. See Nonaka - Reinmöller - Senoo 2000, 89 - 90.

as its essence. It is precisely a person's creativity and ability to produce creative ideas that generate communication.[488] Therefore, even more than communicating information or knowledge, tacit knowledge encourages communication as a way to operate in society.

Human creativity embodies ideas in tacit knowledge. It is then precisely this interconnection where ideas and knowledge are linked together. Further, the close connection between tacit knowledge and ideas also implies their cooperation, which is best manifested in communicating ideas and tacit knowledge with others. First of all, the special nature of communication is characteristically reflected in tacit knowledge. Communication is also practical and effective when it is tacit knowledge that is communicated. In this practical communication, tacit knowledge is embedded in procedures and ways to do things and perform operations. In the area of communication this constitutes the fundamental *core of tacit communication*.

Tacitness is clearly expressed when the *distinction between an idea and its expression* is drawn at the lower level. This distinction may be examined in relative terms, i.e., as relationships, where the distinction between an idea and an expression may be reduced to one of expression and tacit knowledge. Expression is then depicted as ways to do things more so than as expressing ideas in words.[489] On the other hand, ideas are mainly acquired by observing the surrounding community. The roots of new ideas basically lie in something that someone has already done or that someone already knows. This is actually the foundation of the *circulation of ideas* in a creative way, which is a continuous and communicative process.

Communication between ideas and tacit knowledge makes society more stable. Ideas are based on creativity and as such they have some characteristic features. For instance ideas are *relative*, which means that they are always represented as related to their surroundings. Ideas can thereby be creative in various ways and it may become even impossible to define their creativity in terms of a single individual quality. Ideas are always creative, not in some way, but *in some respect*.[490] Accordingly, ideas always need to be communicated in accordance with the framework in where they are to be applied. Ideas and images as the kernel of knowledge thus place the essential focus on subjectivity, making the subjectivity of knowledge the most crucial foundation of the communicativeness of knowledge. Subjectivity is based on the knowledge, experiences, and attitudes of people, and in this way individuals actually increase information through their own experience.

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488 An idea may also be creative. It has then the property of being creative, that is, of being novel, surprising, and valuable. See Boden 1998, 309.

489 This may also be described as the inner content of patents. A patent concerns the physical application of technological knowledge rather than the knowledge itself. See Thomas 1999, 10.

490 This means that creativity is not an all-or-none phenomenon, or even a matter of degree. This is precisely due to the variety of ways in which ideas can be creative. See Boden 1998, 309.

Images as a crucial part of knowledge constitute a continuously developing process. In sum, it can be said that the communication of knowledge is founded on cooperation.[491]

3.2.3 Circulation and money

3.2.3.1 Money as a medium of payment

Money is communication, and communication is one of the central elements of a well-functioning society. A crucial part of this communication lies in having a *means of exchange*. Money acts to this end as a transmitter of the essential information in the market and in exchange.[492] In other words, money communicates information that is usable for exchange. The very foundation of exchange is found in nature. Indeed, exchange is actually fundamentally based on the *close connection between human beings and nature*. Communication can be realized through money, no longer only through language.[493] Nature and human beings are bound closely together in being able to exchange goods. Moreover that bond is based on the character of exchange; that is, the relations in exchange correspond in the main to social relations. Society is thus composed almost completely of some kind of communication in the form of social or exchange relations.[494]

The description of society as a *network of different relations* is well documented in the traditions of ancient tribes.[495] For example, for the Maori obligations had an extraordinary personal significance: the connection that was created through obligations was a connection between human souls. Objects had a spirit of their own and they actually constituted a part of the soul of their owner. For ancient tribes this is actually the main factor that signifies the connection of nature and exchange. With tradeable objects representing a part of the soul of their owner, giving them away means that one gives a part of oneself to the

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491 Marketing is often also based on images. See Hintikka 1993, 95 - 96.

492 Money as a means of transmitting information is actually closely bound to all three main tasks of money: money as a medium of payment, money as an indicator of value, and money as a form of property. See Tarkka 1993, 52.

493 In the Habermasian classification of society into two different scenes, *Lifeform* (*Lebenswelt*) and *System*, the economy belongs characteristically to the sphere of system, where communication is carried out in the form of money and exchange. There is no need of any integration through communication by speech; rather integration is realized through the systemic instruments, that is, money and administrative power. See Tuori 2000, 91.

494 In society, it may even be thought that human beings are defined only as actors in the exchange relationship, thereby acting as subjects of payment and counterpayment. This would then be the only descriptive factor needed in our present societal communication and existence. See Simmel 1999, 57.

495 Exchanges in tribal societies were ceremonial in nature. They were considered an outgrowth of the practice of reciprocity, whereby they were designed to bring tribal members closer together rather than to maximize the benefit from the exchange. See Wray 1999, 43.

recipient. In other words, whenever we give something away, we actually give away a part of nature.[496] Accordingly, a commodity that is purchased and then given as a *present is transformed* from a product to an obligation.[497] In this way exchange may actually serve more to foster socialization than to accumulate wealth.[498]

The exchange of ancient, or even modern, tribes is based on the *double coincidence of wants*.[499] To be able to exchange goods or services the seller and the buyer must each want something the other has to offer. This is what has become known as the barter economy, where each person is simultaneously a seller and a buyer. Further, to be functional the barter economy has to be based on a double coincidence of wants.[500] The barter economy thus has no means of exchange; trade is carried on by swapping goods for other goods. Here money is a more convenient means of exchange, as its use does not require any arrangements for finding any coincident buyers or sellers for the goods that are to be exchanged.[501] The use of money makes trading smoother and simpler and at the same time generally more efficient.[502] On the other hand, the market is based on the utilization of money as a medium of payment. In other words, a unit of money may be exchanged against goods at a certain value.[503] At the same time, exchange stabilizes society and increases societal integration.[504]

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496 See Mauss 2002, 40. The giving of a gift in today's digitized network society is essentially founded on giving away something intellectual or intangible rather than anything material. See Bergquist - Ljungberg 2001, 306.

497 The giving of gifts thus may not involve explicit bargaining. In bargaining, no obligation exists after the exchange is completed. See Bergquist - Ljungberg 2001, 313.

498 See Habermas 1989, 161. In this way social, economic, and governmental life are bound together. See Heiskala 2000, 175 - 176.

499 Coincidence of wants is generally based on the existence of money as a medium of exchange. It is comprehensively explained as the outcome of individual maximization of rational utility. See Ingham 1999, 20.

500 See Begg - Fischer - Dornbusch 2000, 376. Further, the barter economy originates in a supposedly inherent tendency of human beings to gain mutual advantages by exchanging goods and resources. See Heinsohn - Steiger 1999, 73.

501 It is very expensive indeed to trade in a barter economy. People have to spend a lot of time and effort finding others with whom they can make mutually satisfactory exchanges. Moreover, since time and effort are scarce resources, a barter economy seems to be wasteful. See Begg - Fischer - Dornbusch 2000, 376.

502 If it economizes on the time and effort spent in trading, society can use these resources to produce extra goods or leisure. See Begg - Fischer - Dornbusch 2000, 376.

503 In this sense money is used as a *means of material reward* that is actually a form of material control. Material rewards consist of the granting of symbols, like money, that further allow one to acquire goods and services. The use of material means of control constitutes *utilitarian power*. See Etzioni 1964, 59.

504 This applies especially to the ritual exchange of valuable objects. See Habermas 1989, 163.

Communication is then carried out as daily communication at the level of people and society. As such it could easily be considered to be an act similar to speech. Commodities are further defined through their value. They may take on some exchange value, use value, or natural value in which the worth of the thing is thought to inhere in it. The goods operate in this way as communicative instruments when the value is set and measured through exchange. In this respect the utilization of money at the same time increases the efficiency of exchange. In a functional society, cooperative communication ought to be smooth. This applies to exchange as well. However, if exchange is based only on the double coincidence of wants, it is not necessarily very functional: the smoothness and efficiency of exchange requires that there always be an equal number of sellers and buyers for the same product. This actually restricts and decreases exchange.[505] Exchange is more effective when the commodities are *interexchangeable*. Money acquires a structural dimension which allows it to be employed as a defining instrument of communication and exchange overall.[506] Communication is hence best carried out when there is a large number of actors, and it is useful for exchange if relationships are multilateral.[507] It is in fact multilateral exchange that employs money as a medium of payment, inasmuch as there is no longer any need for a double coincidence of wants.

3.2.3.2 Money as an indicator of value

Value is utilized as the foundation of market communication, with the market based on *setting prices for goods*.[508] In order to enable communication everything in the market needs to be valued. Valuation is thus one of the most fundamental factors in implementing exchange. In this task money is employed as a special exchange mechanism for transforming use values into exchange values.[509] Without any value on goods there would be no exchange. In the monetary economy a price is actually the most fundamental factor that defines the mutual relations of goods. Goods may be limited in supply and values make it possible to compare the goods to each other. This is the very basis of communication in the market; prices actually define the extent of exchange.[510] Further, in

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505 See Mengham 1995, 146. In other words, the optimal amount of exchange will not be reached even if all the possibilities of the barter economy are exploited. See Tarkka 1993, 27.

506 See Mengham 1995, 146.

507 See Tarkka 1993, 29.

508 See Tarkka 1993, 36.

509 At the same time, this changes the natural economic exchange of goods into trade in commodities. See Habermas 1989, 171.

510 See Tarkka 1993, 36 - 37.

the pricing system it is money that is used to render goods and prices *commensurable*. Commensurability is the essence of the interexchangeability of goods, with money functioning as an *indicator of value*.

In the market and exchange money is likewise used as a medium of payment, whereby it has some value of its own. The value of money itself is nevertheless always the same; the *value of money does not change*. This is one of the fundamental prerequisites of using money as a means of commensurability in the market. As such money also has a structuring effect. This effect can only be realized, however, if money becomes an inter-systemic medium of interchange.[511] Money thus needs to be utilized as a medium of exchange. Commensurability, on the other hand, is possible only with money as a solid foundation. Without this condition it would not be possible to use money as an indicator of value, either: the values of goods would change with changes in the value of money. Money is thus the measurement by which all other exchangeable goods are valued.[512] It puts prices in perspective and makes it possible to value them in accordance with each other. It is precisely commensurability that acts as the definitive factor in the communicativeness of money.

The market is hence basically constituted on communication in the form of exchange. On the other hand, exchange - and thus communication in the market - requires that each product have only one price in the market.[513] This is the essence of the fluency of exchange. The communicativeness of exchange is further manifested in parallel communicative systems: i.e., *writing systems* are generally closely connected to money. The very beginning of writing systems in general has often been connected to the need to record trade agreements. The use of coins interconnected money and language, through the close connection between significance and value.[514]

3.2.3.3 Money as property

The existence of a functional society requires a medium of exchange. Society thus derives some benefits from having a certain fixed medium of exchange.[515] One of these lies in the

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511 In other words, the economy can be constituted as a monetarily steered subsystem only when its interactions with its social environment are regulated via the medium of money. See Habermas 1989, 171.

512 See Tarkka 1993, 39.

513 See Tarkka 1993, 38.

514 See Lehtonen, M. 2000, 84.

515 A means of exchange does not have to be money in the sense in which we understand it. Money may be dog's teeth in the Admiralty Islands, sea shells in parts of Africa, or gold during the nineteenth century. What matters here is not the physical commodity used but the social convention that this commodity or unit will be accepted as a means of pay-

stability of money as an organizer of social relations, whereby it is an instrument for realizing societal communication through exchange. It is possible to utilize money to *create and stabilize* communicative relations. This in turn is based on money as a commensurable indicator of value.

In societal relations, money has some other functions as well; e.g., it *serves as a store of value*. Here money increases and facilitates exchange crucially. By using money it is possible to store income for unstable times. It not necessary to use all one's money at once; money may be stored in the form of property. It is thus possible to sell things today and buy them tomorrow with the value usefully preserved in the meantime in money. In between, money benefits its owner. As a store of value money needs to be rather stable and fixed to its functions. The value cannot be preserved without this qualification. This means that money needs to preserve its value to be useful as a medium of exchange.

Conversely, unless money is able to preserve its value, it is rather useless in creating a sustainable network of social relations. As this kind of medium of exchange, money is actually an instrument of *indirect exchange*.[516] Indirect exchange means that the traded commodities are not consumed but used for later exchange. It is further characteristic of indirect exchange that the payments are carried out *non-simultaneously*. Non-simultaneity is in fact a crucial prerequisite for constructing any indirect exchange at all.[517] It is precisely the indirectness of exchange that makes it possible to use money as a medium in social relations.

3.3 Basic elements of commons

The sphere of commons consists of certain *socially crucial elements*. At least language, knowledge and money may be defined as such common interests. These interests ought to be implemented dynamically and hence in the form of interrelated mutual communication. This communication is further realized by supporting dynamics through innovativeness. Innovativeness refers to a developed kind of activity where activity no longer means using the same transmission channels, or refers to changing requirements in the transmission of information. In this context it is further necessary to define the foundational elements of the sphere of commons as an *interrelated architectural construction*.

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ment. See Begg - Fischer - Dornbusch 2000, 373.

516 Exchange may be broken down into two categories: barter exchange and indirect exchange. See Tarkka 1993, 26.

517 See Tarkka 1993, 26.

3.3.1 Openness

The innovativeness of commons is based on *activity in operations*, with activity rather explicitly realized as different ways of using information rather than the passive receiving or transmitting of it.[518] Activity is functional and operative by nature and is further employed in the overall architecture of the active use of information. In this pattern of activity, it is essential to be able to affect the right to decide what is allowed and what is not rather than remain a regulated object. This then has a direct influence on overall innovativeness: if access to a network can be denied by not allowing certain applications, innovativeness will be reduced accordingly.[519] The core idea of innovativeness in this system is to keep the *network as simple as possible*, and to create smart applications instead.[520]

To become part of the sphere of commons, a network should be *freely accessible*. Free access to a network supports the sphere of commons. At the same time, it *increases openness*. A freely accessible network is thus open to all users. Free access has further implications for innovativeness to the extent that innovativeness is based on what is known as the *end-to-end principle* (*e2e*). According to the principle, the intelligence in a network ought to be kept at the ends, or in the applications, with the network itself remaining relatively simple. Computers within the network should perform only very simple functions, i.e., those that are needed for and utilized by many different applications. The functions that are needed by only some applications should be performed at the edge instead. By these means complexity and intelligence are kept off the network and free access is ensured.[521] Utilization of the network may thus be carried out equitably despite any technological limitations; i.e., the network is open. Openness means that the network is open for all actors to run their applications on.

Openness correlates with communicativeness. The usefulness of information in an active network further requires that information may be communicated. The communicative function of information is thus part of the essence of information itself.

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518 A good example of this is open-source software and its relation to the Internet. The growth of open-source may even be following a pattern similar to that of the Internet. In this sense, open source and the Internet have developed together. The software-based compatible protocols were developed on the basis of open source. In its early stages the Internet has become very difficult to regulate. On the other hand, the Internet has changed the way software is priced and valued. See Potter 2000, 9.

519 Openness has two basic underlying elements in the area of information and communication technology: one is to decrease or even control the dominance of one single firm in the computer industry; the other is to ensure or increase the emergence of computer networks and overcome the difficulties of interconnecting computers of different brands or linking different networks to one another. See Holtgrewe - Werle 2001, 46.

520 See Lessig 2002a, 34.

521 See Lessig 2002a, 34.

The communicativeness of information is actually one more of the advantages of the end-to-end principle. An open network makes it possible for all the active actors to use their own applications and communicate information. Transmission of information is carried out through certain transmission channels, i.e., a digital network. In these networks large amounts of information can be compressed, which makes it possible to transmit information rapidly all over the network.[522] Rapid distribution of information together with the digital context enables extremely effective use of content.[523] Openness of communication networks is thus essential. The development of an active network is firstly and most profoundly carried out on the level of a concrete communication network. The traditional communication network is mainly based on state-regulated telephone lines, which means that access to the lines is controlled by the state, or government. This means that the owner of the lines is free to decide on their use. The network is by no means open. The lines as such are *closed and excluded*, and set aside for use by only one actor.[524] Naturally, the right to use the lines can be granted to others, too, but when the lines are exclusive, the right to make decisions is reserved only for the owner. This exclusivity makes the communication system extremely *centralized*.[525]

The *centralized character* of the communication system is manifested likewise in its technical structure. The centralized communication model is based on circuits, which are embedded in telephone wires. The model is thus constructed on a *circuit-switched system*, where a certain dedicated channel, or circuit, is established only for the duration of a transmission. The most widespread circuit-switching network is the telephone system, which links together wire segments to create a single unbroken line for each telephone call. Technically, in this design a circuit is opened between two ends for the duration of a phone call. Still, the line remains open and thus reserved until one hangs up. In other words, the

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522 It is actually rather essential for the Information Society to be able to process and transfer information effectively using information and communication technology. See Tapscott 1996, 49.

523 This means that a single copy can be uploaded onto a computer that is connected to a network of computers or a network of users in a larger computer system. Each user may have virtually simultaneous use of the same copy. This is a very real threat where copyrighted material is concerned. It is mostly pirate copies that are uploaded and used on networks. See Samuelson 1990, 326 - 327.

524 A centralized state-regulated system restricts the decision-making power of the owner. Basically, telephone wires are privately owned, which easily leads to restrictions how they are utilized. In other words, the physical communication platform is preordained. However, the legal right to use the wires is not necessarily preordained; governmental regulation might ensure the right to use privately owned telephone wires. In this way state-based regulation has two functions: it strengthens the power of the owner and, on the other hand, ensures the right of others to use the wires. See Lessig 2002a, 44 - 45.

525 See Lessig 2002a, 32.

wire is kept reserved even when nobody is saying a word.[526] The model relies on an *on/off -solution* rather than estimating the need for reserved space for transmission. For this reason the design is relatively static. The static nature of the system is not a given and in an active network it is even impossible. Dynamics are introduced by the development of the structure of information and lie in a different idea of *activity*. In the circuit-switched model, activity is based on transmission of data. The active part of the model is the information transfer from one place to another. This is carried out by keeping the line busy when it is reserved and out of use by others. In this way the activity as a functional unit remains centralized, like the regulation of wires overall. The centralization of activity comes first from the model of the structure of communication and second from state regulation of the communication network.[527]

In this kind of structure the basis of the communication system in dynamic operation is to release the wires when they are not reserved for information transmission. The model is called a *packet-switching model*, and its essence lies in digitization and the packet-switching technique, using which more information may be packed in smaller units.[528] Transmission that traditionally took place in circuits is first translated from waves to bits (=digitized), and the resulting stream is then cut up into packets.[529] Information and its transmission networks are changing from continuous streams of analog or digital signals to discrete packets which are transmitted discontinuously. Information is labeled by its sender, its location within the document and other operational data.[530] In traditional communication, like in the circuit-switching model, information was therefore analog or

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526 The real advantage of the circuit-switching system is the possibility to transmit data in real-time. See Lessig 2002a, 31-32. Circuit-switching networks are sometimes called connection-oriented networks.
See Webopedia http://www.webopedia.com/TERM/C/circuit_switching.html

527 The offering of information is carried out basically on three different levels and every piece of information offered to the user consists of collaboration between these three levels: 1) the information service, for example, a broadcasting company offers software along with the supplier of computers; 2) the transportation service, which takes care of all functions required for transportation, for example, the postal services; and 3) the infrastructure as a system of connections and functions that make up the actual communication network, for example, the road transport network. See Dommering 1991, 17.

528 The Internet is based on the packet-switching model. See Gulliksen 1999, 13. Problems arise here as well where intellectual property rights and the creator of a work are concerned. One is the question of what would anymore be considered original. See Borgman 2001, 64.

529 See Lessig 2002a, 31 - 32.

530 This may be called the *principle of identifiable information* associated with an address. The next step might be to add payment mechanisms and other instructions to these information packets. Thus, information could operate on its own in a decentralized way, without any continuous control or guidance. See Noam 2002, 56 - 57.

physical and information itself was *relational*.[531] People communicated by using their physical tools when the communication was engineered primarily for voice rather than data.

In contrast, packet-switching networks do not establish any physical communication channels between communicating devices. Instead, signals are formed into fixed-length packets that are affixed with a source and destination address and packet ordering details. The packets then rely on network routers to read the address data and route the packets through the network to their destinations.[532] When the packets arrive at the receiving device, the packet ordering data is used to reassemble the original signal.[533] However, in the packet-switching model the information is not analog anymore. For this reason, unlike analog information, it is not necessarily related to the other information units. In digitized form the packets can *flow independently* across a network yet create the impression of a real-time connection on the other end.[534] At the same time they release the wires for some other uses during downtime.[535] The packets from different sources going to different destinations can share common data pathways.[536] The packet-switching transmission model affects communication by *equalizing the use of wires*, which increases efficiency. At the same time, the centralized control of the state is diminished and decentralized.[537] Decentralization has some additional influences in that it brings the market and collaboration along with it. By

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531 Tapscott 1996, 49.

532 This is actually one model of rights management system. The core of rights management seems to be document delivery and the authentication of documents. Another good example of rights management is the *International Standard Book Number* (*ISBN*) for books, which represents the most traditional form of rights management. It was established in 1967and is widely used in the book publishing industry. See deKroon 2000, 230. Yet another good example is the bar code systems *Uniform Product Code* (*UPC*) and *European Article Numbering* (*EAN*), where the tools of identification are embedded in a symbolic bar code. See Sakki 1999, 194 - 195.

533 The *packet-switching data network* (*PSDN*) may also be called simply a packet-switched network, or PSN. See Webopedia http://www.webopedia.com/TERM/P/PSDN.html

534 One purpose of digitization is to improve access. Instead of one physical copy of a document, digital information, or an image of the document, can be distributed online to multiple users at the same time and accordingly overall. This is the great advantage of digitization; it has greatly improved access to information. See Borgman 2001, 64.

535 See Lessig 2002a, 31.

536 See Webopedia http://www.webopedia.com/TERM/P/PSDN.html. However, despite packet-switching being essentially connectionless, a packet-switching network can be made connection-oriented by using a higher-level protocol. TCP, for example, makes IP networks connection-oriented. For more details, see Webopedia http://www.webopedia.com/TERM/C/circuit_switching.html

537 See Shapiro 1999, 16.

these means the decentralized communication model is a rather clear manifestation of society at large.[538]

The openness of a network may also be implemented directly in computer code.[539] *Openness of code* has various implications for innovativeness overall. It makes it possible for basic ideas to converge in numerous different ways. In order to be open, the distribution of source code ought to be based on free access. The distributed program should then make the source code accessible to all users. Access should be granted to everyone on equal grounds and no person, group or field of endeavor may be denied access to the program.[540] If the platform is strongly protected, innovativeness becomes compromised through that protection. In remaining neutral, open code invites different kinds of innovation. At the level of code no innovation will be excluded, which also means that the market is allowed to decide on the robustness of any idea.[541] The openness of code thus actually lowers the barriers to entry into the communication network, which further lowers barriers to innovation. Innovativeness thus gets some dynamic impetus through the openness of code, which is the basis of the free flow of information. "Free" does not mean that no money will be involved but that no authority or non-disclosure agreement will prevent developers from sharing the code. In other words, the products of a developer's mind remain free for all other developers to use and rework.[542]

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538 In other words, the social structure of cyberspace is considered to mirror its technical structure, with peer interactions preferred to hierarchical modes, and power, control, and authority distributed. This makes the system open and responsive to bottom-up initiatives. See Grewlich 1999, 29.

539 The *Open Source Initiative* was founded in 1998 to promote the commercialization of open-source software and it indicates that the source code of a computer program is made available free of charge to the general public. Open-source software and the Open Source Movement are both based on free access. In order to support freedom of access, all open-source software has to be maintained free of charge. The author or holder of the license to the source code cannot collect any royalties for the distribution of a program. Keeping the source code free of charge ensures for its part the free distribution of the code. See *Open Source Initiative* at http://www.opensource.org/

540 See Webopedia http://www.webopedia.com/TERM/o/open_source.html
In this respect open-source software is mainly based on *hackerdom*, where software development is founded on the creativity of computer enthusiasts, hackers, and programming and success in it is an expression of identity. The central normative orientations of hacker culture are the freedom of information and knowledge, universal access to technology and a commitment to technological excellence and aesthetics. This is also called elegant code. See Holtgrewe - Werle 2001, 49.

541 See Lessig 2002a, 57.

542 The developer-centered attitude enables an even more hacker-centered view of the world. The Open Source Movement usually defends the freedom of users and considers a user to be a competent software developer, i.e., not just any point-and-click end-user. This is often called the developer-centered attitude. See Rosenberg D. 2000, 11. See also Webopedia http://www.webopedia.com/TERM/o/open_source.html

The openness of computer code further contributes to the *interoperability of a network*. Interoperability is one extension of the end-to-end principle and ensures that the network is open to all. In an interoperable network both hardware and software are designed in such a way that information may flow freely throughout the network without any barriers. This actually substantially supports the kernel of an open network by sustaining precisely its *networking character*. Without interoperability the network and its openness would be crucially undermined.[543] Interoperability in networking is further supported by a technical structure that ought to be as open as possible in this way.[544] Openness thus ensures some degree of *interactivity in communication*. In this way communication and openness are bound together as elementary counterparts of the sphere of commons. Communication is further carried out as *many-to-many interactivity*, where several people communicate with each other at the same time.[545]

Interactivity in the sense of many-to-many communication is rather similar to interactivity in traditional communication networks. The only additional dimension is that many-to-many interactivity makes it possible to communicate with many people simultaneously.[546] The possibility to communicate with several people at the same time makes many-to-many communication rather *crucial for the networking society*. It involves one of the most potentially democratic aspects of network because it allows individuals to be creators of content rather than only passive recipients. Further, those recipients may become active participants in a dialogue instead of just being mere bystanders. In open networks, democracy is based on real possibilities to get access to networks. To be able to

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543 If the network were not interoperable, tribalism would easily emerge. Instead of getting access to the resources and communicating with anyone anywhere, users would begin to communicate through remote data islands. See Shapiro 1999, 16.

544 An important feature of the openness of the Internet is its basic protocol of information exchange. The protocol (TCP/IP) is non-proprietary and thereby no one owns it or is able to control its use. The non-proprietary character of the transmission protocol closely resembles a set of grammatical rules, which cannot be owned by anyone. See Shapiro 1999, 16 - 17.

545 Interactivity is introduced also as a service enabling a member of the public to receive, on request, the transmission of a particular message (for example, a sound recording) chosen by or on behalf of the recipient. Services such as audio-on-demand, pay-per-listen, and celestial jukebox transmissions are interactive services. See Balaban 2001, 255.

546 The interactivity of traditional communication channels is not, however, many-to-many interactivity. The telephone and telegraph are interactive, but they allow only one-to-one communication between two parties. On the other hand, mass media, such as television and newspapers are one-to-many but not interactive. See Shapiro 1999, 15.

promote openness there is accordingly a need to construct sufficient network capacity as a prerequisite for concrete access.[547]

3.3.2 Flexibility

Openness is crucial for free access to a network. The core of openness is the end-to-end principle. The end-to-end principle has some further implications, in addition to being a type of network, and some crucial consequences for innovation. This is basically due to the structure of an end-to-end network, which makes the utilization of such a network easy and open for everyone. In an open network, applications run on the edge and allow the network itself to remain "stupid". In keeping with the nature of openness, this makes the network *flexible*. Innovators need only connect their computers to the network to let their applications run.[548]

The end-to-end network is *decentralized*.[549] Decentralization increases the flexibility of a network. Moreover, the decentralized and hence flexible structure of an end-to-end network enables maximal innovativeness.[550] This is due to the *non-optimization* of any particular existing application, which further makes the network open to innovation that was not originally imagined. Access to any application actually makes the network flexible for all innovations. Moreover, an end-to-end network is open and flexible with regard to adopting novel applications not originally foreseen by their designers, whereby a flexible network supports active innovativeness.[551] Activity in innovativeness requires some rules based on flexibility. These rules may be based on network code, which together with the software and hardware implements the overall network architecture. The architecture then further affects the freedom and control that are made possible by the general system. At

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547 In order to ensure access for all people and sufficient capacity for transmitting all kinds of information, the capacity of the Internet ought to be based on broadband. This means that there should be large bandwidth or carrying capacity. See Shapiro 1999, 15 - 17.

548 See Lessig 2002a, 36.

549 A peer-to-peer network may accordingly be considered as a network that is based on the end-to-end principle. A peer-to-peer network is based on a distributed structure with no single central service provider. Further, peer-to-peer communication is equal, with all networking computers operating equally as clients and service providers. See Kallioniemi 2001, 497.

550 Here, one major factor for improving the participation of small groups of individuals is technology. Technology thus now makes possible the attainment of decentralization and democratization. See Benkler 2000, 562.

551 See Lessig 2002a, 37.

the same time, the architecture affects the overall innovativeness that is generated on the network.[552] This is the most salient implication of flexibility.

The operational framework may well be *constructed artificially*, as it often is. The structure of a network generally affects its flexibility. Flexibility and architecture have a close connection in the case of digital content in particular, where there exists a rather unique architectural construction. This architecture is based on two kinds of values taken up in chapter one, the substantial ones and the structural ones, although they are implemented somewhat differently. Substantial values are built on legislation and are aimed at supporting the checks and limits of governmental power. As they constitute a part of legislation, they also mean that the architecture is structured through legally binding rules. These rules direct in words how to behave; i.e., the government uses laws and commands to control behavior.[553] Legislation may be called *legislative code* and it makes up the substantial part of the legal architecture of the digital environment.

Legislation is a rather stable and static implementation form for behavioral rules. As such it may even prevent the flexibility of networks. In contrast to legislative code, there exists *computer code*, which may rather easily be constructed freely. Computer code is in fact the other main regulative tool in the digital framework. In architectural design, computer code has one quality which is superior: the code is exactly as it is built up. It thus has a certain *artificial manifestation* of its own. It may contain some strong restrictions or freedoms that are realized only by creating the code. The code is always a creation of its writer. On the other hand, basic structural values are implemented through the computer code, with those structural values mainly directed towards the structure of the government or other governing body to ensure that the power of the governing body does not become too strong.[554] Computer code hence contains the instructions that are embedded in both software and hardware and they together make the digital framework operate. In this sense the code appears in its most modern sense.[555]

The flexibility of a network is implemented in computer code in two different ways. Computer code is both active and performative in nature. The active role of computer code hence distinguishes it from legislative code. Computer code differs from legislative code in activity in that computer code is *highly active*. This means that the computer code

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552 See Lessig 2002a, 34 - 35.

553 State regulation that is based on laws enacted by the government is often called *East Coast Code*. The term has its derivations naturally in the United States of America, where the legislative actions are primarily carried out on the East Coast (*Washington D.C.*). The opposite is *West Coast Code*, which is the computer code implemented by the code writers and mainly written on the West Coast of the United States (*Silicon Valley, California*). See Lessig 1999, 53.

554 See Lessig 1999, 7.

555 See Lessig 1999, 53.

functions in two different ways, which is indeed the unique characteristic of the code. First, because of its fundamental nature, computer code can be openly examined and its content and structure are freely available. The code is also capable of revealing the ideas embedded in it and in this sense is always open. As it is a part of regulation, it also should be openly examined. This is actually one natural consequence of the publicity of law, which includes computer code. Because of its openness, computer code itself can be regulated: it is not only a means of regulation but an object of regulation as well.[556] For these reasons, flexibility is introduced by the performative character of the code: computer code is *performative*; it does what it says. Learning about the code is not just a matter of reading it, but also of implementing it.[557] This implies that computer code may be used as means of implementing and enforcing certain patterns of behavior. Therefore, the performative nature of computer code is the essence of it regulatory force.[558]

Flexibility also derives from information itself, in particular digitized information. Specifically, flexibility is based on the simplicity of digitized information resulting from the ways in which the information is stored, used, and manipulated.[559] Flexibility in this respect further implies that the network must be neutral in character. Neutrality is hence mainly based on both the openness and flexibility of a network.

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556 The traditional tendency has been to keep computer code secret, or if it is revealed, this occurs only under a patent or copyright protection. In this way the majority of ideas have always become public and have been free for others to take. It is in the nature of limits on patent rights and in the transparency of the market that innovators cannot keep their good ideas to themselves. Some protection is granted for ideas and some more for expression, but this protection is always incomplete. Perfect control is never the aim of any legal system. Ideas can therefore always be used by others. See Lessig 2002a, 71.

557 For example, the code of a Web page on the Internet is primarily written in the HTM language, which means that the source code of every page can be revealed in order to see how it has been structured. See Lessig 2002a, 57.

558 Using computer code for power in the market is mainly based on the exclusivity of the code. However, instead of keeping the code exclusive it can obviously be revealed as free code. The acquisition of public value is also part of the essence of the free code movement. This occurs in two different ways. First, innovativeness is guaranteed and made possible by implementing code that is common for everyone. This also means that the right to improve and use it as a basis for other innovations is assured. Secondly, the strategic use of code is not possible. Open code can not be used strategically. See Lessig 2002a, 68.

559 Analog information is wavelike and imprecise, whereas digitized information is represented in binary fashion as one of two numbers (one or zero). See Shapiro 1999, 16.

3.3.3 Neutrality

Flexibility in the design of a network ensures that operations may be kept *as accessible as possible*. As such flexibility is essentially fixed to the structural design of networks, with the contextual design realized through some other features. One of these is *neutrality*, which is mainly aimed at increasing innovativeness. Innovativeness is ensured by the neutrality of the end-to-end network. In this design, the end-to-end principle clearly affects the neutrality of the platform in the sense that the network owner cannot discriminate against new innovations and a new innovator's design.[560] The influence is thus *contextual*. All the packets flowing through a network are treated equally. If a new application threatens a dominant one, there is nothing the network owner can do about it. The network will remain neutral regardless of any of the applications on it.[561]

In this respect the neutrality of the network supports the sphere of commons. Indeed, commons should be preferred over traditional controlled resources. Neutrality is thus made part of commons through the *actions of individuals* as its essence. Therefore, the information system actually supports the communicative ability of individuals. It is decentralization that is the focus here. Decentralization is primarily carried out by distributing the capacity to acquire, manipulate, and communicate information. The decentralized system supports the actions of individuals in permitting them to act in a crucial role when defining their understanding of the world and defining the possible options for actions open to them. This distributed system also enables individuals to communicate with others and to persuade others to accept their individual choices.[562]

The neutrality and decentralization of the communication network decreases control.[563] From the perspective of autonomy there is another consequence of how control is arranged, besides the active role of individuals. The focus is not necessarily on how the information environment is controlled. The environment can be regulated by administrative processes, or rules of property, and it is less important which of these is the core of control.

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560 In this sense, neutrality also includes *technological neutrality*. None of the communication equipment may be favored at the expense of other. In this way neutrality also aintains democracy. See Pöysti 2002, 47 - 48.

561 See Lessig 2002a, 37.

562 From the autonomy perspective, a system based on distributed capacity is preferable to a system where control is concentrated. It is no matter whether this control is in the hands of a governmental or non-governmental organization. See Benkler 2002, 292.

563 A computer network that is based on service providers as information transmitters is more effective in controlling information. This is an advantage especially for copyright owners. See Kallioniemi 2001, 498.

More essential is the effect on the pattern of distribution of the rules that govern information production and exchange.[564] In this sense the neutral architecture of a network and innovativeness itself are bound together by the design of the network. A stupid network would facilitate the greatest degree of innovation, whereas an intelligent network would probably be optimized only for certain users. A stupid network is thus neutral. It is based on the end-to-end principle and is thus structured to disable central control over how the network develops, and thus supports innovativeness.

On the other hand, innovators may develop and deploy new applications or content without anyone else's permission. Because of the end-to-end principle no one needs to register an application before it will run, nor is permission required to use the bandwidth.[565] The end-to-end principle thus in practice means that a network is designed to ensure that it cannot decide which innovations will run.[566] As such, the design of a network becomes dynamic. Neutrality thus changes the role of activity and makes it even *more operational* and thus more dynamic. The changing role of activity brings about development in the internal structure of innovativeness. Networks become more decentralized.[567]

Dynamics constitute the essence of innovation, where wires are better utilized if the architecture of the communication system enables the sharing of wires. This is exactly where the centralized structure could be replaced by a decentralized one. At the same time, a completely static structure would be replaced by a dynamic one. The focus is, again, on the decentralization of the controlling power. The ownership of the information infrastructure will affect the control. In particular, ownership affects the access granted to that infrastructure. In such cases, centralization may even increase the power of the owner.

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564 See Benkler 2002, 293.

565 This is generally referred as *open architecture*, an illustrative example of which is found in the computer industry. For example, in the handheld computer market there exist variants of the open architecture strategies. The fundamental kernel of these strategies is to make available at no charge and free for all comers the interface specifications for their respective computer platforms. The motivation of the open-architecture strategies is always to allow platform developers to decentralize the innovation process. See Lichtman 2000, 616.

566 See Lessig 2002a, 40.

567 The circuit-switched model is totally centralized because of the essential role of telephone wires. Further, the wires are often and usually owned by a state or some private organizations. The applications of the model and the decisions concerning its use are made by the owner, traditionally by the state in the case of telephone wires. Along with the centralization of wires this kind of control affects the technology making use of these wires. Centralization is thus used for protecting the existing models of doing business. At the same time the centralized communication monopoly affects innovations, which must be as the single organization owning the means of communication decides. The reason for control is a desire by a monopoly to defend its superior position by excluding others. See Lessig 2002a, 32 - 34.

The other threat to autonomy is the control over the information flows that may arise when the infrastructure is privately owned. Decentralization may decrease this as well.[568]

3.4 Summary: The interplay of statics and dynamics

Commons are generally defined as resources that are available to all members of a society to use and to take advantage of. Commons are *preserved for the use of everyone*, with this use usually being free. The sphere of commons is mainly based on an altruistic view of society. This in turn is fundamentally based on the functionality of society: in order to be functional, society needs to cooperate and communicate and accordingly the pursuits of individuals ought to serve the good of the overall community. Pursuit of the common good is the most fundamental focus of the sphere of commons. In this respect, commons ought to rely on *fluent communication*. This implies rather free utilization of commons. However, the fluency of communication in favor of the common good ought to be achieved by making the information flows as symmetric as possible. The symmetry of mutual information supports the cooperation of several stakeholders in the sphere of commons. Accordingly commons are crucially based on the coexistence of cooperating stakeholders and on reconciling their mutual interests.

On the other hand, even within the scope of commons there exists always a need to *control resources* to a certain degree. The control focuses on the essence of commons. The sphere of commons is actually slightly dualistic in nature. It is defined as located between totally free natural resources such as pure air and totally controlled resources such as ordinary commercial goods. The need to control commons is clearly reflected in the essence of ideas, which are the kernel of commons. The free flow of ideas is derived directly from nature, where there are no boundaries to the spread of ideas or information. While such free flow is the core of commons, it is nevertheless necessary to be able to control commons to the extent that they are rivalrous. In this respect, rivalrousness requires control to some degree of the scope of commons in order to organize their use. Not all resources may be made commons but where this occurs it must always be justified at least on two crucial grounds: which resources should be defined as commons and how common use is to be organized. In other words, it not only the test of rivalrousness that determines which resources are classified as commons; every bit as important is the question of how beneficial the resources are to the community.

Society is based on communication and societal communication is further crucially based on *communicative signs*. These signs and communication are both crucial for societal

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568 See Benkler 2002, 293.

life overall. Communication is mainly founded on language, which is further based on communicative marks and signs. Communicative signs are never significant alone, but always have a certain basis in the framework in which they are used. The meaning of signs is based directly on the communication and the framework in which they are used. The significance of language as the central means of communication is thus based on relationships. It is only the relationship between a sign and its bearer that makes communication understandable and significant. These societal relationships also always involve power. All forms of power are in fact based more or less on signs and language. As such they constitute part of a functional communicative framework where signs are not only objects but also functions or processes. They are thus active creations which are further related to other active creations in the course of societal communication.

Language has traditionally been defined as an instrument that is used by people for communicating different messages to each other. Language operates as an intermediator in that it is essentially based on its ability to create and define relations between people. Language operates actively, interconnected to the functional interplay of human beings; it is not a passive instrument but rather an active operator. As such language has the ability to constitute networks, it being precisely the active role of language that provides the driving force in that process. On the other hand, language is dependent on the framework where it is expressed. In the digital framework *information as a digital language* consists of bytes, much as traditional language consists of syllables. Bits make up the core of digitized communication. Digitized language is rather flexible. The communicativeness of language is even found in the kernel of computer code, which may be described as a type of language. Source code contains instructions written by human beings for a computer. Computers execute these instructions when they have been compiled into a low-level language called object code. What makes these two codes of varied level interesting is their mutual interaction: neither is able to operate alone. The human level and the computer level create their own and special common functional and communicative positions where both are equally essential.

Societal communication is also based on knowledge. Knowledge is often embedded in language and is generally communicated using language. Knowledge is founded on the *creative character of ideas*. It is thus ideas that allow knowledge to regenerate and increase. An idea is defined precisely in terms of its creativity and communicativeness. The fundamental communicativeness of ideas in society lies in their being creative. An idea cannot, however, be creative alone without any connection to its surroundings. Ideas are generally always presented as related to society and are thus often presented in an unprocessed form as subjective images. Here, an image is a factor that connects knowledge and an idea and contains a great amount of unprocessed knowledge, bringing a subjective view to the concept of an idea. An image is thus defined as an aspect of knowledge. Knowledge, in

turn, may be defined in different forms, i.e., as explicit knowledge and as tacit knowledge. These two forms of knowledge are always closely bound together and generally occur interconnectedly. The difference between them lies mainly in the invisibility of tacit knowledge. Tacit knowledge is principally embedded in people's minds and in patterns of communicative behavior. It is precisely the interconnection of tacit knowledge and explicit knowledge that constitutes the basis of communicativeness.

Communication also occurs in the form of money. A *crucial part of societal communication is founded on exchange*, where money acts as a connecting factor between market information and exchange. Exchange is thus fundamentally based on the close connection between human beings and nature as communicative actors. In this cooperation, exchange constitutes multilateral relationships that employ money as a medium of payment. In the market everything is valued and each item has a price. Valuation is one of the fundamental factors driving exchange overall. Without any value on goods there would be no exchange. The valuation of goods and exchange thus defines the mutual relations of goods. Communication in a market is based precisely on these relations, with prices defining the extent of exchange. The value of money itself is always the same, whereby *money may be used as a means of commensurability* in the market. Money is the measure against which all other exchangeable goods are appraised. It is precisely commensurability that acts as the definitive factor in the communicativeness of money. In societal relations, money has at least one further task: it serves as a store of value, and increases and facilitates exchange crucially. Money makes it possible to store one's income; it is not necessary to use all one's money at once.

The sphere of commons consists of certain socially crucial elements. At least language, knowledge and money may be defined as such *common interests*. These interests ought to be *implemented dynamically* and thus in interrelated communication. This communication can be further realized by supporting dynamics on the basis of innovativeness. In operations dynamics are reflected in *activity in operations*. Activity is thus explicitly realized as different ways of using information rather than passively receiving or transmitting it. Activity thus contains the core idea of innovativeness, i.e., keeping the network as simple as possible and creating smart applications instead. Free access to a network supports the sphere of commons and increases *openness*. A freely accessible network is open to all users, with use of the network being equally available despite any technological limitations. In the digital framework, openness may also be introduced through computer code, which contributes to the interoperability of the network. Interoperability is in fact one extension of openness and dynamics in the use of networks. It strongly supports the essence of open networks by sustaining their networking character.

Commons are also based on *flexibility*. In an open network, applications run on the edge and the network itself remains stupid. The network is open, and at the same time

openness supports flexibility. Innovators thus need only connect their computers to the network to run their applications. Open and flexible networks are decentralized, which enables maximal innovativeness. This is precisely due to the non-optimization of any particular existing application. The support for all the applications in a flexible network is hence constructed artificially in that the structure of the network generally affects its flexibility. Flexibility may be applied in two different forms of code: legislative code and computer code. Computer code seems to be more artificial and thereby also the more flexible of the two. The flexibility of computer code is realized in two different ways in that computer code is both active as well as performative. This means that computer code is operational and thus dynamic and in that it does what it says.

The scope of commons is supported through *neutrality*. Neutrality is mainly aimed at increasing innovativeness in network applications by preventing the network owner from discriminating against new innovations and new innovators' designs. The influence of neutrality is thus contextual and it is aimed directly at the realization of the commons. Neutrality ensures that all the information flowing through a network is treated equally. This is precisely due to the decreased amount of control. Neutrality and decentralization of the communication network thus decrease control significantly. Innovators may develop and deploy new applications or content without anyone else's permission. The design of networks as such becomes more dynamic. Neutrality thus changes the role of activity and in fact makes it even more operational by rendering it more dynamic.

4 SUMMARY. ISSUES TO BE FOCUSED ON

The theoretical frame of the research is based on the conceptual frame elaborated by *Wesley Newcomb Hohfeld*.[569] This consists of eight fundamental juridical conceptions that constitute the foundation of legal relationships overall. In this research the application of Hohfeldian theory, however, differs slightly from the customary interpretation. The traditional interpretation is fundamentally based on examining the legal relationships and their mutual coexistence. In this study, the principal aim is not to examine so much the legal relationships as such but the increased dynamics of the legal framework overall. It is no longer sufficient to be able to describe legal conceptions or the legal relations in their static sense, or their non-functional status. Rather, there is a crucial need to examine and describe the rebalanced status of statics and dynamics in the digital and networking framework. It is incontestable that Hohfeldian theory may be utilized for examining the alterations in overall functionality that are built into the concepts themselves and their interconnected coexistence as the elementary components of the conceptual frame.

The first chapter has set the foundation for the study by analyzing and describing the collaborative interests. This communication of interests is carried out on the basis of different stakeholders, with the stakeholders being classified as the major actors in society. Communication is carried out between three different interests, those of the state, the market, and society. These are the stakeholders participating in the construction of the modernizing scope of intellectual property rights. This threefold communicative pattern is also the basis of the operativeness underlying business ideas, as business ideas are likewise constituted of those interests.

Chapter two will present operational illustrations of the digital economy. These illustrations focus on the interests of the state, market, and society as the essential cooperating elements. It is these interests and their interplay that constitute the concept of business. In order to offer a broader view of the problem, these illustrations are classified as names, ideas and money. All these functions are then further viewed as collaborative and thus cooperative units of interests. The most paradigmatic illustrations of the digitized economy are domain names, business ideas and venture capital. All these illustrations embrace elements that are essential to the digital economy. As such they are rather complicated and hard to fit into the traditional legal system. Functionality constitutes the essence here.

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569 See Hohfeld, Wesley Newcomb: Fundamental Legal Conceptions as Applied in Judicial Reasoning. Yale University Press 1964.

Chapter three concentrates on designing a rights governance architecture for the innovative digitized framework. The explorative illustration to be introduced is based on the cooperating dichotomies that are revealed through the Hohfeldian conceptual frame. The elementary basis of the Hohfeldian concepts provides the basic elements of the architectural interpretation. Only the balance of statics and dynamics is examined slightly differently from the customary interpretation. The chapter also examines the difference between statics and dynamics by comparing inventiveness and innovativeness as examples of statics and dynamics.

CHAPTER TWO.
ILLUSTRATIONS OF THE DIGITAL ECONOMY

1 PLUG IN AND GET RECOGNIZED

1.1 Communication as society

Society is communication. As a communicative complex, society is built on the mutual coexistence of communicative units and cooperation among them.[1] Society is accordingly generally defined as *mutually interactive behavior* and may be described as a communicative entirety where the cooperative units form the essence of the societal structure of the whole world.[2] Societal cooperation thus crucially consists of communication, whereby societal control is likewise generally based on communication.[3] There are two essential elements that define the possible controlling devices. These devices are linked, on the one hand, to the communicating parties and, on the other, to the conditions controlling the overall communication structure. These elements may be termed the *communication parties* and the *communicative environment*.[4] Above all, communication is carried out by different parties, and it always takes place in a certain framework or environment.

Society as communication is best clarified by examples. Trade constitutes the very kernel of exchange and is accordingly the communicative core of society. People sell and buy things. However, at the same time trade constitutes a form of communication. Namely, the seller and the buyer, in addition to trading, also communicate with each other. Trade is thus one of the basic communicational institutions in society. Another good example is found in family life. The family is basically a communicative unit similar to trade, although the communication in a family is not based on exchange or economic wealth. Nevertheless, as institutions both trade and the family constitute some of the

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1 The *right of self-determination* and *autonomy* are both part of being a human being. See Saarenpää 2002, 115. Self-determination and autonomy as illustrators of being human being are included even in free speech. See *Government Proposal HE 54/2002 vp.*, 6.

2 At the European level this was stated as early as in 1994. See *COM (1994) 347 final*. According to that document the most keys to the information society are communications systems combined with advanced information technologies. Networks (e.g., telephone, satellites, cables) were considered to be removing the constraints of time and distance. On the other hand, information networks carry information and basic services (e.g., electronic mail, interactive video). These, further, allow people to use the networks and applications (e.g., distance learning, teleworking) which offer dedicated solutions to user groups. See Bangemann et al. 1994, 25.

3 Communication is often described as the cooperation of an economic and a governmental system. See Heiskala 2000, 175.

4 See Dommering 1996, 15

fundamental cooperative relations of society. Conversely, there would exist no society without trade or families as fundamental forms of communication.

Communication is bound to a certain environment. For example, an ordinary discussion is carried out *face to face*, whereby the communication environment is bound directly to personal contact among the participants. In the case of personal communication, i.e discussion, the conversational prerequisites and the consequences of the conversation are directly derived also from this *personal aspect*.[5] The personal aspect of the environment has, however, at least one even more crucial implication. It opens up the possibility to use power to decide who controls the choice of subject, timetable and the pace at which the information is presented.[6] This deciding body may well be some central institution, or it may be an individual. The status of the deciding body is rather extensively dependent on the communication environment, however. The other essential element of the communicative act derives from the communicative parties, i.e., the parties entering into the communicative situation. These communicative situations ought to have at least two actors in order to constitute any framework of conversation.

The communicative parties are generally referred to as the *transmitter* and the *receiver*.[7] In ordinary conversation, the parties are simply called *speakers*. Further, the communication may be personal or impersonal.[8] Personal communication is generally point-to-point communication, whose most important qualification is precisely the *personal relationship* of transmitter and receiver.[9] The conversing parties need to be *recognized*, and the content of the message needs to be *directed to someone*. To this end it is indeed essential to define the interfaces properly. These are defined, on the one hand, as

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5 The environment may also be described from the perspective of the transmission of information, with the shift from paper to data also being significant and having an impact on communication. See Blume 1989, 334.

6 This actually is closely linked to the conditions for how people communicate in society. Basically, the communication of information, and especially improvements in this communication, have been said to enhance the general welfare, for example, by increasing the efficiency of markets or by increasing the rate of innovation and, thereby, growth. See Benkler 2002, 296.

7 Communication in this respect is considered to be a system of activities that are used for transmitting information from a sender to a receiver. Communication may be carried out by using information about law, whereby the communication process overall is also considered a legal one. See Bing 1982, 15 - 16.

8 Communication is realized as point-to-point or face to face communication. Peer-to-peer is also a communication form, although it may also be considered a means of distribution. One of the greatest advantages of peer-to-peer applications is that they smoothly connect one end-user to another. See Still 2002, 293. Distribution has traditionally been defined as publication offering copies of a phonogram to the public in reasonable quantity. See *International Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations*: Article 3 (d).

9 Personal communication is, further, supposed to be carried out secretly, or at least it is to be secured. The most traditional form of point-to-point communication was couriers, whose task was to deliver mail. See Kajser 1994, 42.

between the communication itself and the communicative parties, and on the other, between the communication and the communication environment. Nevertheless, the parties themselves remain free to decide about the source of information, which is either a central institution or an individual.

Societal communication is generally personal. In personal communication the simplest interface is the *name of a human being*. Names have even been considered the core of different branches of rights, and have served to bind these branches to each other.[10] A person's right to his or her own name is the very essence of his or her ability to act in society in a proper way. A name thus seems to be part of the essence of societal communication. Personal participation in societal communication is realized by making oneself known as an identifiable person. In other words, by these means a person indicates that he or she is able to participate in social interaction and to act communicatively in a commonly accepted way.[11] In the societal context, a name thus has even several parallel purposes, each of which is important in its own way. This requires, however, that the communicative environment remain change.[12]

The overall communicational structure affects the usefulness of names in communication. The use of names as communicative devices arises from two distinct developments: the evolution of the communicational environment, and second from the transformation in the character of communication. However, the greatest pressure for change in the communication environment originates in the emergence of *global networks* as a communicative framework.[13] More specifically, the pressure for change appears earlier than in the communicative act itself. It emerges with the computing technology, which has significantly facilitated both the processing and the use of information.[14] On

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10 See Kangas 1991, 4 - 5.

11 Identification is carried out by making oneself known as an identifiable person, i.e., an entity that fulfills the identity conditions for a person that cannot be identified merely through observation. Further identification is then carried out through a proper name. See Habermas 1989, 104.

12 The changing communication environment was one of the main reasons for expanding the name system towards using both a first name and family name. When one's operative area expanded, the familiar name known in smaller circles was no longer sufficient for reliable identification. See Paikkala 2004, 123.

13 This concerns all the *general communication networks*. A general communication network is the one that is offered to a number of users that is not restricted beforehand. Mobile communication networks, fixed telephone networks, mass media networks, and the Internet are defined to as general communication networks. See Helopuro - Perttula - Ristola 2004, 14.

14 The further development of communication at the European Union level is carried out within the scope of the three most recent and thus most important Green Papers: *COM (1994) 145 final* "Towards the Personal Communication Environment: Green Paper on a Common Approach in the Field of Mobile and Personal Communications in the European Union" and *COM (1990) 490 final* "Towards Europe-wide Systems and Services: Green Paper on a Common Approach in the Field of Satellite Communications

the other hand, the evolution seen in communication has arisen with the development of the communicative structure itself. The structure has developed from a horizontal communication pattern towards a vertical one. In this context it is the *horizontal pattern* that is considered the traditional one, the prototype of the horizontal communication structure being that between people. This is exactly why communication of this form is characteristically personal. Communication has traditionally been carried out between people and as such it is an instrument for realizing societal integration.

Communication is often vertical. *Vertical communication* is basically realized *between a person and the state*. This might even be described as a form of public communication that is usually carried out as of mass communication. Mass communication is rather different from private one because of its generality. Public communication is usually derived from the transmitter to a larger group of people, with the content of the message generally the same all the time.[15] In vertical communication both the structure and the participants are both clearly totally different from each other. The audience and the message are mutually rather unchangeable, which makes a vertical communication structure more rigid than a horizontal one.

1.2 Names as communication

1.2.1 The communicative function of a name

Communication is generally functional, with the communicating parties constituting the very core of the functional communication.[16] As functional interaction, communication can only occur when it is directed to someone. In this framework it is a *name that actually establishes* the core of the communicative event. A name is also a crucial element of any business method. A name is a binding and unifying component of that method, the totality of its elements being captured in a single name. A good example is the Internet store *Amazon.com* and its one-click patent. It is the one-click buying method that has made Amazon.com well known inasmuch as it is the name "Amazon.com" that usually is associated with the one-click method. The one-click method was actually used commonly in network shopping even before Amazon.com patented it.

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in the European Community - Communication from the Commission." The third Green Paper concerns broadband communication and its development and is the most recent: *COM (2004) 369 final* "Communication from the Commission to the Council. The European Parliament, the European Economic and Social Committee and the Committee of the Regions Connecting Europe at High Speed: National Broadband Strategies."

15 Mass communication may be also defined as public communication. See Kajser 1994, 42.

16 This is precisely stated in the overall definition of *context*. Context includes that the content is created in the sense of traditional production, but parallel to this content is also created through receiving texts. See Lehtonen, M. 2000, 166 - 167.

A name thus operates as an interface for communication overall, with the name falling within the sphere of commons. A name may also be considered an instrument that is used as the kernel of communication: it constitutes a *set of rights* in societal communication. This foundational character is based on the significance of names as allocators of rights.[17] In establishing rights and duties, a name as a communicative interface, is hence the essence of the functionality of the overall communication system. A name itself has several different functions which are among its integral elements. A name thus always includes some *built-in functionality* where functionality is an essential part of a name as a communicational feature. Names often comprise different modifications that define their content.

For a human being, a name is both *a right and a duty*.[18] Having a name is actually essential for anyone to become a member of a society and, on the other hand, to be able to communicate with others in that society. Here, a name can be considered an aspect of *personality* in the legal sense.[19] The ability to communicate with one other is very significant for human beings as a community. On the other hand, a name as a right and duty ensures a certain *confidentiality* for the communication.[20] Communication becomes more efficient when it is possible for the parties to identify themselves and to trust each other. Confidentiality is clearly further connected to the ability of communicators to *identify themselves* reliably. Identification creates confidence. This is why confidentiality may even sometimes be connected to privacy.[21] Names are thus tools of confidential

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17 A name as such is not sufficient, but may be used as a signpost by which communicators can orient themselves in gathering the data that is sufficient for identification: date and place of birth, family background, nationality, and religious affiliation. See Habermas 1989, 104 - 105.

18 See Kangas 1991, 33 - 34. According to *International Covenant on Civil and Political Rights (CCPR)*, article 24 "... point (2) Every child shall be registered immediately after birth and shall have a name ". The article implies mandatory use of a name. In Finnish legislation this right is written in an obligating form: "Everyone shall have a family name and a forename ", (Names Act 1§). See also Kangas 1991, 34. The *International Covenant on Civil and Political Rights* can also be found on the Internet: http://www.unhchr.ch/html/menu3/b/a_ccpr.htm

19 The provision of *International Covenant on Civil and Political Rights (CCPR)*, article 24, pont (2) is designed to promote recognition of the child's legal personality, see Office of the High Commissioner of the Human Rights: Rights of the child (Art. 24) : . 07/04/89. CCPR General comment 17.(General Comments) http://www.unhchr.ch/tbs/doc.nsf/(symbol)/CCPR+General+comment+17.En?OpenDocument

20 Confidentiality actually refers to the ability to be private or secret. Confidentiality is further established in relation to a particular classification of data, and a corresponding set of rules authorizing and limiting collection, dissemination, and storage of data. See Parker 1981, 40. On the other hand, confidentiality, integrity and availability are the three main dimensions of information security. See Bishop 2003, 3.

21 See Parker 1981, 40. Confidentiality is clearly connected to the data itself and it stipulates that the data and communication are to be kept confidential. See Grewlich 1999, 173.

communication: likewise they may be used for guiding the communication in the right way.

Daily communication requires that different kinds of symbols be utilized in communication. The *personal name* of a human being is an extremely useful symbol in this communication.[22] A name is considered a clear expression of personality and therefore has some close connections to human personality.[23] Personality as associated with names arises from the function of a name as a *means of communication*. Acts and speech need to be directed to someone and in this context a name makes an excellent connection between the symbol and the individual behind the symbol. The functionality of a name is clearly implied in its connective nature. A name is an implement to *make individuals subjects*, which at the same time increases the confidentiality of communication. As subjects, individuals are able to operate in society. In other words, only a subject can have a name. Without a name, one remains a mere object.[24] Further, the use of a name as the basis of human communication occurs on two different, but closely connected, levels. In this communication names constitute the most fundamental *interface*. Communication is internal when it occurs among the members of a community. Communication mostly consists of the ordinary collaboration among people living in a certain community or, more extensively, in a certain society. Simply put, people live together: they speak, discuss, and do business, and, at the same time, communicate with each other. In internal communication, the pattern of mutual communication is *horizontal.*

The other level of societal communication is external and it is realized as *vertical* communication that is still based on a certain internal functionality of its own. Vertical communication is usually founded on the relationship between a state or other sovereign maintaining the controlling power in a society and an individual. The essence of vertical communication is control. Individuals are subordinated to this control, whereby the communication between these two actors is always vertical. Vertical communication is used for directing societal operations and it is also generally based on the names of

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22 Kangas 1991, 1. The needs of communication were actually the main reason to introduce the family name system as there was only a certain small number of first names available and accordingly there arose the problem of several persons having the same name. These family names were originally *patronymics*, i.e "belonging to someone ", generally the father. See Paikkala 2004, 79.

23 Personality may be described as a certain way to realize communication as mere descriptions of the private and the substantive. The individual was thereby considered only as a certain scene where social relations were bound together. All the human actions were thus carried out in the society and everything was thus under the influence of society. See Simmel 1999, 16 - 17.

24 A clear distinction here is the medieval position of women being objects and a part of their husbands 'property. The name of a woman was not officially used and if needed she was referred to only anonymously or as the wife of the husband. See Mäkelä 1989, 28 - 29. It was also usual to refer to a woman by using her first name only. See Pylkkänen 1990, 55 - 56.

individuals.[25] In this sense, a name, again, is a link between a human being and his or her visible or even more; recognizable, position in society. On the other hand, the position that is created through a name is really rather crucial for the governmental actions. Namely, the governance of societal operations and actions is carried out by legal regulation in which the legal norms have to be directed to someone, as must any sanctions. For this reason the objects of regulation need to be identified and individualized by name.[26]

There is a certain *level of coexistence* between the horizontal and the vertical forms of communication. Both levels are equally useful, or even necessary, in a dynamically functional community due to the continuous development of society. This development in turn is a clear consequence of continuous societal communication. The overall completeness of the community grows up from within, where it acquires its internal order.. The order is further constituted of the communicative relations between the members of society. In this communicative functionality, individual names and their general use solidify the societal structure.[27]

1.2.2 The stabilizing function of a name

Societal stabilization is carried out likewise through the communication. In this respect, names may be considered symbols that are utilized as a means for crating the societal control.[28] Stabilization is furthered through names in their being commons. Today the very foundation of individual names is based on privacy, with the name itself emphasizing that privacy. This occurs by defining *the scope of individuality*, further clarified through a name. Accordingly, individuality is more than merely being a human being; it includes many values and impressions that are merely summarized in a name. Furthermore, a name is used as a means to define the *extent of individuality*. A name and the impressions embedded in it are utilized as inclusive elements. The information

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25 It is essential for the functioning of society to be able to individualize persons. They must be distinguished from each other. See Kangas 1991, 1.

26 See Kangas 1991, 1.

27 In addition to names, the other connecting factor is a common language. The combination of name and language was used in history in Finland for changing the position of the Finnish language and for raising the national identity. The names were mainly Swedish or originally Swedish, and translating them in Finnish was one of the political weapons of the nationalists. See Kangas 1991, 8 - 13.

28 In this sense, names may be defined as *pure symbols* used as a means of control. Pure symbols are ones whose use does not constitute any physical threat (physical control) or a claim on material rewards (material control). Symbolic control is based on normative symbols, like prestige or esteem, or social symbols, like love and acceptance. The use of symbols for control purposes is referred to as normative, normative-social, or social power. See Etzioni 1964, 59.

included in a person's name, and the information excluded from it, in fact draw the very fundamental boundaries of individuality. At the same time, individual information constitutes a communicative element between society and the individual.

A name as a communicative societal element also creates *integrity*.[29] Integrity is further sustained through the stability of the system of names. Generally, to be able to operate as an expression of individuality, a name needs to be rather stable. To ensure the smoothness and success of communication, a name may thus not be continuously altered. In a communicative society the very expression of individuality, as well as integrity, is the *fundamental stability* of names, with stability emphasizing the control-oriented aspect of a name. Names also have a central task in horizontal communication, which further contributes to constancy. The stabilization of names enhances vertical communication as well.[30] The stability *strengthening the society* as a system of rules. In a society, the existence of a human being as a member of the society is ensured by his or her name, with behavioral rules directed to people through their names.

A stable system of names binds people to the *community rules*. If people were not bound to these rules society itself would be rather unable to operate. The stability of names accordingly stabilizes the overall functionality of society. Stabilization through the system of names is achieved by legislation. The core of the name legislation is the regulation giving and changing names (both first name and family name). This makes privacy rather bureaucratic Then again, societal stability explicitly requires the bureaucratization of the system of names, with the stabilization at the same time bureaucratizing privacy.[31] Therefore, the system of names as a stabilizing factor changes the mutual relationship between privacy and names. A name is basically one of the fundamental concepts of privacy and as such includes a great deal of *individual information* concerning the bearer of the name. Names also have their task as a means of societal communication.

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29 Integrity has even been considered as one of the most fundamental elements of cryptography in modern communication. Integrity is thus a crucial element of digital signatures and its purpose is to verify whether data have been altered. The other two crucial elements of modern communication are authentication and confidentiality. See Grewlich 1999, 173.

30 The stability of names is usually the basis of the name legislation and the totality of names should be as stable and unchangeable as possible. This applies to the legal cultures in the Nordic and the Roman-Germanic countries. See Kangas 1991, 2.

31 See Kangas 1991, 3.

1.2.3 The status-creating function of a name

Names stabilize society. Along with the stabilization a fixed system of names increases communication in society. In addition to its specific function as a communicative element, a name has also the task of creating certain societal statuses. The *status function* of a name appears in two different aspects and likewise has had two different lines of development. The first of these has its origins in the *unregulated use* of names. There was no name legislation in the Finland until the beginning of the 1920s meaning that the use of names was *bound only to community rules* and the societal practices.[32]

Second line of development is connected to the value of a name. This value is clearly reflected in the need for legal protection of a name. This was especially the case when there did not exist any legislation on names. The need arose from the demands of those people whose name included some *extreme value* for them, or whose name was particularly significant in some other way. The value prompted the need to protect the name in one way or another. Those name-holders were mainly noblemen or members of the upper class and thus people who used their names in some symbolic meaning or as an indicator of their societal position. In this way, the need to protect names legally arose from the desire to *protect a special position*. Mere protection of the name as such was not the primary focus of the legal protection provided.[33]

The protection of a name thus entailed the protection of a certain position; i.e the protection of a name was acquired as a part of the need to protect a special status. The connection between a name and protectable status was thus clear. A strong position was easy to protect by protecting one's name, which was a *visible expression* of this status. A name was, moreover, a creation that was easy to protect by legal means. The juridification of societal position as such would have been much more complicated. The protection of a name and status together was actually quite versatile: the name and status actually strengthened each other. The protected societal status gave rise to some serious demands that even the name itself should be protected.[34]

A name as status approximates the *value of a name*. This is clearly manifested in the protection of certain names and symbols (*Finnish Name Act 12§*). On this basis, a name

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32 The first law concerning names was enacted in 1921. See Government Proposal *HE 1919/66*: Family Name Act.

33 See Kangas 1991, 13 - 15.

34 A name may acquire value purely as a name. The individuality of a human being becomes attached to his or her name, and a name can easily be considered as the focal element of one's personality. For this reason there is a register of protected names in Finland. The register includes the old traditional names used in Finland by some certain families. The register and the names approved to become a part of it derive from the time before the name legislation. See Kangas 1991, 19.

may attain some protection as an expression of status. This protected status may be granted to a name in two different ways. Protection may, at the same time, also create some value for a name. Protection is granted either by establishing a name or by applying to have a name entered into the *Finnish Population Register* as a specially protected name.[35] The official value of a name is explicitly established by these means. Here the analogy between protecting a name and establishing a trademark is clear. Indeed, the close similarity of a name and a trademark reinforces the role of a name as a value-bearer. As a value-bearer, a name may acquire a protected or a protectable position of its own. The difference between a name and a trademark lies in the close connection between a name and its bearer. A name is not usually detached from its bearer, but rather always continues to *symbolize the subject* overall. A name as such illustrates the subject's status.

1.2.4 The identification function of a name

Communication requires *identification*. Identification of the communicative actors is essential for smooth communication overall.[36] The special nature of identifying persons, as opposed to objects, is explained by the fact that persons do not naturally fulfil the conditions of identity. Unlike objects, people are not identifiable only by looking at them.[37] The identification of human beings is not possible without sufficient information. The *availability of information* is thus crucial for successful communication. The different functions of a name are also closely bound to each other. For example, the identification function of a name is actually complemented by its status-creating function. A name as a status thus has a great significance in identifying individuals, whereby a name as a status is directly linked to a name as a means of identification. A name in fact constitutes a versatile framework for assigning rights and duties in proper societal communication. The core of this framework is based in the *legal position of a name* as a right and a duty.

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35 Proposition on forename and family name legislation, *OLJ 3/1989*, 26 - 27.

36 Communication is based on mutual voluntary relationships between the parties involved. Identification is essential to defining this relationship. See Votinius 2004, 62 - 63.

37 First, they acquire their identities as persons if they are identifiable as persons at all, and if need be, as specific persons. As persons acquire their identities through linguistic interaction, they satisfy their conditions of identity for persons, and the basic criteria of identity for specific persons. Further, through this they understand that they are persons who have learned to take part in social interactions. See Habermas 1989, 105.

More specifically, a name as both a right and a duty serves as the key to identifying a person. With regard to identification, the right to have a name is more like a duty.[38] In this sense, right and duty are connected together as a *right-duty norm*, meaning that a certain norm has a dual meaning.[39] Everyone must therefore have a name in order to become identifiable in society. An individual's being identified is rather essential for vertical societal communication, i.e., for the state as a registering authority to be able to identify him or her. This is due to the use of names as the basis of registration, which reflects the verticality of the communication between individuals and the state. The identifiability of a person is thus one of the main functions of a name.[40] Identifiability as the foundation of vertical communication may then be defined as an essential element of the identification function of a name.[41]

Identification also creates *integrity*. Integration is a direct consequence of identification as the basis of societal communication. It is easier for people to communicate with each other when they can be reliably identified. Identifiability and interactive communication then further integrate the actors rather substantially into society itself. The identification function of a name is crucial in preserving the close connection between *a name and its bearer*.[42] A particular name, perhaps with certain additional features, is always connected to a particular human being. In our daily life and communication within family or friends this is exactly how names are used and how they acquire their functionality. The identification function of a name is also closely connected to its *symbolic meaning*, a symbol being a given image referring to its bearer in accordance rules set down by the community.[43]

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38 See Kangas 1991, 34.

39 This double meaning often implies that such norms take on some special significance in state governance. Right-duty norms imply that both the right and the duty are to be realized through the same act. On the other hand, they are also bound to this act. See Pöyhönen 2000, 74. An illustrative example of right-duty norms is the care of a child: the care of a child is both a right and at the same time a duty for his or her parents. The parents are thus allowed to take care of a child, and obliged to do so as well.

40 A name is usually given to a child quite shortly after his or her birth. For example, in Finland the duty of giving a name is fulfilled by entering the child into the Finnish Population Register. See *OLJ 3/1989*, 18 - 19.

41 There is, however, no obligation to use one's name, e.g., one does not have to use one's name when communicating with others. Avoiding the use of a personal name may be necessary, for example, to protect one's privacy. A name may even be replaced or covered up by using a *pseudonym* or going about *incognito*. See Kangas 1991, 35.

42 This was a particular reason for changing the multiple-name system towards a single-name one. A person's name in the single-name system was not, however, a family name but rather a sobriquet (*cognomen*). See Paikkala 2004, 83.

43 The rules usually concern the use of language and how we describe and speak about something in our mutual communication. *Icons* (sign resembling somehow its referent object), *indexes* (causal relationship with its object) and *symbols* (referring to the object according to agreed rules) are the basic concepts for defining signs according to their

The integrity and confidentiality of communication is also created through cooperation, with coexistence being defined by social relationships. Names play an essential role here. The exchanges of names as a part of confidential communication is actually carried out in accordance with the idea of *fundamental social friendship*, which is further needed for establishing cooperative relations.[44] Social friendship is thus an instrument for defining the further prerequisites for cooperation. For example, in contractual relationships there exists a crucial need for distributive justice that underlies the operational balance of both parties.[45] For instance, *loyalty* has to be defined in advance if it is to be incorporated it into operations later. Loyalty has to be defined contextually, inasmuch as it is based largely on the mutual respect of friends, mutual openness, and intermediating participation.[46] On the other hand, loyalty is also based on fairness as the basis of friendship.[47] Loyalty is clearly illustrated, for example, when defining the limits of cooperation. Common practices function as the fundamental criteria for the accepted forms of behavior.[48]

1.3 Communication as verticality and control

In any society, people and the state must communicate with each other. This communication is essentially *vertical* in form due to the superiority of state as a governing power that exercises its power over the people as governed subjects. Verticality is thus based on the need of a state to *control the behavior* of people, which is crucial for keeping public order; verticality in communication is a clear manifestation of the sovereignty of

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referents. See Niiniluoto 1997, 23 - 24.

44 In this sense, friendship as one of the foundational elements of cooperative relationships closely resembles the concept of *informal organization*, where friendship and social grouping of the actors constitute a significant part of the organization. See Etzioni 1964, 20.

45 The balance is reached through the cooperation of both parties. This is basically due to friendship as the basis of contractual relationships and loyalty. See Votinius 2004, 66 - 67.

46 These basic elements of friendship are further defined slightly more contextually. Mutual respect consists of the mutual respect of friends that is shown for its own sake. Respect is thus not valuable only, or at all, because of the expected result. Friends have value only because of themselves. Openness has its further purpose in closeness and solidarity, which further have their own effects on participation. See Votinius 2004, 58 - 59. In addition to friendship, justice is closely defined through aesthetics, with form, style, emotions and symbols constructing the overall scene. See Ljungström 1998, 199.

47 It is a rather general view, however, that friendship is complemented by friendship and affection only. See Votinius 2004, 68.

48 Good practices are moreover defined as *favorable practices*, which are further defined within a particular operational area. The more accurate definition of a good practice is thus carried out by all the participating parties working together. Accordingly, the strongest parties are allowed to dictate matters to the detriment of the weaker ones, without a favorable practice becoming an unfavorable one. See Pöyhönen 2000, 97.

the state. This verticality underwent changes in the 1960s when two radical developments emerged. These trends have been going on ever since, and at an increasing rate.

The first of these developments is *computerization*.[49] Computerization refers to the range of possibilities offered by technology, especially computing technology. The most significant factors here are dynamically developing information technology and digitization.[50] Both of these factors have their impact on communication, which in fact has changed rather drastically; i.e., computerization made communication more technical. In the early days of computerization it suddenly became possible to employ significantly more information than before in a significantly shorter time than before.[51] At the same time, information processing increased and became more effective. Among other things, computerization facilitated vertical communication as a means to control individuals as societal operators.[52]

The other development line, *informatization*, has occurred alongside computerization.[53] In fact it is closely connected to computerization and the development of information technology and is hence closely linked to the information processing.[54] Informatization can be seen as a direct consequence of the increase in the amount of information: it has became possible to utilize more information as the basis of operations. On the other hand, information became more and more significant in order

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49 Computerization may also be referred as automatization. Automatization and informatization have a close connection but with informatization being only a minor factor compared to automatization. See Seipel 2005, 21.

50 The new technology is actually changing the relationship of citizens to the state. The most fundamental change is based precisely on automation and surveillance. See Shapiro 1999, 63.

51 One expediting factor here was the creation of electronic databases that made it possible to collect data and apply specific computerized functions individually. These electronic databases allow users to make their own tailor-made extractions from the mass of data available in the collection as a whole. See Reichman - Samuelson 1997, 65.

52 This increased the need for *data protection* as computerization and the developing information technology had made it even easier to collect, save, utilize, and distribute personal data. See *Government Proposal HE 49/1986 vp.*, 3 - 4.

53 Informatization and computerization together made it possible to create databases containing masses of information. In this respect both of these lines of development are useful in several other areas of information retrieval. See Blume 1989, 291 - 292.

54 The relationship of information and information technology is well described as the one of bottle and view, according to *Carl Shapiro* and *Hal R. Varian*. The technology is the package that allows the information to be delivered to the end consumer. On the other hand, an information product would be of little value without a distribution technology. See Shapiro - Varian 2003, 54.

to function properly.[55] It also became crucial to be able to classify and process information, as it was increasingly *fragmented*. Information was dispersed and complicated to collect and the amount of it was increasing. Informatization is thus only a result of the increase in the possibilities to transmit and receive information.[56] It became crucial to be able to classify information that was retrieved and gathered, inasmuch as this affected vertical communication; it became essential to collect and store more information about people.

Both computerization and informatization crucially affect the relationship between the state and people. The importance of computerization and informatization is actually fundamentally based on the significance of information as a means to implement governing power. Information is treated as a source of power.[57] This in turn modifies vertical communication, which becomes more and more aimed at controlling people in society. Control becomes easy using information technology and the increased possibilities it offers to gather information about people. On the other hand, this all functions as a catalyst for the additional requirement of controlling and classifying the *carriers of information*. In societal functions, the most important carriers are naturally human beings and this is precisely where the control is to be focused.

1.3.1 The requirement of more effective control

The controlling power of the state is *aimed at people*. People are best identified, and thereby controlled, through their names. Every person has a duty to have a name, which makes it a useful instrument for identification, and effective control by the state. A name is an excellent tool for controlling purposes because of its stability: it is not seen as continuously changed.[58] This is in fact the most crucial prerequisite for the constancy of the whole name system. The justification is found in the system of names itself. First, the identification function of name would be ruined without continuity. Second, the stabilization function would be useless. This is how the constancy of names upholds the

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55 An informatized society is often called a network society. As such information is not a new invention and the amount of information has not really increased. See Saarenpää 2000, 3 - 4.

56 This is due to the development of equipment and the ease in transmitting information. Both of these developments make it seem and feel easy to receive and transmit information. However, the information flood and information inflation make it rather complicated to actually find the information that one needs. See Vakkari 2000, 12 - 13.

57 Information is power even traditionally. Government bureaucrats have treated information as a source of power and the job of the information manager was simply to integrate information flowing upward from subordinates. See Nelson 1998, 341.

58 See Kangas 1991, 2.

stability of the controlling system. This is the essence of the vertical control of the state to the extent that it draws on the use of a name as an identification tool.[59]

The basis of the controlling structure of the state lies in the close connection between *names and other identification tools*. These identifiers are closely linked through the personal dimension: names and other identifiers link the personality of a human being and official identification instruments.[60] With the official instruments of identification becoming personalized in the process. In this respect, name legislation and the overall legislation on combining names and the other instruments of identification are closely linked. This means that names *and national identification numbers*, for example, are connected, creating in practice a combination that includes a great amount of personal information.[61] The personal national identification number system links each individual and his or her unique identification number.[62]

Individuals and the instruments of identification are thus connected. Linking individuals and information concerning them requires some connective tool, a name being an important example of such a tool. Identification of individuals ought to be carried out on the basis of their personal data, for which their name and date of birth provide a natural and sustainable basis. This is a good beginning, but not enough for *confident identification*.[63] The controlling function of a name needs more effective tools when the control is necessary for stabilizing society overall. Integration may if necessary be carried out through more effective control. The social law and order must be stabilized as well, for which a secure and dependable system is needed. A name is a perfect tool for these purposes, whereby a control becomes one of the key aspects of name legislation.[64]

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59 Today the registration of people is principally carried out on the basis their names. The stability of the system is a great benefit here. It is possible to change one's name but this must be done through state registration authority. The procedure itself is also strictly regulated. See Kangas 1991, 4.

60 This is actually the intersection of personality and personal information that is protected though *data protection*. Data protection is complemented through *privacy* as one of its most essential elements and constitutes a crucial part of the *protection of privacy*. See Saarenpää 1994, 157.

61 In Finland everyone must have a national identification number which consists of the date of birth and a four-character identification string. The national identification number is used as a reliable means of identifying people in public documents. See Blume et al. 2001, 41.

62 See Kangas 1991, 4.

63 See Varho 1993, 190.

64 The controlling function was one of the most fundamental tasks of the name legislation in the beginning of the 20th century. One problem to solve was how to direct the punishments to the right persons. For this, and to avoid punishing the wrong persons, the need for reliable identification of a person was unquestioned. See Kangas 1991, 17 - 18.

The controlling function of the state may be strengthened through the emerging *electronic identification*.[65] Electronic identification is realized technically by connecting the name and the personality of a human being. This is carried out more effectively than by using only specific person identification numbers, although the identification number is a solid basis for this.[66] Identification is carried out by using an *electronic identification card*, which is to be used when communicating with the public administration. Reliable identification is one of the main prerequisites for the functionality of electronic communication in public administration, and an electronic identification card makes it possible to operate confidentially on open communication networks.[67] Confidential identification instruments in electronic administration are essentially integrated to ensure a client's identity.[68] A document and a person have to be connected to each other in a reliable way. The client in electronic administration is actually rather different from the traditional physical client and identification be carried out using reliable instruments.[69]

1.3.2 The national identification number as a personal identifier

The system of names is characteristically rather stable and this stability contributes to stabilizing society. The stability of the system makes a name a useful tool for

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65 Electronic identification acquired more significance with the emergence of electronic administration and electronic transactions. Electronic transactions are the distant services offered at the request of the client and generally for payment. This service is even defined as the one of essential services the information society. See *Government Proposal HE 194/2001 vp.*, 25 - 26. In the networked society the identity card will change from being mere a printed card to become an electronic product. See Blume et al. 2001, 41.

66 The fundamental purpose of electronic communication is to improve access to, and the quality of, certain administrative services, as well as the customer orientation in administration. Effectiveness is also one of the crucial aims of administration. See Korhonen 2003, 350 - 351.

67 This is realized though the digital identity card, which, in addition to enabling others to identify the cardholder, enables the cardholder to use a digital signature. See Blume et al. 2001, 41. The main advantages of an electronic identification card are authenticity, integrity, confidentiality and security in communication. See *NOU 2001:10*, 27.

68 See *HaVM 2/1999 vp., 2.* The electronic identification card is supposed to increase security in communication between the public administration and citizens. See Pöysti1999c, 1113 - 1114.

69 The customers in electronic transactions are also found from the private sector and more precisely from electronic commerce. See *Government Proposal HE 194/2001 vp.*, 25. The smoothness of electronic transactions is also regulated at the EU level, see *Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market*. This directive is also called the Directive on Electronic Commerce. Closely related to this *is Directive 1999/93/EC of the European Parliament and of the Council of 31 December 1999 on a community framework for electronic signatures*.

identification.[70] The overall exploitation of names is, however, rather considerably restricted and the system is under pressure to be slightly modified. The pressure arises from two main arguments. The first has to do with *the framework in which the identifiers are to be used*. These circumstances actually define rather extensively how reliably the actors are to be identified, and what kind of identification tools are to be used. The operational framework may enable mutual personal communication. Communication carried out face to face or point to point makes it easy for the actors involved to identify each other, and there is no need for more complicated identification systems.[71] The name and the communicational framework can be said to function in *consensual interaction*.

The other factor causing pressure to change is the *communication structure* itself. The pressure arises from within the structure as a cooperative arrangement. The smooth and unfailing functionality of the system is decisive for the means of identification. To be able to function properly, the communication structure must tie into the reciprocal use of names. This reciprocity constitutes one of the most important focuses of the system of names. These focuses are the ability to identify the actors and to direct speech (the communicative act) at someone. These factors are crucial to the overall reliability of the system.[72] In fact, they are foundational for both horizontal (face to face, point to point), and vertical (state to human, sovereign to subject) communication. These two forms of communication differ substantially in character. The most essential difference, including the similarity of means of identification, is the point which the pressure of change affects. This point is found in the *need for confidential identification and control*. The intersection also lies in these factors because of the character of the communication between the state and the people.

The communication between the state and the people is vertical, the state basically setting rules and individuals subject to that control. The reliability of identification and the effectiveness of control are based on personal data as a means to effect vertical communication. Personal data is thus needed for purposes of the vertical state administration, where the main communication needs are identifying people and controlling them. For these purposes the state administration has replaced the name as

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70 This naturally depends on the circumstances where the identification tools are to be used. Other significant means of identification comparable to name are, for example, *bar codes* for commodities, and the *ISBN* and *ISSN numbers* for books. On bar codes, see Sakki 1999, 193 - 194. On ISBN and ISSN numbers, see deKroon 2000, 230.

71 Identification may be carried out as physical or as electronic identification. Electronic identification is different form the physical identification of a person. Physical identification is generally carried out by looking at a person and identifying him or her through personal features. Electronic identification is realized through certain universal instruments of identification. See Pöysti 1999b, 1113.

72 Confidentiality ought to be preserved for all forms of communication and thus it should be constructed as *technology neutrally* as possible. See *Government Proposal HE 85/1998 vp.*, 4.

an identifier by the personal national identification number.[73] The personality of a name was replaced by more public means of identification. Societal measures are thus mainly directed to a large group of people and in this sense vertical communication is public.[74] In the context of vertical communication, it is informatization that ultimately gives rise to the requirements of modify the communicational environment. This situation stems from the *amount of information* and the difficulties in managing the information on people. In any event the system should be confidential and secure, fulfilling the compelling need to identify the actors especially when the communication is vertical and public. These requirements for confidential identification give rise to further demands for a more effective way to *individualize* people. This concerns state governance especially, where there is an ever greater need to register people. This registration is designed to create *basic state registers* where every citizen would be registered and could later be identified.[75]

An other influential factor has been computerization. Computers make it easy to collect information and use it.[76] Difficulties had arisen difficulties in controlling and managing the information collected.[77] Name turned out to be a rather impractical identifiers when there was increasing need to control a large amount of information and registration required a more reliable way to individualize people. A name is rather common and as such a comprehensive means of identification, but it was no longer a sufficient tool for the new requirements of identification precisely because of this feature. Clearly there will always be several people who have exactly the same name. Confidential identification would obviously be disrupted if names were the only means of identification.[78]

Using names as the only communicative tool thus faces several pressures for change. Names have been modified tools for vertical communication by attaching to them some additional features. In addition to a name, the identification of a person could thus be based on some *other personal data*, basically the date of birth. A name as an

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73 The basis of the national identification number was the employee pension scheme back in the 1960s, where it was essential to be able to distinguish people in order to calculate the amount of retirement benefits for everyone without mistakes. See Varho 1993, 189 - 190.

74 See Kajser 1994, 42.

75 The history of the basic social register goes back to the 1960s. Before this there were no social registers and accordingly no need for more accurate identification of people. See Korhonen 1999, 219.

76 Computerization and hence more effective ways to gather personal information have also their perils. The most threatening of them comes from the power of the sovereign, as it has become possible to link *power and surveillance* closely. See Mitchell 1995, 156.

77 Computerization and more organized and effective ways to collect, register and use information concerning individuals have been defined as one main reason for establishing basic registers. See Korhonen 1999, 219.

78 See Paikkala 2004, 86.

identification instrument was thus complemented by adding to it a certain combination of personal data. This combination consisted of an individual's name and date of birth together and was then used in state administration as a tool to identify people.[79] This was still not accurate enough for the needs of state governance, however.[80] The principal need was to be able to identify a person *reliably* and to be able to *distinguish* persons having exactly the same name and date of birth. In Finland, for example, the fundamental aim of government was to collect the personal information about the entire population. As the basis of this information, the state authorities established registers, in which everyone was recorded using a particular number.[81] Information about all those identified, and thus numbered, was then collected and place into certain *basic registers* maintained by the state.[82]

1.3.3 Transactions in the network society

Communication between people and the state is vertical also in the network society.[83] In this communication in the age of digitized registers the identification of people is more effective than before. Identification now occurs through *an electronic identification card*, with identification mainly based on certain identifiers in addition to the name and date of birth.[84] As an instrument of identification the card ensures vertical communication even more effectively than before. The electronic identification card makes it possible for citizens to communicate electronically and on open networks with the public

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79 The personal identification number is also logistical tool and as such is called an *"informative code"*. This code includes a message in that it tells something about the object it is linked to. The personal identification number in Finland includes information on the date of birth and the sex of its holder. See Sakki 1999, 193.

80 See Varho 1993, 189 - 190.

81 The aim of this coherent register was to make the services of state administration easier and more flexible. All the information was to be collected in the same register, whereby there would no longer be any need to retrieve personal data from several different sources. There was, however, a threat of increasingly effective supervision. See Häggman 1997, 149.

82 The registered public information is often collected together and these collections are then called public information resources. See Korhonen 2002, 10.

83 It has been predicted that communication between the citizens and the state is increasingly carried out in the form of *electronic administration*. Moreover, the public authorities maintain Web sites on open networks to provide information to citizens. See *SOU 1999:12*, 17.

84 See Korhonen 2002, 372 - 373.

authorities.[85] On the other hand, vertical communication somewhat different on open networks. The communication is more likely to take the form of transactions, with the *transactions of the network society* typically being ones carried out at the request of the client and usually for payment.[86] Verticality has thus evolved towards horizontal communication and cooperation in communication.

Vertical communication in the network society is strengthened through *electronic identity*. The electronic identification card is designed precisely for *confidential communication* between the clients and the public authorities.[87] The card is thus an instrument particularly of the digital network society and its vertical communication. Confidential communication is crucial in authenticating the content of a message and its sender on open networks. Electronic identity has, however, brought with it changes in the significance of names in communication. Names have become *detached from the identity* itself.[88] On digital communication networks, a name and an identity are hence rather separate attributes. This is actually the only way to implement communication between people and the state in the digital framework, where it is not even intentioned that the communicating parties would have a personal contact.[89]

Of course, vertical communication that is based on the *electronic identification* and open networks should also ought to be as confidential as possible, with the identity of the operators being unchangeable and stable.[90] Electronic communication may be employed as an alternative to traditional forms of communication.[91] Electronic

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85 Communication between customers and public administration is consequently increasing. Identification in these networks is carried out by using technology that ensures the confidentiality of this communication. This technology ensures that an electronic document may be signed and the authentication of this document may be ensured. If needed, the message may also be secured. See *Government Proposal HE 18/1999 vp.*, 4.

86 See *Government Proposal HE 194/2001 vp.*, 25.

87 The electronic identification card includes a technical component designed exactly for communication requiring exceptionally confidential identification of a customer when communicating over open networks or the reliable securing of a document and an electronic signature. See *Government Proposal HE 18/1999 vp.*, 10.

88 Detaching the name from an identity clearly illustrates the *colonization of the lifeworld* in the Habermasian sense. Colonization of the lifeworld occurs when the systemic mechanisms of the economy and administration, i.e., money and power, filter into the lifeworld as well. The lifeworld becomes colonized when money and power replace the integrating solidarity and lingual communication in ordinary social life. See Tuori 2000, 91.

89 Electronic identification cards, as well as electronic identity, involve problems, one of the most serious of which is connected to data protection. Electronic communication *always leaves a mark*, making it always possible to determine the identity of the communicating party. See *NOU 2001:10*, 52.

90 See *Government Proposal HE 18/1999 vp.*, 4.

91 Electronic vertical communication as between public administration and customers is strengthened, for example, by approving electronic signatures as being as valid as personal signatures. See *Government Proposal HE 153/1999 vp.*, 16.

identification makes the communication on open networks much easier and smoother, whereby *interactivity* can be improved in vertical communication. Verticality can hence become more flexible.[92] In this way, electronic communication networks change the character of vertical communication: verticality becomes more interactive, but its controlling function decreases at the same time.

Electronic identification is significant for the realization of the fundamental network-based economy.[93] The presupposition here is that the overall operations of the communication network are to be economized and filtered through the society. The foundations of the networking society are based on electronic signatures and security in using them.[94] This is also termed *secured identity*.[95] In other words identification ought, to be implemented in a secure way and by secure means. This security consideration underlies the detachment of names from other means of identification. A secured identity is essential in public administration and in vertical communication as well.[96] Identification is thus essential for the fluent communication and networking.

1.4 Names in business communication

1.4.1 Signs in business and the functions of trademarks

Business is communication, too, and names and symbols used for the *purposes of business communication*. On the other hand, the use of names and symbols in business corresponds

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92 The improvement of electronic administration with respect to interactive communication between public administration and its clients is realized precisely through constructing communication networks. This is carried out as technology neutrally as possible. See *HaVM 10/1999 vp.*, 2 - 3.

93 See *SOU 1998:36*, 5.

94 See *Government Proposal HE 197/2001 vp*. One of the specific aims, for example in Finland, is to increase the use of digital signatures. This would, in turn, improve the supply of the products and services based on electronic signatures. One significant aim would also be to increase the data protection and the information security of electronic commerce and electronic administration. See *Government Proposal HE 197/2001 vp.*, 18. A similar trend is seen at the level of the European Union. See *COM (1997) 503 final* "Communication from the Commission to the Council, the European Parliament, the Economic and social committee and the Committee of the Regions - Ensuring security and trust in electronic communication - Towards a European framework for digital signatures and encryption."

95 See *SOU 1998:36*, 7. At the European level the security of communication through open networks is ensured by *Directive 2002/58/EC of the European Parliament and of the Council of 12 July 2002 Concerning the Processing of Personal Data and the Protection of Privacy in the Electronic Communications Sector*, especially in article 4.

96 Secure communication through secured identification is significant in vertical communication. It is at least as essential in electronic commerce See Laine 2001,196.

exactly to the general use of names and symbols. The most significant function of both is to *symbolize* and to *identify*.[97] In the market, the symbolizing function is further bound to modern business where, in order to create a properly functional market, products and services need to be marked somehow. Proper signing makes it much easier to connect products and services and the producer. In this respect trademarks are engines of trade, where they serve as information and advertising channels.[98]

Consumers need information about quality, prices and the other attributes of products and services. The freedom of the market requires that consumers be able to compare products and thus make their decisions freely. This is where *product symbolization* is needed. Symbolization is carried out through naming. When referring to a product or service, a name is used as *trademark*. The sign used to individualize a product is often also called a product mark.[99] A trademark, however, differs slightly from an ordinary proper name. When a proper name is general, a trademark is granted only to the entrepreneur and as such is an identification tool being used for *market purposes only*.[100] Trademarks are basically signs used by companies to distinguish their products and services from similar ones produced by other companies. Here, symbolization of products in the market closely resemble commodification in that both are connected to making products marketable. To be distinguishable enough a mark must somehow be individual. The general words of the standard language are seldom distinguishable enough for these purposes, for which reason trademarks are used to identify the existence of a product when those trademarks *interact closely* with society overall.[101]

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97 The symbolic value of a name has even more importance in communication. It is also generally utilized, for example, in creating brands. See Aaker 1996, 84 - 85.

98 The origins of modern intellectual property rights actually lie in mercantilism and its system of privileges. In that era privileges were granted to merchants to ensure the exclusive right to do business. See Bruun 1983, 154.

99 Beside of labeling the products and services the enterprise may be identified and symbolized through a commercial name. The commercial name identifies the enterprise, whereas the trademark refers to products and services. The commercial name and/or the dominant of it can be also used to identify the products, for example, *Paulig*. The dominant does not, however, individualize the products if the company produces or markets different products or services under the same commercial name. The commercial name can be nevertheless used as a part of a trademark. See Salmi et al. 2001, 3 - 4.

100 A trademark is different from traditional intellectual property rights, as trademark protection is more likely to be aimed at protecting the market position and the communicative relationship of clients and an enterprise. A trademark may, however, get some value of its own through its character as a creative work. In order to get this protection, a trademark should be original. See Schovsbo 2000, 10.

101 A trademark was originally used as an *indicator of origin*. Different marks as illustrators of origin have a long history. Traditionally, stock workers used to mark the cattle by burning brands and china was generally marked by engraved imperial symbols. Further, it was possible to clarify the origins of bricks, the owner of the estate of production, and the producer by examining the hallmarks of the bricks. Marks were likewise used for

Some trademarks may nevertheless be expanded to be used as general words. A good example is Coca-Cola. In creating a successful and a worldwide trademark, Coca-Cola has expanded the meaning of the word "cola" to mean all the soft drinks similar to Coca-Cola, i.e., *coke*. Society has thus created a new word. In this respect a trademark functions as *an interactive tool*. Interaction has two closely related but still rather distinctive elements. First, the owner of a trademark uses his or her trademark in a certain way. This use then creates a *certain reputation* for the trademark itself.[102] In this way, the trademark and its use become closely linked together. A single trademark does not have very much (market) value as such. The value thus needs to be vested in the trademark. A trademark gets certain form of *legal protection*, however, and this is actually one important implication of it. Protection is bound to the right to trademark itself, with the trademark then included in the intellectual property of a company. However, protecting a trademark through intellectual property rights is somewhat extraordinary measure. A trademark is essentially a symbol and its value does not derive from any creative contribution as such.[103] Rather, a trademark only provides a tie between an enterprise and its customer but without any intellectual dimension involved. It is this connection that is protected by a trademark.[104]

A trademark is considered one of the basic elements of free competition and the free market economy, meaning that it is strictly *bound to the environment* in which it is exploited.[105] When detached from its characteristic environment, a trademark may rather

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identifying houses through the occupation or business. See Rissanen 1978, 129 - 130. Moreover, all handcrafts had to be marked by a trading stamp of the manufacturer (in Finland: Ammattiasetus 1720). Nobody was allowed to sell anything manufactured in the country without a stamp and in 1879 a trademark became an exclusive right of a tradesperson (in Finland: Elinkeinoasetus 1879). See *Committee Report KM 1945:2*, 23.

102 The use of a trademark by its possessor is the core of it. All the functions of trademark (competition, advertising, distinction, and guarantee) are basically bound to this core element. See Drockila 1986, 33.

103 A trademark may get some elements of originality and as such it may be protected through copyright. The protection may even be doubled if the symbol can get protection through both trademark and through copyright. See Schovsbo 2000, 12.

104 The protection is especially bound to the connection between the enterprise and its customers. The state of affairs might be also otherwise: the customers do not belong to anybody. In this sense the relationship is continuously dynamic and variable. See Koktvedgaard - Levin 2004, 339.

105 A trademark can be expressed differently. The basic prerequisite to get a trademark registered is that it can be expressed graphically. A trademark can be a figure, a word, or a slogan. Further, it can consist of a few letters or numbers, as well. Also a special appearance of a product can be registered as a trademark. Salmi et al. 2001, 2 - 3. Unusual marks may cause some problems here, whereby it may be possible to protect certain *elementary aspects of a product* through trademark. These elements are not trademarks as such but rather qualities of a product. For example, a scent may get trademark protection if it is clearly applies to the product. The scent of a perfume cannot, however, constitute a trademark. See Palm 2002, 65 - 66.

easily lose a great deal of its value or even become totally valueless.[106] This contingency is closely related to the ability of a sign to distinguish and individualize different products or enterprises. Completely identical signs may be misleading. For this reason the implication here is that trademarks need to be targeted to certain consumers or a certain audience, with this audience constituting the environment in which the trademark operates.[107] This links a trademark and its use rather closely together.

A trademark is thus highly *dependent on the market* as its defining context.[108] This close connection between the market and a trademark derives from the communication between the market and its consumers. This in turn requires close cooperation. Consumers use information concerning the features of products and freedom of the market requires that consumers be able to make their buying decisions freely after having compared the relevant features. Production and marketing have traditionally been the essential elements in granting exclusive rights, which here means a trademark, or labeling products. Despite this long history trademarks have only acquired real usefulness in the age of mass production. The reason is obvious: the possibility arose to mass produce goods and this naturally prompted a need to individualize those products. Delivery, too, became much easier, which for its part speeded up labeling.[109]

The market use of a trademark is the essence of its exploitation. The actual meaning of a trademark, however, still lies in names as symbols. Associating symbols with products is a rather useful means of *differentiating* them. Conversely, without trademarks there would not be any distinguishing tools for products. All articles would be part of the same, nameless mass. This places some significance on trademarks in the overall communicational pattern: they have advantages for both enterprises and consumers. Enterprises are able to mark their products and in this way distinguish them from the mass of like goods.[110] Consumers, for their part, are able to get information about the enterprise behind a product as well as the quality of the product. Without any trademarks, there would be no names on products. For example, all tea would be just tea, or all cars just cars. Trademarks thus make the communication possible.

A trademark is not only a tool of the market but something of *significance to consumers* as well. Significance is implemented through proper market actions, or at least

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106 See Koktvedgaard - Levin 2004, 339.

107 A clientele may also be defined as the customers who are the target of particular segmented marketing. See Drockila 1986, 30 - 32.

108 A proper trademark is thus not a public good. It has social value only when it is used to designate a single brand. See Landes - Posner 1987, 274.

109 See Mansala 1994, 22.

110 This requires that entrepreneurs be independent. They must be able to operate under their own name and on their own behalf. They must also be able to take responsibility for their operations. See Drockila 1986, 19.

the possibility to operate properly in the market. Using a name as an instrument reinforces *guaranty function of trademark*, which is closely connected to the quality of products or services.[111] At issue here is the consumers 'ability to choose between different competing products in the market: a displeased consumer will not buy the same product again, whereas a satisfied consumer will do precisely that.[112]

1.4.2 A trademark as a distinctive instrument

The identifying function of a name is also found in the domain of trademarks. In business it is utterly essential to be able to *distinguish oneself* from the other market actors, or competitors. This implies identification, with a name generally used for this purpose. In business, a name is utilized in the form of a trademark, a trademark being in the main a *commercial symbol* of a product.[113] A trademark is used by an enterprise for its business activity and the most fundamental purpose of a trademark is to be able to make the products of one enterprise distinguishable from the products of others.[114] The basic relationship between an enterprise and its customers is thereby the basis of all the different functions of a trademark. In practice a trademark is a tool of the market and as such a means to identify a certain enterprise or its products in that it connects a certain product and a source to each other.[115]

The distinctive function of a trademark is crucial in two different senses, both of which are connected with identification. In business it is often essential for consumers to *differentiate certain products* from the enormous mass of others. This actually makes trade

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111 The guaranty function is closely bound to both the distinguishability and originality of products. A trademark does not, however, require that the quality of all the products under the mark must be equal. It is more bound to the expectations of consumers and their conceptions. See Salmi et al. 2001, 7. A trademark does not even legally have to guarantee stable quality. See *Committee Report KM 1981:43*, 50 - 51.

112 Here, a trademark makes it possible for a consumer to connect the products or services to the expectations they have of the quality of a certain product, while the guaranty function enables the connection between the good reputation of an entrepreneur and a trademark. See Tiili 1972, 234.

113 The emergence of trademarks is thus closely bound to the beginning of mass production. Increased production brought with it a need to differentiate products. The main purpose was to be able to distinguish products for advertising. Associating certain marks with goods was the main tool for this. See Rissanen 1978, 130.

114 The distinctive function is generally based on two complementary aspects. First, a mark is used for making the products distinguishable from all other products. Second, the goods that carry a certain mark have some common qualities, for example, the same origin and/or equal quality. See Tiili 1972, 232.

115 According to this, a trademark can be called a sign of the factory (*marque de fabrique*) when it is used by the producer and a sign of commerce (*marque de commerce*) when the marketer is using it. See Hakulinen 1954, 11.

easier and more relevant for both market parties. On the other hand, it is essential to be able to *recognize* a certain desirable product. This then ensures consumption and trade.[116] Nevertheless, making products identifiable is nevertheless not the main purpose of a trademark. A trademark is actually designed to cluster all the products or services that derive from the same sources; i.e., all the products having the same trademark derive from the same source. In this sense, a trademark is an anonymous and nameless tool of identification.[117]

The main purpose of a trademark, however, is to operate as a *connecting instrument* between an enterprise and its product. In the market there is no need to have oneself identified as a producer. The most principal purpose is to make consumers notice a product and to buy and consume it.[118] This need to be noticed is thus crucial for market purposes. In the market it is essential that a trademark be able to distinguish one's products from those of other businesses. This is mainly carried out by having products identified and noticed. Consumers then complete the process when they connect a trademark and familiar or unknown products to each other. This connection constitutes one of the fundamental forms of business communication, the essence of which is precisely *creating meanings* for things.[119] Names in business are no longer mere acts or pure signs. The unified significance of name and image is the most important dimension here. The distinguishing function has become the most important role of trademarks, with this function linked squarely to communicativeness in business.[120]

A trademark is not only an instrument of identification, although its ability to distinguish products is rather essential. The significance of trademarks for market purposes is, however, one of their essential roles. The market needs trademarks when those are used and understood as symbols. Further, these symbols make it possible to create a functional market; i.e., trademarks facilitate exchange. These advantages are derived from the *informational value* of a trademark. Trademarks include important

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116 A trademark may be divided into certain components. The *negative component* indicates that goods under a certain particular trademark are different from all other products. The *positive component* implies that products under a certain trademark have similar and often stable good qualities. See Drockila 1986, 42 - 43.

117 See Hakulinen 1954, 12.

118 See Hakulinen 1954, 12. Connecting a trademark and positive consuming experiences creates value. This is carried out over a somewhat longer time period, with the goodwill value continuously increasing. See Tuominen 2001, 107.

119 The meaningfulness of trademarks is closely bound to functionality. When a trademark becomes generic, it tends to become functional at the same time. A functional feature cannot, on the other hand, be trademarked and a trademarked feature loses trademark protection when it becomes functional. For example, the maker of a tire could not trademark its circular shape but could trademark an irregularly shaped hubcap. See Landes - Posner 1987, 297.

120 See Salmi et al. 2001, 5.

information concerning both the product itself and the manufacturer of the product. The informational value of a trademark thus represents a value for consumers. The distinctive aspect of a trademark is substantial in this respect. Namely, by the virtue of this distinctive information consumers are able to distinguish products from each other. This is naturally based on consumers 'need to identify products. For consumers a trademark is a means to recognize desirable goods and hence to buy them again.[121]

1.4.3 A trademark as business competition

Competition creates stability and control. In the market enterprises generally *operate in a network of relationships*. These relationships need to be clarified and balanced with each other; the balancing binds together some essential elements of each enterprise. These elements then further constitute the *competitive function* of a trademark. The ability to compete is one of the most important conditions of the overall existence of an enterprise. Enterprises compete with each other by making their products seem priceworthy for consumers.[122] Competitiveness is an integral element of any enterprise that is to survive.

A name gets its particular significance through the competitive function of a trademark: it has become more and more important to be able to get oneself associated with some symbols. To be able to compete effectively, an enterprise needs to become recognized in the market. A name is bound to the competitive function through its identifying character. It is characteristic of the market that there are several products and services that resemble each other closely. Accordingly, there emerges a crucial need to be able to differentiate one's products. Here, the clear and strict classification of trademarks serves to ensure competitiveness. Competitiveness is a natural consequence of the ability to differentiate one's products.[123] Products and services as a uniform mass do not comply

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121 Trademarks work to get undesirable goods rejected. This naturally stimulates competition because poor quality is easily eliminated, while high quality survives. See Drockila 1986, 45 - 46.

122 The main purpose of competition is to endeavor to make sure that a consumer does not choose a competing product. Four means for achieving this are usually distinguished: product, price, communication, and distribution. See Rissanen 1978, 130.

123 A properly functional market is ensured through protection of economic profit. This is one of the crucial aspects of the economic system based on private property. Competition is thus fundamentally based on profits and advantages that are reached through successful competition. Moreover, protecting trademarks increases economic growth. See Rissanen 1978, 173 - 174.

with the needs of either the market or consumers. To avoid this situation, trademarks are used for differentiating products.[124]

Where competition is concerned, a trademark closely resembles a *symbol or sign* that is used by an enterprise to promote its products. In the market, signs are often employed in the form of names. Signs and names are further utilized in advertising, which links a commodity and a trademark. In this sense, a name is also used as a *connector* in the market.[125] The competitive function of a trademark highlights an enterprise's ability to symbolize its goods and services. The symbolizing function is closely bound to the competitive function of a trademark.[126] A trademark hence becomes essential for building up a certain *company image*.[127] One of the functions of competition is to increase the consumption and sale of products.[128] In this competition, advertising and marketing are both made part of the market through a trademark. Consumers make their buying decisions according to this advertisement.[129] Identification is hence essential for the competitiveness of an enterprise.

The quality and the sources of a product are supposed to correspond to those of the product that a consumer has bought before. A satisfied consumer tends to buy the same product again.[130] This generally creates *brand loyalty*, which is then often

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124 See Salmi et al. 2001, 7 - 8.

125 A trademark may be used also as an expanding factor: a trademark owner may register several other trademarks close to the *leading trademark*. The main function of registering these trademarks is to expand the scope of protection and prevent competitors form using these marks. See Koktvedgaard 1965, 219.

126 Symbols that are used in business may sometimes be protected through copyright. In these cases the protection is completely general and is not based on a competitive relationship. See Schovsbo 2000, 14.

127 One important factor here is the marketing of images and its close relative, branding. Both of these are connected with subjective views and images. See Rope 1995, 129 - 141. On the other hand, traders are no longer totally focused on selling or advertising a product, but more on images. In other words, traders offer products that we, as consumers, may buy us a certain identity. See Lehtonen, M. 2000, 18.

128 A trademark may be used in two functions: on the one hand, it links advertising or good experiences and expectations to a certain product. On the other hand, it is a tool to create a company image or conquer a (new) market. See Drockila 1986, 34 - 35.

129 Advertisement using a trademark is sometimes considered one of the functions of a trademark. The advertising function illustrates the ability of a trademark to affect consumers and attract them. A mark generally has advertising value. Advertising value may further be created through a mark and its features. A mark may be an effective eye catcher in appearance, the idea of a mark may attract consumers by creating certain positive associations, or a mark may become established through advertisement. See Tiili 1972, 236 - 237.

130 This is connected to the value of the product. The value of a product and a trademark are connected to each other, and the value of the trademark is a direct result of the product that it symbolizes. A decrease in quality, and thus a decrease in sales reduces the value of a trademark accordingly. See Tuominen 2001, 90.

strengthened by advertising. Advertising thus aims to affect the consumer experience, with a trademark perhaps being the instrument that has the most significant value for an enterprise in the process.[131] These experiences of quality are nonetheless strongly subjective, which basically makes the competitive function of a trademark rather relative as well. This relative aspect of a trademark is derived from its legal origins, however. A trademark is still fundamentally privileged and its context is mainly a form of monopoly. A trademark is a *protected privilege* that includes the right to exclude others from exploiting any similar or confusing sign in business. No one other than the owner of a trademark is allowed to employ the sign that is included in the privilege.[132] In this sense, exclusivity strengthens distinctiveness.[133]

The subjectivity of a trademark appears here as well; the right to exclude is highly relative in cases of confusing similarity. This means that two or several trademarks are confusingly similar only if they are associated with products in exactly the same way or are at least closely alike.[134] Protection is thereby clearly attached to the market utilization of a trademark and moreover to its *market value* of a trademark. Protection is granted against competitors and trademark protection is realized only in this particular competitive relation.[135] The competitive function of a trademark is clearly manifested also in the protection of the *goodwill value* of a trademark, which is mostly attained in a certain environment. Goodwill is linked to the clientele or the *customer base* of an enterprise.[136] A trademark is modified through the customer base in that customers often have certain associations, either positive or negative, that are connected with a trademark.

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131 The mark itself thus attracts consumers. Brand loyalty among consumers is closely bound to the quality of a product but also to the advertising function of a trademark and its attractiveness. It may even happen that consumers buy the product only because of the trademark. They buy, in other words, the trademark itself. The consumer wants to identify him- or herself with a certain trademark despite of the product's price. See Palm 2002, 19.

132 See Drockila 1986, 36 - 37.

133 A trademark thus has a positive and a negative aspect. The *positive aspect* includes the privilege of holder of the exclusive right, which means that he or she has right to use the mark (=privilege) and transfer it to someone and license it. The *negative aspect* includes the right to forbid others to use the mark or even to interfere with the owner's use. The right to forbid includes use of the trademark as well as use of a similar or confusingly similar mark. See Salmi et al. 2001, 13.

134 Similarity ought to be assessed as a whole. See Salmi et al. 2001, 80. See also *SOU 1958:10*, 254.

135 See Drockila 1986, 37.

136 The goodwill value is often associated with trademarks that are famous or at least well-known. See Salmi et al. 2001, 93.

In the longer run the enterprise-customer link clearly affects a trademark, which regularly acquires its value only through a market.[137]

Protection is no longer targeted only at the protection of a trademark as such, but attached to the *market position* of a trademark and *its value* in a certain market. The competitive function of a trademark is thus actually left aside, at least partly, in the interests of the marketing enterprise. A trademark may thus be able to attract the attention of consumers without the origin or the quality symbolized by a trademark. This trademark is called *a Kodak mark* and it is not product-bound like an ordinary trademark. A Kodak mark alone and as such thus draws the attention of consumers and its competitive value is so strong that it is possible to market branded articles using this mark only.[138] On the other hand, the *Kodak doctrine* maintains that if a trademark is well known, the sphere of protected products is enlarged.[139] A strong market position also implies strong protection through a trademark. The competitive function of a name is thus well exploited. Similarly a reputation created through a trademark is also protected. For example, it is not allowed to refer to a poison using a trademark for foodstuffs.[140] The competitive function of a trademark is thus not sufficient for protecting the value of Kodak marks.[141]

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137 This influence is actually *two-way*. The more value trademark gets, the more the products referred to by it are to be bought. On the other hand, the more visible a trademark is in market, the more it is to be traded. See Tuominen 2001, 104.

138 Kodak mark has its own advertising function as well as its own image. See Drockila 1986, 38.

139 The sphere of protection of these well-known trademarks resembles closely *functional protection* in patent law. Protection through patent is thus interpreted in two functionally active aspects, i.e., as the protection of an invention and as the protection of the inventor. The right to exploit an invention is protected as related to competition, the one entitled to exploitation being the inventor. On the other hand, an invention may be protected as a result of the combination of the knowledge of several inventors. Protection is a functional reward for this. See Godenhielm 1950, 16 - 17.

140 This doctrine is known as the *rat poison doctrine*. See Salmi et al. 2001, 94.

141 These marks are often copied because of the strong advertising function. If these trademarks were not protected, the trademark would degenerate. This means that a trademark would become only a common noun and it would thereby lose its distinguishing function altogether. See Drockila 1986, 39.

1.4.4 A trademark as business communication

A name is communication in business, too. Moreover, a name is used as a communicative instrument between the diverse functions of a trademark.[142] In fact, a name may be described as a sort of summary of all the other functions of it, the basis of the overall functionality again being the *ability to symbolize and individualize* products and services. The communicative function of a trademark is therefore one of the main competitive instruments. The communicativeness of a trademark is illustrated through its ability to connect enterprises and consumers and serve as an information channel between them. In a functional market, enterprises need to create a stable link to consumers in order to communicate with them.[143] It is this interactive operation between enterprises and consumers that makes up the core of the overall communicative aspect of a trademark.

A trademark is utilized in market communication in the selling and marketing of products under a trademark. In this respect trademarks actually work for the good of the market by making the commercialization of products and services more efficient. This can be seen, for example, in the launching of new products, in which continuous communication with consumers speeds up and eases entry onto the market.[144] Commercialization takes place through *consumer acceptance*. The more rapidly consumers accept products, the more efficient the entry onto the market is. All this takes place as a subjective reaction of consumers; i.e., the communication is closely bound to the insights of consumers. In this respect a trademark is often used for improving the likelihood of consumers noticing products and considering them. On the other hand, a trademark does not require any consistent quality in a product. As such, it is directly dependent on the subjective expectations of consumers, whereby consumers and marketers are the complementary halves, so to speak, of a market relationship in which a trademark functions as a communication channel between the two.

Communication is also one of the bases of exploiting trademarks in marketing. Enterprises use good trademarks often to *influence the relationship* between the enterprise and its products. This relationship is often highlighted when utilized in marketing. A trademark provides a foundation for embedding some prominent values in products,

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142 Thereby, at least the originating function, advertising function, and guaranty function are derivations of the individualizing ability of a trademark. See Riis 2000, 20.

143 See Maniatis 1997, 77.

144 This is mainly done by the distinctive element of a trademark, with the given information linked to a certain identifiable product. The other is naturally the advertising element, which enables informing in the first place. See Salmi et al. 2001, 8 - 9.

such as good price or high value. This *relationship is also highlighted* through advertising, which has some additional functions related to trademarks. Advertising may be used as an instrument by which a trademark attains a certain *intrinsic value*. A trademark may thus become valuable *as such*.[145] This value may result in a trademark being treated even as a commodity that can have a value of its own. This is primarily achieved through the *goodwill value* of a trademark, which refers to the value of trademark along with the reputation of an enterprise and its clientele.[146]

Goodwill value is increased through operating a long time in the market or having achieved some renown inside the particular product niche. The better known a mark brand is, the more goodwill value is associated with it.[147] At the same time, goodwill value brings the economic function of a trademark into the sphere of protection. Goodwill value is the subject matter that can be *protected by legislation*. This protection is further based on the connection between an enterprise and its products. Protection thus pertains to the goodwill value of a trademark, the basis if which is the connection between an enterprise and its products. Also of significance in this connection is a trademark's value *in future* marketing and commerce.[148] Protection is hence more likely to be based on the future profile of an enterprise than its present image.

A trademark is strengthened by advertising that creates a particular *image* for the trademark and the company. A corporate image is essentially communicative and it is often made to work for a company and its products.[149] The advantage may be considerable when the image is based on some fundamental values that are highly regarded by consumers. A good image makes the products of a company desirable for consumers. Consumers may also want to associate themselves with the image by using the product or by obtaining it. An image is thus one of the basic factors when creating a brand for a company. In this task, a trademark may easily be employed as a tool for representing products and connecting them to the company's image.

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145 See Salmi et al. 2001, 9. This kind of trademark has usually a great goodwill value. This goodwill value thus creates some absolute value. See Riis 2000, 28.

146 See Koulu 2003, 81.

147 The value of a trademark is only seldom at its highest when the trademark has just been registered. Its value increases slowly and is closely bound to its use. See Tuominen 2001, 93.

148 Salmi et al. 2001, 11.

149 It is actually through advertising that traders achieve levels of product differentiation between articles which at first glance seem more or less the same. See Drahos 1996, 157.

1.4.5 A name expanded into a brand

An existing trademark is in fact exploited already when entering the market, when the fundamental aim is to *create profit*.[150] A trademark often gains significant commercial value, making it one of the most essential market instruments.[151] Accordingly, it is often reasonable to expand towards an even more intellectual creation than a trademark: the usability of a name in the market is expanded through *branding*.[152] A brand is defined as a particular product or feature of product that identifies a particular producer. A brand is by definition a *distinctive name* of which consumers have a higher awareness and for which they are willing to pay higher-than-average prices or which they purchase more frequently than otherwise.[153] In this context a trademark tends to remain two-dimensional as compared to a three-dimensional brand. This three-dimensionality makes a brand a company's most significant competitive advantage in the modern market.[154]

A brand is thus defined through a name, but the content of a brand is much more extensive than that of name.[155] Modern brands are considered more like *product personalities* than mere trademarks: they are often used for establishing images in peoples' minds, e.g., "Nokia -connecting people" (closeness to friends) or "EAGames -challenge everything" (experience of power or omnipotence). Consumers describe branded products more in terms of attributes of quality than pure concepts. Further, the

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150 The economic function is clearly illustrated, for example, in the marketing of new products. Namely, new products are often launched under some already existing trademark in order to get products introduced to consumers more quickly and at lower costs. Salmi et al. 2001, 9.

151 The commercial value of a trademark is often also the basis of new business models. For example, franchising is used for transferring a more complete business concept. Merchandising, on the other hand, is focused on transferring elements of the brand to other innovations. Trademark licensing and co-branding are likewise used as strategic tools in many businesses. See Petrusson 2004, 44.

152 Branding and brand management are thus considered some of the salient characteristics of an intellectualized economy. See Petrusson 2004, 43.

153 See Barth et al. 2003, 154. In this respect a brand may also be considered an *attribute*. A brand brings to mind certain attributes which are translated into functional and emotional benefits. See Kotler 2003, 418 - 419.

154 In the present day the core of business is seen as consisting of *"softer assets"*, such as quality or image. See Palm 2002, 23.

155 A brand is defined as a name, term, sign, symbol, or design, or a combination of them. Its most fundamental function is to identify the goods or services of one seller or a group of sellers and to differentiate them from those of competitors. See Kotler 2003, 418.

identification of a brand is thus carried out at the emotional level, which makes the assessment rather subjective.[156]

Traditionally trademarks have been used for defining certain goods that are produced under that trademark. It is thus the *name of a product* and accordingly a privilege, exactly like a name of a human being.[157] The classes of goods marketable under a particular trademark are strictly defined, a practice bound to the stability of a trademark as the name of a product. As such, the system remains rather stable. A brand, however, changes this by making it possible to group different classes of goods under the same label. A brand as a name is thus no longer a defining factor for a product, rather, it plays a role as only one of many overlapping attributes. A name as a brand may include several different classes of goods. In this respect a brand modifies a trademark slightly and places some pressures for change on it. In sum, a name is a crucial part of a brand, although it has several different functions.

A name *positions* a brand and exerts a unique influence on it. A name is thereby one of the most important components of a brand, given that identity is the first element in creating a brand. Identity actually consists of several elements, including at least a name, a logo or a logotype, and colors.[158] In the market, a name is used as a trademark, which makes the trademark an essential element of a brand.[159] There thus exists a clear and fixed relationship between a name and a brand. When connected to brand, a name is utilized as an identifying instrument; it positions the brand. It likewise stabilizes the brand in a certain framework. Moreover, a name tells what the brand does and accordingly creates certain associations in the buyer's mind. These associations then also operate as identifying factors when connected to the brand.[160]

A brand thus has some advantages that make it slightly more fixed in the market compared to a name. As such a brand has at least greater loyalty among customers,

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156 See Palm 2002, 23.

157 Accordingly, a brand identifies the seller or maker of goods. However, under trademark law, the seller is granted exclusive right to the use of the brand name. A brand thus differs from other assets, like patent or copyright, in that a brand has *no expiration date*. See Kotler 2003, 418.

158 These elements are considered *primary identity elements*. Further, a brand consists of secondary identity elements, which include image style, type style, tone of voice, color palette, and brand hierarchy systems. See Mono Design 2002, 19. The intellectual dimensions of products, services, and enterprises are defined through a brand and its basic concepts, such as brand awareness, brand identity, brand position and brand image. See Aaker 1996, 71.

159 The rest of these essential elements are the product itself, its packaging and appearance, the name of the brand (trademark), promotion, advertising, and the overall marketing approach. See Tuominen 2001, 105.

160 Further, a name extends the brand or, conversely, hinders its expansion. The naming architecture is also dependent on the strategy behind the name. See Tuominen 2001, 105.

which also makes it rather *stable*.[161] Brand is mainly employed by creating images on peoples 'minds and forming up communities connected by a brand.[162] A brand is generally identified through a logo or a name that strengthens the stability of the brand. Moreover, a logo is rather descriptive and thus easy to connect to a certain brand.[163] This kind of logo is rather capable of maintaining its position in the market.[164] Stability is connected also to the *brand essence*. Brand essence represents the core identity of the brand and it further defines the "soul" of the brand. The identification of a brand is also closely bound to the view of consumers concerning the quality of the products or services in question. In this respect, a brand is not bound to any particular, fixed quality but more to the expectations of consumers and their views.[165]

Brands and trademarks also have a functional cooperative relationship that is characteristically dynamic. This dynamism is realized through trademarking and innovation. These two factors in turn have a close connection that is generally reflected in the brand. A trademark has namely been sometimes considered a method of securing property.[166] The rationale for such protection lies in the principles of protecting commercial and practical investments as inventions. It is vital to *protect operations and the actors involved in them*.[167] Operativity further dynamizes a brand. Protection would improve innovativeness at the same time. Innovativeness may be included in a brand when the

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161 Moreover a brand has less vulnerability to competitive market actions, less vulnerability to marketing crises, larger margins, more inelastic consumer response to price increases and price decreases, greater trade cooperation and support, increased marketing communication effectiveness, possible licensing opportunities, and additional brand extension opportunities. These factors create further network effect. The benefit of this is that a branded product potentially provides a firm with a higher level of operating earnings over time than does an otherwise unbranded product. See Barth et al. 2003, 154 - 155.

162 In this way buying and using a product is made *personal* and people using the same products often constitute communities where everyone uses the same brand. See Haapanen - Vepsäläinen - Lindeman 2005, 207 - 208.

163 A logo may also be copyrighted. Protection through copyright, however, requires a high level of originality. See *Copyright Council of Finland TN 1990:5*, 1.

164 A strong mark and along with this a strong brand have some additional advantages in the market. Market leadership and the superior position of a mark have a strong correlating relationship. The leading marks usually have better profit margins. See Arnold 1992, 19.

165 In this respect, branded articles actually constitute the core of advertising and marketing. A branded article is thus created through a product that is fundamentally based on increasing and supporting its goodwill value. See Rissanen 1978, 131.

166 A trademark would replace, or complement a patent. See Maniatis 197, 80.

167 This illustrates the functional protection that is highly similar to functional patent protection. Functional protection through a patent is realized in two different aspects, the protected invention and the protected inventors. See Godenhielm 1950, 16 - 17.

brand is considered an organization.[168] For example, a trademark as a form of protection of innovation would introduce an *innovation quality label* that would further identify protected objects.[169]

Names and brands likewise have a mutual cooperative relationship in which they both operate as functional counterparts. A name often supports the identity that is created through a brand.[170] This makes a brand a rather powerful communicational instrument. A name is precisely the aspect of a brand that projects the enterprise and its products to the customers. A name is generally used as a tool for making the brand known and remembered by the consumers.[171] The aim is *brand loyalty*, in pursuit of which it is reasonable to strive for stable quality.[172] Brand loyalty in practice means that a product being traded under a certain trademark will be bought even if there exists some negative change in circumstances. The price of a product may increase or the quality decrease, but consumers buy the product regardless. In other words, they are loyal to the brand. Brand loyalty also has a great influence on the value of the brand itself; the greater the brand loyalty, the higher the value of the brand.[173]

Much of the value of an enterprise is based on the connection between the enterprise and consumers. The customer base constitutes the core of brand identity.[174] Creating this connection is increasingly complicated in the digital economy, whose fundamental character lies in its transparency. Owing to transparency, consumers are able to access an enterprise and its products in a definitively new ways whereby brands have

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168 In the view of a brand as an organization, the perspective focuses on the attributes of the organization rather than those of the product or service. The focal attributes include innovation, pursuit of quality, and concern for the environment. At its best, a brand captures much of what that brand stands for. The brand essence can be viewed as the glue that holds the core identity elements together. See Aaker 1996, 82.

169 The connection to a trademark is clear. Trademarks in real commerce thus often function as definers of innovative products or enterprises. See Maniatis 1997, 80.

170 A band has its own identity, which provides direction, purpose and meaning for the brand. Brand identity consists of associations. See Aaker 1996, 68.

171 The values of worldwide brands have been ranked by *Interbrand* for the year 2005. The most famous brands of today are generally known by names. Coca-Cola still holds the leading position as its value has been estimated to be 56 million Euros in 2005. The other in the top five are Microsoft, IBM, General Electric, and Intel.
See http://www.interbrand.com/best_brands_2005.asp

172 Brand loyalty is closely connected to brand personality. A brand may acquire some qualities that make it resemble a person. Like a person, a brand can be perceived as being upscale, competent, impressive, trustworthy, fun, active, humorous, casual, formal, youthful, or intellectual. See Aaker 1996, 83.

173 See Tuominen 2001, 108.

174 Consumers thus provide some important knowledge of the brand image; consumer information is even essential when creating and developing a brand identity. See Aaker 1996, 69.

even increased their significance in the digital economy.[175] The digital economy is based on experience goods where branding and good reputation have a clear influence and this is why images play a crucial role precisely in the digital economy.[176] The expansion and progressively more effective use of open networks will likewise increase the importance of a brand.

The significance of a brand is thus in informing consumers and getting clearly and unambiguously identified in the market. A brand generally consists of a kind of code, *a brand code*, that defines its raison d ètre.[177] The code defines the character of business operations, what the business looks like, how it feels, and how it operates. The code is therefore the heart that embodies the personality of the brand and makes it special.[178] The tasks of informing and identifying are also realized through the brand as communication. This communication essentially occurs in the society where the brand operates.

1.5 Innovation: Communicative domain names

1.5.1 New communicative requirements

Society is communication. Communication is, however, undergoing continuous development, with sweeping changes in the communication environment emerging due to open communication networks.[179] The most profound change derives form the design of communication in the open networks, where it is fundamentally based on routers,

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175 A brand thus includes certain *values* whereby it says something about the producer's values. A brand is further associated with certain *culture* and has a certain *personality*. See Kotler 2003, 419.

176 experiences are often generally founded on images and associations in people's minds. See Shapiro - Varian 1999, 5. Sometimes customers even pay for the intellectual experience; e.g., men buy Marlboro clothes to become a Marlboro man. See Petrusson 2004, 44 - 45.

177 Brands consists of a program that is parallel to code. They may also be described as the DNA of the network economy. See Gad 2001, 22.

178 A brand code does not describe only the content or definition of a business. A brand code may be divided into four sectors: the *functional*, which is linked to the usefulness of brand; the *social*, which promotes identification and group unity; the *ethical*, which refers to global and local responsibility; and the *psychological*, which is linked to mental supportiveness. See Gad 2001, 22 - 23.

179 Cyberspace is generally considered to refer to the interaction of people, businesses and other entities over computer networks, this is, electronic messages and commercial on-line services. As such cyberspace may also be defined as the invisible intangible world of electronic information and processes. The largest and best known manifestation of cyberspace is the Internet. See Grewlich 1999, 19.

hosts, and transmission facilities.[180] Communication on such networks is no longer personal, face to face communication; indeed it has become more and more important to be able to identify invisible and unfamiliar communicative actors reliably. Communication becomes smoother when it is possible for the parties to identify themselves and therefore to trust each other.[181] Accordingly, the issues of identification become even more important than before, when communication was personal.[182] The confidentiality and trustworthiness of communication are both further connected to the ability of the communicator to *identify himself or herself* in a trustworthy manner. Identification creates confidence.[183]

Identification in the communication on open network is realized through certain identification tools. There exists at least three techniques that may be used for identifying a person in an anonymous online world: passwords, cookies, and digital signatures.[184] *Passwords* basically verify that the person using the system is authorized to do so. On the other hand, *cookies* operate for governing data when they basically include some basic information that the person has provided.[185] Nevertheless, when communicating on open networks *digital signatures* are even more elaborate and secure method of establishing identity in cyberspace. As being based on encryption technology, digital signatures enable digital certificates. These certificates then serve as a "passport" in the online world.[186]

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180 *Routers* are computers that are designed to receive and forward packets of data. *Hosts* are storage points for programs and data and *transmission facilities* connect hosts and routers. See Grewlich 1999, 37.

181 A name is generally utilized as an instrument of ensuring *confidentiality* in communication. Confidentiality refers to the ability of being private or secret. Confidentiality is thus one of the main dimensions of information security. See Parker 1981, 40.

182 On the other hand, identification may be confronted with anonymity and privacy. Anonymity thus protects privacy and in this sense it has even been considered a shield protecting people form having to associate their identities with some data. See Bishop 2003, 375 - 376.

183 Confidentiality thus embraces data itself and the qualities of keeping data and communication confidential. See Grewlich 1999, 173. Confidentiality is sometimes also connected with privacy. See Parker 1981, 40.

184 All these techniques are called code-based. See Biegel 2001, 199.

185 A cookie is thus a code-based entry that is basically located on a Web browser's *cookie file* when an online user interacts with a site in a certain way. When a user, for example, registers at a site, the delivered content typically generates the placement of cookies directly on a person's hard drive. These cookies often include basic information that the person has provided. When the person types in the Web site address at a later time, his or her browser automatically sends the cookie along with the request for that site, and the server can the set the preferences according to the individual account. See Biegel 2001, 199.

186 Digital certificates can reside on user's computer, and a server may automatically check the certificate and authenticate the information after unlocking a pass phrase. See Biegel 2001, 199 - 200.

All these identification tools are essential in a reliable communication.[187] Reliable communication and the ability to authenticate the content of a message and its sender is crucial on open networks. This is exactly where personal information is to be protected.[188] The network environment is still basically *impersonal* and in this sense *neutral*. A name and an identity may easily become detached from one other. On the network the identification of actors seems to be the essential way to *classify* them. The identification of parties is thus the core of any further ability to operate on the network.[189] The ability to operate is thus two-fold; i.e., in order to access the network there typically has to be a *connection*, but besides a connection there is a crucial need to be *able to act* on the network.[190] A mere connection alone is not sufficient for communication and the expansion of information networks in communication should be made available to everyone. Here the *security of the communication* is essential. Communication is even impossible if it is not secure; communication security thus refers precisely to the protection of information while it is being transferred form one system to another.[191] On the other hand, access control is here an essential requirement in order to ensure the secure communication.[192]

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187 Reliability, security and confidentiality of communication are considered essences of the communication on open networks. See *Directive 2002/58/EC of the European Parliament and of the Council of 12 July 2002 Concerning the Processing of Personal Data and the Protection of Privacy in the Electronic Communications Sector*.

188 Data protection is here essential in order to safeguard certain interests and rights of an individual when information concerning him or her is processed by others. These interests and rights are usually expressed as privacy, autonomy and integrity. See Bygrave 2002, 2. In this sense even the communication of personal information on open networks ought to be carried out according to *Directive 1995/46/EC of the European Parliament and of the Council of 24 October 1995 on the Protection of Individuals with regard to the processing of Personal Data and the Free Movement of Such Data*.

189 On open networks, communication is supported through electronic identity. Electronic identification cards have been designed precisely for confidential communication between citizens and public authority. Identification on these networks is carried out using technology that ensures the confidentiality of this communication. These technologies ensure that an electronic document may be signed and the authentication of the document may be assured. If needed, the message, too, may be secured. See *Government Proposal HE 18/1999 vp.*, 4.

190 This connection is often referred to as access to network and it often is controlled. Bishop 2003, 103.

191 On the other hand, communication security is related to *computer security* that describes the protection of information within a computer system. computer security includes, for example, security properties of operating system software and database management software. See Ford - Baum 2001, 94.

192 Access control is further divided in two: *discretionary access control* being based on the identity of the subject and the identity of the object involved, and *mandatory access control*, where a system mechanism controls access to an object and the individual user cannot alter that access. See Bishop 2003, 103.

The use of networks as communication channels should not be the advantage of a select few.[193] For this reason, actors on open network need to be able to make their presence known and make themselves recognizable. This correlates authorized access to communication networks.[194] To this end they need some *connective symbols*, which on communication networks are built on *domain names*. A domain name is a means of identification and symbolization on the Internet that replaces ordinary proper names.[195] A domain name is usually a registered address or a symbol connecting different communicative units to the Internet. Domain names are used as a means of access to network services based on the World Wide Web. Basically, domain names are built on *numerical strings*, with every domain address consisting of a string of four numerical sets. Every set consists of not more than four numbers each. These numerical strings then make up *IP addresses*.[196] Messages are sent over the network to these IP addresses and converted into the corresponding human-understandable domain names again. As such domain names operate as the basis of the communication on open networks.

Communication is further *realized in a certain framework*.[197] The new communicational framework changes the character of the communicative community and changes the prerequisites for communication as well.[198] In the new framework information transmission is carried out using certain protocols, with the relevant protocol being a crucial, even definitive, factor. Namely, the protocol regulates how the data is to

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193 With the Internet becoming global and commercial, the original arrangement of network communication may become less efficient and less equitable. It could indeed affect electronic commerce negatively by limiting the range of technical options for entities other than those operating in the United Sates. See Hart - Chaitoo 1999, 926 - 927.

194 Authorized access is ensured through *access control* services, which protect against unauthorized access to resources, such as processing, communications, or information resources. See Ford - Baum 2001, 98.

195 In this respect, a name is an important means of communication even on an open network. In the communication through open networks a name constitutes a certain link to anonymity and personality exactly as in face to face communication. See Pöysti 2002, 50. One of the fundamental tasks of the domain name system is to offer domain addresses that are utilized by the actors on a network to identify each other. See *Committee for Constitutional Law Report PeVL 54/2002 vp.*, 2.

196 See Rahnasto 2002, 20. An IP address is a numerical identifier that is significant to other computers. To become a part of a network on the Internet, a user must have a unique IP address. See Grewlich 1999, 387.

197 In this sense, a communication network is a group of computers linked together in such a way as to allow information to move amongst them. See Koepsell 2000, 82.

198 The new communication network is often referred as *information system*. Information system encompasses computer and communication facilities and networks and data or information processed by them. *Information technology* denotes a set of tools for the processing of data or information. In this context operating parties are called *data subjects* and *data controllers*. A data subject is the person to whom data relate, and a data controller is a person who determines the purposes and means of data processing. See Bygrave 2002, 20 - 21.

be divided and how the resulting packets will be shipped.[199] The foundational usefulness of a protocol lies in the diversity of transmission channels, which makes the whole network *flexible* in nature. This is the very basis of openness and it is further manifested when sending different messages: differentiation makes it impossible to prevent sending a message and the whole network is hence constituted on as neutral a basis as possible.[200] Open communication networks closely connect domain names and transmission protocols.

Communication itself on the Internet is also evolving. It is open, to be sure, but strictly bound to certain technical protocols. The environment is based on standards, the most fundamental of which is *TCP/IP (Transmission Control Protocol/Internet Protocol)*.[201] TCP/IP is one of the Internet's most basic layers of functionality and in fact defines what kinds of applications network operators have to use.[202] The essence of this protocol lies in its *certainty* and *openness* in communication. These factors then operate to make the communication environment common for everyone. *Certainty* is derived from the functional basis of the protocol. The protocol is designed to be reliable and it is hence supposed to be able to function even when other communication channels fail. In communication using TCP/IP, a message is split to several separate components and all the components may be sent to the receiver through a different transmission channel. *Openness* derives in part from the character of TCP/IP, as it is based on the principle of *open standards*; the protocol is freely distributed to anyone who wants to use it. In practice

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199 The protocol disregards what is built into the data or how that built-in part works. This exemplifies the neutrality of a network. See Lessig 2002a, 149.

200 In this development, the advent of *NSFnet* was important in that it encouraged researchers to use distributed computing as a part of their work. It thus allowed and encouraged the development and establishment of technical protocols that would allow a network with heterogenous parts. It also became possible to construct a network without any centralized administration and network design for exchanging information. See Grewlich 1999, 34 - 35.

201 The TCP/IP protocol is thus the basic platform for the Internet and the intranets. The protocol was originally created by the *US Defense Department* as its common communication protocol. See Grewlich 1999, 395 - 396.

202 The TCP/IP protocol has been slightly modified by the European research center *CERN*. CERN is the French acronym for the *European Laboratory for Particle Physics* and is located in Geneva, Switzerland. The most active researcher in CERN was *Tim Berners-Lee*. Further, CERN augmented the Northern-American protocol through a modification that made it possible to interconnect its own networks using the TCP/IP protocol. It thus allowed different computers with different standards to communicate with each other easily. CERN became the largest Internet site in Europe and its development work relating to the WWW had a global impact. See Grewlich 1999, 35.

this is carried out in the TCP/IP technology by sending a message digitally to its recipient.[203] The protocol thus simply operates to make this procedure straightforward.

TCP/IP ensures the functionality of open networks. Information transmission is also carried out on another protocol, one mostly used for information transmission on the Internet. It is called *HTTP protocol (Hypertext Transfer Protocol*) and can be used only on the World Wide Web. The main task of HTTP is to transfer files from an Internet server onto a browser in order that they may be viewed on the Internet. As a protocol, HTTP defines how messages are formatted and transmitted and what operations the Web servers and browsers should take in response to various commands. For example, when one enters a domain address in the browser, this sends an HTTP command to the Web server directing it to retrieve and transmit the requested page. This protocol is based on the *lingua franca* of the Internet, *Hypertext Mark-Up Language* (*HTML*).[204]

Communication is thus carried out in *standardized form*. This closely resembles language as a means of communication in face to face communication, where it is language itself and the communicative circumstances that form the communicational "protocol". However, where communication is carried out using language, communication is possible only if all the communicating parties are able to understand each other.[205] Similarly, the communication protocols of open communication networks constitute the core of *digital communication*, with communication carried out on the terms of these protocols.

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203 Over time the protocol has been revised and built up based upon the experiences of the users, not only the original authors. This is indeed the very basis of the openness of an open network. See Grewlich 1999, 34 - 35.

204 According to Webopedia Hypertext Mark-Up Language (abbreviated as HTML) is considered the other of the main standards controlling how the World Wide Web operates. The HTML protocol actually covers how Web pages are formatted and displayed. At the same time it defines the structure and layout of a Web document by using a variety of tags and attributes. The correct structure for an HTML document starts with <HTML><HEAD>(issue what the document is about)<BODY> and ends with </BODY></HTML>. All the information one wishes to include on the Web page fits in between the <BODY> and </BODY> tags.
See Webopedia http://www.webopedia.com/TERM/H/HTML.html

205 Language has to be common to everyone and no private languages can be utilized in this communication. Language is standardized in order to make the communication fluent and possible overall. See Radin 2002, 102.

1.5.2 The information community

The best known of the open communication networks in the present day is the Internet, which was originally created in the United States for military purposes.[206] The fundamental military purpose of the Internet was to ensure *continuous communication* over the network even if some of the nodes failed. The communication was thus designed to remain unaffected even if the traditional communication channels were destroyed or out of use for some other reason.[207] As a communication technology, the Internet is based on an *open architecture* whose kernel lies in a number of several different technologies that complement each other. The Internet is a world-wide network of interconnected computers, all of which work together. [208]

Interconnected computers constitute a network where the communicative processes need to be governed. This governance is generally realized through names, which are essential in communication on open networks otherwise. Moreover, proper names involve some disadvantages in technology-based network communication and with the development and growth of Internet it became hard or even impossible to control the whole mass of names and addresses in use on the network. Some system of identification and governance was needed for the fast-growing network. It was to this

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206 Internet was first used as the name of the open world wide network in the early 1980s. The crucial advantage of the Internet is that it does not consist of only one operational mode. The most common operations are e-mail, bulletin boards, newsgroups and the World Wide Web. See Rahnasto 2002, 14.

207 This first version of open communication networks was called *Arpanet* and it served both military and academic needs at the same time. Today the Internet is considered a commercially self-sustaining *network of networks*. Its development has, however, at least periodically been carried out by political decisions and governmental acts. This process began in 1969 by developing the Internet protocol. The main actor then was the *Department of US Defense's Advanced Research Projects Administration*, i.e., *ARPA* or *DARPA*. The fundamental purpose was to design a robust communication network. Arpanet (*Advanced Research Projects Agency Network*) linked together a number of high-tech research institutions and was deployed both to demonstrate the workability of the protocols and to facilitate communication among research communities. Arpanet was built in the 1960s and was later connected to the other local networks in the USA. These were mainly governmental networks, universities, or other research units. In the 1980s Arpanet was divided into two separate networks: The Data Defense Network, which replaced Arpanet, and the network of the National Science Foundation, NSFnet, for academic purposes. See Grewlich 1999, 34.

208 The origins of the Internet are a single complex of four units of networking computers being interconnected. This network of four was first used mainly by university researchers as a co-operative communication channel. The basis for this network of four computers was created by the US Department of Defense and it derives from the DARPA project. See Grewlich 1999, 34.

end that the *domain name system (DNS)* was created. The purpose of the domain name system is to connect host names (i.e., domain names) and IP numbers and the system thus makes up part of the essence of the Internet.[209] Domain names are based on IP numbers, which are used for the communication between computers. The numerical IP addresses alone would be perfectly adequate for the computers as such.

In the interconnected cooperation of computers the operating devices recognize each other by their particular IP numbers.[210] These numbers allow for perfect identification in the hardware environment; they would be adequate for the *computer network*.[211] This also applies to *browsers*, which make it possible to navigate on the Internet.[212] However, in human communication domain names are usually expressed as a *human understandable names* or symbols.[213] These names are only *artificial creations* to make human communication easier. They do not have very much significance in the realization or successful functioning of the communication itself. Most often a domain name is an understandable and reasonable name or word made up of characters, typically letters.[214]

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209 See *Government Proposal HE 96/2002 vp.*, 5.

210 The operations of computers may well be illustrated by an example form *Matt Bishop*: "a computer has an Ethernet (describing media access layer) address of 00:05:02:6b:8A:21, an IP address if 192.168.35.89, and a host name of cherry.orchard.net. At the data link level, the system is known by its Ethernet address. At the network level, it is known by its IP address. At the application level, it is known by its host name." See Bishop 2003, 366.

211 Communication on open networks also faces some threats. One is the possibility opened for every computer input device to become a potential recorder of our actions on the network. Every digital transaction potentially leaves some signs somewhere in cyberspace, which makes it possible to gather databases of personal information. On these grounds, it is possible to collect fragments of information from multiple locations in cyberspace through writing efficient software. These pieces of information may then be put together to form a complete picture of how we are acting. This is called *dataveillance*. See Mitchell 1995, 157.

212 A browser or *Web browser* is a software application that provides Internet users with a navigation tool to locate and display Web pages. The two most popular browsers are Netscape Navigator and Microsoft Internet Explorer.
See http://www.webopedia.com/TERM/b/browser.html

213 Usually the domain name is the Web address of the Web page of an enterprise, and it is used for identifying the home page of the enterprise, or searching for it on the Internet. The domain name can also be the identifier of the e-mail address of an enterprise. See Rahnasto 2002, 19.

214 Domain names are basically expressed in letters or numbers. A domain name does not, however, even have to be an understandable name; any string of characters may be a domain name. See Rahnasto 2002, 20.

1.5.3 Communication using domain names

A domain name or *domain address* locates an enterprise or any other actor on the network. Enterprises operate through Web pages (home pages, home sites), which are files saved on a World Wide Web server used by an enterprise. A Web page usually contains information about the enterprise or information about its products or services. These are often those data from which a particular entity can be identified.[215] The domain name associated with this Web page is often based on the name of the enterprise.[216] This is how the overall network structure is implemented at the level of domain names. The communication structure based on domain names is complemented by root servers, which hold information about all of the computers connected to the World Wide Web. These servers thus constitute the essence of the domain name system.[217] At the top of the hierarchy is one, unnamed root, i.e., the *top root*. Under the top root there exits several lower-level roots which are either worldwide or national ones and configured in groups. These roots are called first-level domain names.[218]

The *domain address* contains two main components, the *protocol* and the *domain name*.[219] Domain names can be broken down further into segments. The domain name

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215 Such data may include details concerning, for example, on the corporation's name, contact address and date of establishment. Moreover, these details may include information about a corporate's ownership structure, employees, operations, assets and finance, strategies, customer base or products. See more on this, Bygrave 2002, 174 - 175.

216 See Rahnasto 2002, 19. Actions on the network can be done by computers and programs as well. These programs are called *electronic agents*. They are computer programs, or electronic or other automated means, which are used by a person to initiate an action, or to respond to electronic messages or events.
See http://www.webopedia.com/TERM/a/agent.html
These agents are not bound to any specific country or region; they can physically be located wherever. Agents may, however, be found according to their URL address. The form of these Web addresses is still unclear. See Ören 2001, 90 - 91.

217 The main root is called the *A-root* and it is governed by the *Internet Assigned Numbers Authority (IANA)*. IANA was founded only for coordinating the domain name system and governing the A-root server. Physically IANA is located at the University of Southern California. See Hart - Chaitoo 1999, 926 - 927.

218 See *Government Proposal HE 96/2002 vp.*, 5.

219 There exist several different protocols on the Internet. Generally, according to Webopedia, a protocol can be described as an agreed-upon format for transmitting data between two devices. The protocol determines the type of error checking to be used, data compression method, if any is used, how the sending device will indicate that it has finished sending a message, and how the receiving device will indicate that it has received a message.
See Webopedia http://www.webopedia.com/TERM/p/protocol.html

component of a URL consists of three or four segments.[220] The general segment is the abbreviation "www", which means that the computer or the domain name referred to in the address is a World Wide Web server. The *domain name proper* then consists of the two latter parts of the URL, for example, "ulapland.fi", which is the domain name of the University of Lapland. The last segment is what is known as the *top-level domain (TLD)*, which is usually either a country or organization code.[221] The complete domain name in its URL form thus consists of four different parts: [protocol]://[computer] .[domain name proper].[country or organization], for example, http://www.ulapland.fi, the URL of the University of Lapland.[222]

In the new communicational framework, domain names are *utilized as identifiers* and as such they discharge the function of a name in face to face communication. A domain name is basically used as an identification symbol and is indexed to a quadripartite IP address. For this reason, domain names may also be *considered addresses*.[223] As addresses they are never identical, however. Every user in the network will be identified according to its domain name. Therefore, a domain name can be equated with ordinary addresses in the postal services, or phone numbers in telephone communications.[224] In this context the legally interesting part of the domain name is what is known as the *second-level domain name*, that is, the human-understandable part of a domain name. The second-level

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220 URL is another name for domain name. It may also be called domain address, Internet address, www address, or Web address. Lehtonen A. 1999, 98. The URL is the most complete form of identifier, because it contains both a description of the protocol to use, and in a specified form the IP address or the domain name where the resource is located. The letters URL are an abbreviation of Uniform Resource Locator.
See Webopedia http://www.webopedia.com/TERM/U/URL.html

221 There are a limited number of predefined top-level domain (TLD) suffixes. The current top-level domains include: *com* for commercial businesses, which is the most common TLD. The others are: *gov* for U.S. government agencies, *edu* for educational institutions such as universities, *org* for organizations (mostly nonprofit), *mil* for military, mainly in the United States, and *net* for network organizations.
See Webopedia http://www.webopedia.com/TERM/T/TLD.html
In addition to these there is a suffix *int* for international organizations. The rest of the top-level domains are the country codes, like ca for Canada, or fi for Finland. See Lehtonen A. 1999, 99. The number of country codes exceeds 240. See Gulliksen 2001, 22.

222 There exist also so-called third-level domain names, which are expressed in the form: [protocol]:// [computer].[domain name].[country or organization]/[third-level domain name], for example http://www.ulapland.fi/home/oiffi (Institute for Law and Informatics at the University of Lapland).

223 A domain name has thus a dual character: it is both a *name* and an *address*. It both identifies and locates Internet resources. See Gulliksen 1999, 24. A domain name is thus often considered an *electronic address* despite its character as a trademark. See Koktvedgaard - Levin 2004, 354.

224 In the domain name system a "name" has been considered to identify the principal and an "address" describes where on a network the host is located. See Bishop 2003, 366.

domain name is that part of the name located between the abbreviation "www" and the country or organization code, e.g., [ulapland. ...]. In everyday legal usage, it is exactly this part of the URL that is called the domain name.

1.5.4 The domain name as a communicative position

The legal interest embraces two different issues, i.e., organizing the internal system of the domain names and the exclusivity of domain names themselves.[225] A domain name may be considered as an *address* or as a *position* on the communication network.[226] Domain names are generally registered by international organizations in order to bring the names into use. Registration brings out two distinct aspects of domain names. One has to do with state governance of the domain name system and is based on strict restrictions on the use and granting of domain names. The other is derived from minimal restrictions concerning domain names and a system basically built on market governance.[227] The distinction involves the problematic area of *exclusivity of domain names*. Exclusivity is related to both the state governance of domain names and the relationship between domain names and trademarks.[228]

The view of a domain name as a position is well illustrated in state-oriented governance, also described as a *technical approach*, and has relatively broad basis. The breadth can be seen in the low requirements for getting a domain name registered. The technical approach concentrates solely on the form of the word or symbol whose registration one is applying for.[229] There are essentially no restrictions on granting a domain name: the only reason for rejecting an application is that someone already possesses *precisely the same* domain name. The names must be absolutely similar; even

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225 See Lehtonen A. 1999, 99.

226 Moreover, a domain name is often considered a service mark rather than a trademark. Domain names thus usually represent the services associated with the Web instead of representing any goods. Branson 2001, 297.

227 These two approaches are the main areas in the governance of domain names. The fundamental difference between these two governance structures lies in the distinctions between domain names and trademarks. Two countries representing the two opposite extremes of regulation may, for example, be Finland and the USA. In Finland the national domain name system is governed by the state, whereas in the USA the domain name system is based on market governance. See Rahnasto 2002, 31 - 32.

228 This is exactly where the second level domain names play a key role. For example, in Finland a domain name may not legally be based on a protected commercial name or sign (Law on Network Identification 4 §. In Finnish, Verkkotunnuslaki.) See also Rahnasto 2002, 60 - 61.

229 Domain names are thus considered as tools of identification not only for an actor but also for a certain service or product. See Tuula 2002, 252.

small differences in the written appearance constitute a sufficient distinction.[230] Processing an application thus concentrates only on the similarity between the domain name applied for and existing ones.

In this way a domain name comes to be considered more like an address, where the requirements to get a domain name registered are based on the unique differentiation of numerical strings. This leaves the influence of signs on the market totally aside thus supporting the view of domain names as mere addresses. The view is likewise supported by the non-absoluteness of the right to acquire a certain domain name. Domain names are not in this sense owned; rather, their use is based entirely on the *right to use*. A domain name holder thus only gets the right to use the name while the name itself belongs to an authority (in Finland, the *Finnish Communication Regulatory Authority*). This corresponds to the status of phone numbers, which are considered to be only technical in nature and as such property of the telephone companies.[231]

A domain name as an address is rather static in nature. This is implied in the rigid process of registering a domain name. The assessment of an application does not consider the effect of registration on the market or competition.[232] As such technical registration seems to be aimed solely at governing the existence of the domain names in neutral communication.[233] Governance strives for *neutrality and equality* between domain name holders and does not consider the actual value implemented in them as a whole. In other words, the core of the technical approach lies in the view that domain names are basically created for the network operations carried out by computers. There, it is only the technical communicative part of the domain name that has significance, for computers only need the numerical name to connect to the network properly. The written part of the address is meaningless in this perspective.[234]

A domain name as a position reflects the identity of the communicative actors. The position is in fact designed precisely for this purpose. This is why domain names as addresses are *unique*. It is impossible for there to be two identical domain addresses or IP numbers. This is one of the fundamental conditions for network communication.[235] This

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230 See Rahnasto 2002, 32. For example replacing the letter "o" with zero.

231 See Rahnasto 2002, 34.

232 See Rahnasto 2002, 33.

233 In these cases, the governance of a domain name system is strictly concentrated in the hands of the state and access is controlled by the governing authority or organization. See Benkler 2002, 292.

234 See Rahnasto 2002, 20.

235 This is the fundamental difference between a domain name as an address and a domain name as a name. The systems of domain name and trademark are in this sense fundamentally different in that a trademark may be granted to several different enterprises as long as they act in different niches. A domain name is unique and it may be granted to only one actor. See Lindberg - Westman 2000, 256.

renders the communication neutral. Communication overall is based on *neutrality*, with computers acting neutrally on the basis of pure numbers or IP addresses. They merely transmit messages regardless of the content of the messages. Numerical symbols and connectives are thus useful for neutral communication. Communication on the open networks would be impossible without any means of identification.[236]

Domain names function as identifiers when they are employed as addresses and are therefore unique. Identification has further implications that then help ensure and guarantee access to the network. In this respect, domain names have become significant tools enabling network actors to *get access* to networks. The identification of actors is essential for them to be able to operate on the network.[237] Domain names and the access granted through them are also essential if the actors are to be able to *transmit and receive information*. This is the essence of the overall operativity of the network, where all functionality is based more or less on getting and giving information. Access and operativity are closely bound.

1.5.5 The domain name as a market identifier

It can be argued that human beings communicate essentially on the basis of names, signs, and symbols. The significance of a domain name on the network lies in its dual role: it is a symbol as well as an address. A domain name is often considered a mere address when it is defined as a *pure service*.[238] Domain names have, however, a lot of value implemented in them. A good example is *domain name grabbing*, where an enterprise registers a domain address which is actually the business name of another company. The only purpose is to go on to sell the domain address to the business name holder and make money in this way.[239]

Domain names were not originally considered to have much value, if any. Basically they were only *connective units* and their purpose was merely to lead the network

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236 This is clearly manifested in the increasing electronic communication, for example, between citizens and the public authorities. In these relationships the electronic identification card makes it possible for citizens to communicate electronically and through open networks with the public authorities. The essence of the functionality of this communication lies in confidential identification. See *Government Proposal HE 18/1999 vp.*, 4.

237 This activity and access to networks is ensured through a properly functional domain name system. A functional domain name system also supports *free speech* on communication networks. See *Committee for Constitutional Law Report PeVL 54/2002 vp.*, 2.

238 As a service a domain name has a status of a telephone number. See Gulliksen 1999, 26.

239 See Haarmann 2001, 237.

users to the correct Web page.[240] They were thus considered more like addresses than names or meaningful symbols. The commercial character of domain names has changed along with the development of the communication framework., in which information and access to it play a central role. Information retrieval systems, for example, search engines, use domain names to recognize the right Web site; i.e., domain names are utilized as search terms for identifying actors on the network. Accordingly, enterprises become visible on the network through their domain names. The ability to identify oneself is essential if one is to be operative on the network.

In business, domain names thus connect domains and enterprises. Therefore, domain names seem to have an identification function similar to that of a name in personal communication. The main task of domain names in the network environment is to ensure *access to information resources*. This involves both the sender and the receiver of information. In order to guarantee equal access, domain names are basically granted and governed by the state and generally on a non-profit basis.[241] The communication network, on the other hand, is based on the *ability to get and give information*, whereby equality in access to information is essential for properly functional communication. The balance in the significance of information may, however, be altered for market purposes. This occurs to a considerable extent in the use of domain names, but even more fundamentally in the design of certain special *search phrases* for the Internet. This can be achieved through certain characters or strings of characters that are then used by search engines. When a search is carried out through language, it is characteristically the symbolic meaning that is the focus.[242]

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240 See Rahnasto 2002, 33.

241 The international governance of domain names has been organized by the *Internet Corporation for Assigned Names and Numbers (ICANN)*. The most important tasks of ICANN are governing IP addresses, granting the domain names and governing the root servers, and defining the Internet protocols. See http://www.icann.com
At the national level the governance of domain names has been organized by private associations. In this practice Finland is an exception. In Finland the governance of domain names is organized by a governmental organization, the *Finnish Communication Regulatory Authority*. In this way the regulation and allocation of domain names is under the supervision of the state. See *Government Proposal HE 96/2002 vp.*, 8 -9.

242 Domain names and search strings are not necessarily the same thing: domain names may include even some search terms. This may be realized even more fundamentally by including certain identifiers, like signs or marks on the Web page of the competing enterprise. These identifiers are then found by a search engine. These identification marks are called *meta tags*. See Lindberg - Westman 2000, 220 - 221. A meta tag is a special HTML tag that provides information about a Web page. Unlike normal HTML tags, meta tags do not affect how the page is displayed. Instead, they provide information such as who created the page, how often it is updated, what the page is about, and which keywords represent the page's content. The significance of meta tags is in their usability for search engines, as many search engines use this information when building their indexes.
See Webopedia http://www.webopedia.com/TERM/m/meta_tag.html

Communication between companies and consumers is essential for the proper functionality of the market. Consumers need to *receive information* about goods and services and companies need a channel for disseminating information about their products. Today open networks are widely used for commercial advertising. Commercial operations would not be possible without proper means to *represent oneself* somehow. Domain names play several roles here. A domain name is an *identifier* used for recognizing an actor, which makes the name essential for network communication and the domain name itself often constitutes a message to the audience.[243] This is in fact the essence of the market uses of domain names. However, the domain name of a company must be easy to remember and be easily distinguished from the other domain names on the network.[244] A symbol needs sufficient capability to individualize an enterprise and its operations, products and services.[245]

The registration of a certain name as both a domain name and a trademark strengthens the position of an enterprise in the market. On the open network domain names and trademarks have a connection through the market. Well-known trademarks in fact have precisely the same functions on the network that they have in the traditional tangible market.[246] This results in double protection for registered trademarks or registered domain names.[247] This double protection has its problems, however, owing to the *enlarged global operational framework*. In other words, no market or market operations are realized locally any longer: operations are global. Moreover, all market operations take place on the *same network*. Problems arise with both trademarks and domain names, for it is possible to get a similar or the same trademark granted for different products.[248] A

Meta tags and word stuffing are only one of the infringements that trademark owners may experience on their Web sites. Others are copying and disseminating copyrighted material or breaching moral rights by abusing personal information on the Internet. See Wood 1999, 23 - 25.

243 All these three aspects of a domain name contribute to free speech on open networks. See *Committee for Constitutional Law Report PeVL 54/2002 vp.*, 2.

244 To cite *Ilkka Rahnasto's* example: it is easier to market the Web page of the Olympic Games under the domain name olympic.org than under some other symbol that is probably hard to remember and possibly has no connections to the Olympic movement. See Rahnasto 2002, 33.

245 It ought to be possible to register a domain name even as a private person. This has even been considered essential in order to ensure free speech on the communication networks. See *Transport Committee Report LiVM 23/2002 vp.*, 2.

246 A well-known trademark has thus already some guaranteed value when used on an open network. See Heveus 1997, 200.

247 The protection is thus provided on two levels: normal trademark protection and protection for a private domain name. See Koktvedgaard - Levin 2004, 355 - 256.

248 In other words, it is possible that two enterprises might use the same trademark to sell unrelated goods, for example, firearms and bread, under the same trademark as long as doing so causes no consumer confusion. This is where the problem with domain names

trademark is thus not unique or absolute. A domain name, by contrast, is unique and may thus be granted to only one actor at a time.[249]

1.6 Summary: the need for identification, the power to communicate

The governance and usability of names is fundamentally based on the framework and the overall operational environment in which the names are to be used. The framework and its background conditions also define the overall functions of the system of names. The prerequisites of functionality are defined through the framework in which those functions are to be carried out. Accordingly face to face communication requires different communicative tools than distance communication. For example, identification needs to be realized differently. Communication is almost impossible without tools for identification or any means of control. These attributes are usually incorporated into a name, with the name and the overall naming system clearly revealing the changes in the operational framework and the functional environment. In this operational framework, a domain name is considered an address and as such as a position on the communication network. On the other hand, a domain name may also be seen as an identifier in communication. The utilization of domain names is thus twofold, which entails problems. The problems are basically connected with the exclusivity of domain names, exclusivity being based on both the state governance of domain names and the relationship between domain names and trademarks. On the other hand, changes in the operational framework affect how communication itself occurs. The problem is rather the opposite of exclusion, i.e., the collision of a domain name as identifier and address.

Communication is established through positions. A domain name as an address is rather static in nature. As an address, a domain name merely describes the position of an actor as part of a neutral communication event. Governance aims at neutrality and equality between domain name holders and thereby does not take into consideration any of the practical real values of domain names. Domain names are basically created for the network operations carried out by computers, where only the technical part of a domain name has significance. A domain name as a position reflects an ability to operate and accurately identify the communicative actors. A domain name as a position is in fact designed precisely for this purpose. Domain names as addresses are unique in character. This is the kernel of the exclusivity of domain names as addresses. Each domain name is unique and that exclusivity implies a distinctive identity on the part of the domain name by which identification takes place. Uniqueness also makes it possible to

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emerges, for only one enterprise may register the same domain name. See Smith 1999, 11.

249 See Lindberg - Westman 2000, 256.

communicate on open networks. Indeed, the unique character of domain names is one of the fundamental prerequisites of network communication. On the other hand, this makes the communication neutral, for computers act neutrally on the basis of pure numbers or IP addresses. It is exactly these connectives that make the communication neutral.

Domain names were not originally considered valuable in market use: they were basically considered only as connective units whose fundamental purpose was to lead network users to the correct Web page. This is exactly the character of domain names as addresses: they are considered more like communicative positions than names or meaningful symbols. However, domain names have a significant role in network communication. They connect domains and enterprises, which makes domain names an instrument of identification like proper names in personal communication. The main task of domain names in the network environment is to ensure access to resources by making those information resources identifiable. The communication network, on the other hand, consists of the ability to get and give information. Equality of access to information is essential for properly functional communication. In the operational framework, it is essential to identify oneself in order to communicate. Both of these tasks are bound closely to having a name as an instrument of identification. However, the character of a name has changed with the development of communication. A name as such is no longer useful in modern, impersonal communication but needs to be modified to comply with the requirements of the changed framework. On the other hand, the impersonal character of network communication has in general become somewhat personalized by defining the identities and positions through names.

2 CREATE AND MARKET. IDEAS AND BUSINESS IN THE DIGITAL ECONOMY

2.1 Communication as ideas

Ideas are generally included in the scope of the public domain and likewise in the sphere of commons.[250] In this perspective, information, knowledge, and culture constitute the essence of the communicative society. The digital economy seems to encourage the *control of ideas*.[251] Mainly this is due to the importance of innovativeness and innovations as the essence of the functions of the digital economy.[252] Along with control comes a need to protect those essential elements. For example, the digital economy is based on *rapid innovations*, an increasingly global economy, and information and communication technology. Innovativeness is in fact the core of the digital economy overall. The key to innovativeness lies in *obsolescence*, which in turn is crucially based on rapidness.[253] Rapid innovativeness is best manifested in the *renewal of inventions*: if one has just developed a great product, one's goal is to develop a better one that will make the first one obsolete. The digital economy is generally described through its rapidness: *Absoletum Obsoletum* - if it works, it is out of date. On the other hand, obsolescence is inevitable. If one cannot make one's inventions obsolete, someone else will. Accordingly, a key driving force of the new economy is the *capability to produce fast innovations*.[254]

Business methods are closely related to innovativeness and ideas. This is clearly illustrated in business competition, where rapidness as the essence of the digital economy

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250 This is clearly reflected in a trade secret, which protects all subject matter principally included in the public domain. See Bone 2001, 106.

251 In this sense even culture is commercial or non-commercial. See Lessig 2004, 7 - 8.

252 The digital economy seems to be characteristically founded on sharing and it is thereby generally based on intensive sharing of work, social experiences and other forms of knowledge between the members of the community. This is clearly illustrated, for example, in the easy copying of information, with the contributor able to give away an infinite number of copies of a document without losing it or diminishing its value. See Bergquist - Ljungberg 2001, 309. However, Creativity and innovation have been considered two of the most important assets of the European Union. See Bangemann et al. 1994, 21.

253 Obsolescence, as well as innovativeness, are both closely associated with branches of business going through some kind of transition. These are also a major interest of venture capitalists, given the possibility to take advantage of disruptiveness in creating new operations and even totally new branches of business. So far the revolution has been deepest in the branches of information and communication technology and the Life Sciences. See Lauriala 2004, 24.

254 See Tapscott 1996, 59 - 60.

creates competition. It is *business competition* that creates economic growth. Therefore, it is important for enterprises to be able to innovate continuously in order to make product life cycles shorter. Ideas play a crucial role in this innovativeness. Business and technological development are means in mutual interaction that together cause the life cycle of individual products to decrease sharply and the number of products to rise dramatically. Innovativeness is essential for competitiveness, as enterprises compete by innovating.[255] Accordingly, the essential challenge for any digital company is to create a climate in which innovation itself is prized, rewarded, and encouraged. In order to keep innovativeness alive, there is a need for organizations that foster creativity.[256]

Innovation is closely linked to both ideas and knowledge. In order to create an increase in value and a competitive edge, innovation should be created *inside the company*, however. Innovations that are created outside of a company become public. Their use is also public, whereby they do not - and cannot - create any competitive advantage.[257] This is basically why *internal knowledge* is extremely valuable for an enterprise. Innovativeness is an essential prerequisite for economic development and growth.[258] In this respect it also drives the economic growth of the digital economy. An invention does not become an innovation until it has been approved by the market and therefore only few inventions become innovations. Many do not get market approval at all. All these elements, however, maintain the significance of ideas and brisk economic progress.

In the digital economy, ideas and innovations are generally *commercialized* in order to create economic wealth and growth. This is achieved by commercializing ideas or products. Further, commercialization makes articles accessible to consumers, which increases wealth. Economic growth is also achieved by opening access to wealth to everyone. Here, the commercialization of ideas has an even more significant task in

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255 Earlier, in the 1980s the structure of the economy differed markedly from today's. The direction of economic life was carried out through the government platform, among other things, in industrial policy. The robustness and functionality of industrial policy was made possible through educational policy and tax policy. States were economic units, and their competitiveness depended on the operations of government officials. It was revolutionary step when the view was shifted from the level of the economy towards enterprises. It became apparent that the driving force of economic growth was, instead of the direction of the sate, enterprises and their mutual competition. See Ståhle - Grönroos 1999, 43 - 44.

256 Product and service leadership is one way to win in the innovation economy. However, the need to understand customers and their concerns and desires has become more and more important. Innovation has to be done beyond the conceptions of the markets. Thus it is essential to understand the needs of the customer's customer. See Tapscott 1996, 62.

257 See Ståhle - Grönroos 1999, 45 - 46.

258 The so-called *"new combinations" definition* includes several other innovations parallel to the technical ones. Innovations can be: 1) new products, 2) new production methods, 3) new market areas, 4) new supply channels or sources for the commodities, or 5) new organization structures. This classification is from Männistö 2002, 22.

democratizing technologies.[259] Economic growth requires the communication of ideas, the *ability to communicate* being the most essential element of innovativeness. In such communication, information is circulated smoothly and exchanged freely.

The free flow of ideas is based on ideas as one of the *most independent resources* in modern society. The role of ideas as fundamental communicative building blocks usually suggests that ideas should freely spread from one person to another. In other words, ideas are basically *non-exclusive* and *non-rivalrous* and as such free. This clearly distinguishes the treatment of ideas from that of tangible resources. Ideas are considered to be the *freest resource* of all. In nature, for example, ideas are free, which means that there are no natural restrictions on the diffusion of ideas.[260] In this respect both technological and economic development are bound to the regulated spreading of ideas in that they depend on the direction and strength of information flows. Information thus gets its value and power only when it is circulated. It is likewise through these qualities that information creates innovativeness and the capability of inventions to regenerate.[261]

2.2 The basis of an idea

2.2.1 The exclusive function

Ideas have a special character in communication, which is well expressed in the *exclusivity of an idea*. The essence of an idea basically determines the possibilities of excluding other people from access to it. An idea may, for example, be excluded from normal communication if it is kept secret.[262] As a secret an idea is excluded completely, which in practice means that the exchange of ideas is altogether lost.[263] *A trade secret* is an

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259 Mass marketing has its advantages here, although in the present day such marketing is often more likely based on *mass customization*. Democratization of ideas and information products is carried out through mass marketing when it is possible to lower the prices and make articles available to consumers. Otherwise the technologies are often too expensive for the consumer markets. See Steinbock 1998, 5.

260 The free elements of an idea are described in the letter from *Thomas Jefferson* to *Isaac McPherson*, August 13, 1813. All restrictions are artificial, like a patent or other intellectual property rights. All relevant boundaries are constituted through legislation. See Lessig 2002a, 94 - 95.

261 See Ståhle - Grönroos 2000, 108.

262 It is thus possible to own an idea, even when it exists purely in one's mind. Ideas are hence products that may be owned when transformed into forms that can be protected. See Cho 1998, 174.

263 This also applies to trade secrets, and keeping business information secret easily impedes innovativeness. Trade secrets therefore have a unique nature. Whenever a trade secret is infringed, it is always misused. Unless it is misused, it is not considered to be infringed. See Soga 2003, 15. In the free market economy it is a common practice to gather

illustrative example of this. It is the very essence of a trade secret that it excludes all others from the idea being kept secret.[264] It is also crucial for the business of the holder of a secret to keep is secret when a trade secret is also defined as an issue that is significant for the enterprise when it is kept secret.[265] It is characteristic of a trade secret that the underlying secret must not be generally known in the trade.[266] The exclusivity of an idea is the core here.

An idea as a secret entails complete exclusivity, which means that the idea must precisely be kept secret.[267] Excluded ideas are thus blocked from the use of the overall community. Excluding ideas explicitly and necessarily also causes their exclusion from societal dialogue. Complete exclusivity is therefore a rather strong tool for protecting ideas and it may easily turn against itself and *exclude the community* from ideas. The exclusion of an idea is imperfect, however, and this imperfectness strengthens the exclusive character of the idea. Even when it can be kept secret, the revelation of an idea changes its position; once the idea is disclosed, it is not (cannot be) a secret anymore. The secrecy or exclusivity may not be restored once a secret has been told to someone.[268] The best and the most effective way to protect ideas thus seems be to keep them away from others. The exclusivity and secrecy of ideas is nevertheless principally an exception in the digital economy, given that the focus is on rapid innovativeness.

The digital economy is principally based on ideas and the *exchange of ideas* through communication.[269] Communication is mainly carried out between human beings and is generally based on the *free flow of ideas*. Ideas are thus exchanged and communicated

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information on competitors. New technology often has an extremely high value in competition. See Nasheri - O Hearn 1999, 17.

264 A trade secret is generally described in terms of the information included in it. To qualify as a trade secret, information must be *secret in fact*, confer a *competitive advantage as a secret*, and *be protected* by reasonable secrecy precautions. Even the infringement of a trade secret defines its content; i.e., in order to be liable for trade secret infringement, there exists two requirements to be satisfied. First, the information has to be a trade secret; second, the information must have been acquired, used, or disclosed by breach of confidence or by other improper means. See Bone 2001, 102.

265 This is generally called interest in keeping a trade secret. See *Government Proposal HE 114/1978* vp., 14.

266 It is as essential for a trade secret that the owner uses the trade secret and that it affords a competitive advantage. See Chandra 2002, 549.

267 See Bone 2001, 102.

268 Ideas and property rights here are opposed to each other. Ideas may never be subjects of exclusive rights; rather they tend to spread once they become known or understood by others. See Koepsell 2000, 51.

269 The exchange of ideas is realized, for example, though patents. A patent may be considered an application of abstract principles or ideas. This is particularly the case with processes or formulas, where the substance is expressed by a formula or other model. See Koepsell 2000, 52.

freely. On the other hand, the free flow of ideas is based on information transmission between the transmitting parties only. Roughly speaking, the information does not affect this level of communication; in this sense it is external. Indeed, it is more likely that the operational framework defines the treatment of information. In the digital economy, ideas and information create wealth and communication using ideas, and information is essentially always one source of wealth. The exclusivity of ideas forms a certain special structure for *distributing resources* and wealth. The distributive structure is fundamentally based on control. The reason why some of the wealth needs to be controlled lies mainly in the varying character of resources in general. The character of a particular resource affects the ways in which it is supplied.[270]

The character of a resource and its foundational relation to society defines the way it is treated. One manifestation of the relationship between society and an idea is the *non-rivalrousness of ideas*. Ideas are often non-rivalrous. Ideas, new thoughts, or even information are non-rivalrous in the sense that they can be used by several people at the same time.[271] Generally, the same idea can be used several times without lessening its value or usefulness. The non-rivalrous character of ideas in fact accounts for a great deal of their strength. The consumption of an idea does not lessen the possibilities of others to "consume" exactly the same idea. Ideas are thus *multiply usable*. All in all the non-rivalrousness of ideas contributes to the cohesion and integration of society in the ideas being shared by many actors in communication. The less rivalrous a resource is, the more compellingly it may be used in solidifying society. The rivalrousness of ideas also constitutes the basis of innovativeness. The clear difference between rivalrousness and non-rivalrousness, when comparing innovations and ideas, is manifested precisely in the character of ideas. Ideas, or new thoughts in general, are not rival innovations and can be used by several consumers at the same time. Use by one consumer does not make use by another any harder.[272]

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270 See Lessig 2002a, 94.

271 These things can, for example, be told or taught to a virtually limitless group of individuals but the teacher has still not lost anything and retains the same idea, thought, or information. This also applies to some forms of arts: a movie or a piece of music can be copied almost endlessly without in any way diminishing the master copy. See Ståhle - Grönroos 2000, 63 - 64.

272 For example, a calculator is a rival innovation. It may be used only by one user at the time. A mathematical method, on the other hand, is an example of a non-rivalrous innovation. It may be taught to a great number of people and everyone of them may use his or her skills at the same time. See Ståhle - Grönroos 1999, 46 - 47.

2.2.2 The cumulative function

Ideas are communication, and communication is used as an instrument to compound ideas and innovativeness. Generally, the communication of ideas is linear, with information transmitted *vertically* between operators.[273] The free flow of information has, however, another task within the information structure: it operates to transmit different pieces of information *inside the information structure* itself. The information structure is thus organic and communication is carried out *horizontally*.[274] Horizontality in communication requires that all the information flows are equal. This is the factor that generates the free flow of information; the more smoothly information flows, the more capacity it has to regenerate. Ideas and innovativeness are thus combined together through the free flow of information and the ability of actors to interpret information.[275]

One of the essential elements of innovativeness is the ability to communicate ideas and to utilize them for increasing creativity. Communication thus *increases competitiveness*, which is essential in business. Competitiveness is generally pursued through innovations by commercializing new and creative products or processes.[276] Ideas are the foundation of innovations as the most important resource in today's enterprises. This is clearly manifested, for example, in the technology and product development process, which consists of functions aiming at the creation, development, and commercialization of products and services. The starting point of the technology and product development process is always in the emergence of potential ideas and their formulation into tentative product concepts.[277] Innovation is therefore made part of communication in society. The cumulative character of ideas is clearly manifested in certain innovations of the digital economy. Namely, some products clearly resemble non-rivalrous innovations when their essence lies in a certain idea or expression. The

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273 In a mechanical operational framework it is significant only to be able to deliver information linearly. Communication in a mechanical structure is linear and flows only in one direction, mainly from the top towards the bottom. See Ståhle - Grönroos 1999, 92.

274 The significance of the balanced horizontal communication is clearly manifested, for example, in electronic transactions. These transactions ought to be carried out on the basis of free speech, meaning that even the restrictions in marketing and advertising ought to be assessed for their impact on the realization of free speech. See *PeVL 60/2001 vp.*, 3.

275 Therefore, the internal communication of information creates as much value as the external communication. See Ståhle - Grönroos 1999, 93.

276 Innovation comes into existence when a new and a creative product or process has been commercialized successfully. This definition comes straight from business life, where innovations have been an essential part of entrepreneurship. See Männistö 2002, 22.

277 See Rönkkö 2001, 86.

cumulative function is here introduced by the ease of copying existing ideas. Communication is generally carried out by using ideas as a part of new innovations. These ideas and products are similar in that it is generally hard to reproduce the original but it is easy to make copies. This is exactly where digital technology has had an impact while at the same time changing how we communicate ideas.

Ease of copying is well illustrated when an innovation involves the improvement of a product but cannot be protected though intellectual property rights. Such ideas may be easily and rapidly copied and thus abused by competitors. This implies that the *capability to renew itself* is rather essential for an enterprise.[278] The cumulative function of ideas is also manifested in the rapidness of renewal and growth. In continuous competition it is important for a company to be able to renew itself rapidly. This is possible, however, only by continuously producing new ideas and innovations.

2.2.3 The communicative function

Ideas are communication, but it is impossible to communicate using nothing but ideas: ideas always need to be expressed in some form. In the digital economy, the form of expression is often a digital one.[279] Furthermore, in the digital economy ideas are founded on a digitized operational framework. In that framework, it is computer code that in practice contains the foundation of ideas. Computer code as a functional entity thus binds together *ideas and functionality* itself.[280] In this way computer code mixes the two basic categories of an idea and expression that underlain the fundamental distinction between copyright and patent. The core of the idea/expression dichotomy is the assumption that ideas and expressions are distinguishable and separable; ideas have to be separable from mere expression. This provides a basis for controlling ideas and thereby excluding them from free circulation.[281]

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278 At the same time, competitors ought to be excluded from the exploitation of ideas and novel innovations. This is called the *theory of internal growth*. See Ståhle - Grönroos 1999, 47 - 48.

279 It may also be said that in the digital age the idea/expression dichotomy can be described as a dichotomy of *expression/machine*. See Koepsell 2000, 3.

280 Computer programs or computer code constitute the kernel of the overall operational framework of the digital economy. This is also where the connection of ideas and functionality is to be carried out. Computer programs, for example, operate as a driving force when improving the network society and electronic commerce. See *COM (97) 314 final*, 18.

281 Accordingly to the dichotomy, a copyright can be granted for a form of expression but not for an idea. The idea/expression dichotomy is also called the *fact/expression* dichotomy. See Loughlan 2002, 33 - 34.

Computer code is used to filter ideas. This function is fundamentally based on the character of computer code as an intermediary form of functional expression. Underlying this role is the difference between idea and expression.[282] This distinction is not, however, as significant as is often thought and a bridge lining the two can be identified. The basic assumption is namely that an idea and its expression are in any event linked to each other in one way or another. This notion is founded precisely on the concrete form and appearance of an invention or a creation, which in fact always *includes both* an idea and its expression. In a sense, an invention always incorporates the *idea behind expression*.[283] These two descriptions of computer code are therefore by no means divergent; rather, ideas become filtered through the means by which they are expressed.

The filtration of ideas is even more fundamental when it is founded on operational patterns themselves. Computer code is generally always functional by its fundamental nature. This functionality affects the difference between computer code and the pure, formal copyrightable form of expression. Code is always operative and thereby also a functional unit. Code *does what it expresses*. Code is, accordingly, never the mere purpose of a product but rather a set of instructions as well. Therefore, instead of being described as a literary creation, computer code can be described as the embodiment of an idea, with the idea being embedded in the component instructions. The whole process is then driven by the particular code or software as an expression of this idea.

Communication using computer code always requires always some degree of filtration. This filtration is carried out by protecting the form of expression instead of the idea itself. Here, the formal expression may be emphasized too strongly, however, which will make the overall communication process *closed*. Copyright is not the protection of processes as much as it is the protection of more passive expressions. Expressions are essential for communication in that representative expressions make communication simpler and cheaper overall. A good example of this are the *formats* of well-known televison shows, which are not as such protected through copyright. This kind of fixed-format communication, although simpler and safer as well, easily stifles innovation.

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282 The dichotomy of expression and idea is the main distinction between the systems of copyright and patent. Expressions are copyrightable, whereas ideas are not. The expressive manifestation is the essence of the copyright legislation. On the other hand, ideas have been considered patentable. Basically, the distinction between idea and expression was considered to be the core of copyright legislation. Copyright is especially founded on expression. The traditional object of copyright is a piece of work in its abstract form. See Haarmann 1999, 37 - 38.

283 See Still 2000, 65 - 66.

2.2.4 The restrictive function

In the digital communication network, ideas are embedded in computer code. Code is the core of the open digital communication network, for it is computer code that enables the *networking society to function*. It is how functionality is established in the kernel of the communicativeness of this network.[284] This changes the communicative structure of the network in the direction of computer code. The essential role of computer code in the open network affects communication itself. Communication is consequently highly dependent on who controls the code and by which means. This is precisely where the restrictive function of controlling ideas comes into play: the character of ideas may differ depending on the controlling devices and parties. Code can be either open or closed, open source software including its source code by definition. Open source code requires that the source has to be kept free and thus available to all.[285] Moreover, the source code can be viewed and modified by users and parts of it can even be taken and used by other coders.[286]

The restrictive force of the control of ideas through code is realized in the case of closed code. Closed code is usually strongly protected, often by copyright. Copyrighted source code is closed, with no one allowed to use it or even carry out any reverse engineering on it.[287] Protection is based on the view that a computer program is a literary

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284 This functionality should also be founded on openness. It has even been speculated that open source software will be the dominant mode of work of knowledge workers in the networked society, i.e., the information-based society. See Fitzgerald - Feller 2001, 273.

285 Webopedia describes open architecture as follows: An open architecture allows the system to be connected easily to devices and programs made by other manufacturers. Open architectures use off-the-shelf components and conform to approved standards. Open architecture is an architecture whose specifications are public. This includes officially approved standards as well as privately designed architectures whose specifications are made public by the designers.
See Webopedia http://www.webopedia.com/TERM/O/open_architecture.html

286 See Välimäki 2002, 851. It is exactly the openness of open code software that builds commons of code, knowledge, and innovation upon that code. See Lessig 2002a, 55.

287 Reverse engineering is one means of infringing protected software by producing competitive programs. Reverse engineering is not, however, always illegal. Reverse engineering is used for breaking down software for the purposes of teaching students how to write code, for repairing malfunctioning software, for producing similar software to run on a different system, for modifying a program for use on one's own computer, and for developing software that operates in conjunction with the original software. See Behrens - Levary 1999, 20.

work.[288] There is, however, a great dissimilarity between computer code and a descriptive literary work. The difference mainly lies in the expression of the computer program. A literary work is usually represented in the signs of language and is written, often on paper. A computer program, on the other hand, is represented in a special mathematical symbolic language. It may also be described as a code, with the form of expression called machine language.[289] Both of the expressions are thus based on some kind of language, where the representative elements are essentially the signs of a language used for communication. In this respect, the two languages are very similar.

There are, however, dissimilarities as well, ones which affect the restrictive character of closed code. One considerable dissimilarity is the *functional form* of these languages: the functionality of these different languages is completely different. Machine language is the driving force of a computer; it is the code on which the functionality of a computer is based. Code is the foundation of the *communicative language* of computers. Without that language a computer would be helpless, and it would not receive its essential working orders and instructions. Therefore, the code is *fundamentally communicative*, with communicativeness written into the code in its very origins. This is generally carried out in machine language. Another fundamental difference between a literary work and computer code has to do with the purpose of the two: a computer program is fundamentally functional and it is thus designed for directing the functions of a computer; a descriptive written work, by contrast, is clearly based more on *cultural values* and influences.[290] Artistic works are supposed to inform and impress more than provide directions.[291]

The restriction through a closed code has a direct effect on the functionality of communication. A computer program has a *clear functional meaning*, which means that it is supposed to direct the functions of a computer, or some other machine.[292] The functionality of a computer program thereby derives from its *internal structure*. In order to be functional and to process information, a computer needs code. Additionally, a computer needs instructions, which are used for carrying out its functions in order to make calculations fast and effective. To be able to understand the instructions a computer needs to get them in binary form, which means the combination of two values,

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288 See Haarmann 1999, 45. See also *Committee Report KM 1987:8*, 177.

289 See Haarmann 1999, 56.

290 See *Committee Report KM 1987:8*, 177. Haarmann 1999, 45.

291 This may be questioned by proposing a different way of understanding the process of reading in which reading is basically understood as a game played entirely by the reader. It is thus the reader who produces the meaning of the text. See Vaidhyanathan 2001, 9.

292 Thus, from the digital point of view there is no distinction between text, sound, graphics, photographs, music, animations, videos, or software. The only difference is that software is essentially active, whereas the rest of these works are passive. Computer programs are thus not only texts; they also do something. See Widdison 2000, 2.

0 and 1.[293] For this reason the instructions are usually written in a special language, called machine code. Machine code is binary in form, making it readily understandable by a computer. If a computer does not understand the language, it cannot operate. Operating instructions can be, and usually are, combined to solve a larger problem, or a series of smaller problems. This combination of instructions is termed a computer program.[294] Operativeness is thus controlled and restricted by a closed code.

2.3 Business models in the digital economy

2.3.1 Business as experiences

Business is communication and as such it is clearly designed to operate in the digital economy. Innovativeness is closely connected to business in the digital economy, where the competitiveness of an enterprise is often derived from its rate of innovativeness and its ability to create new products.[295] The focus of business in the digital economy is thus often on rapidness of innovativeness, as a competitive edge may often be improved only by continuously creating new ideas and innovations. Both the *knowledge of an enterprise* and its *information resources* constitute significant factors in its competitiveness.[296] Moreover, it has become more and more essential to protect business operations as extensively as possible.[297] This expanded protection must even be extended to include methods of doing business, mathematical formulae and algorithms for automating business functions, and software that implements key business transactions.[298]

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293 This is the essence of all digital information. See Plogell 1996, 13.

294 See Plogell 1996, 13.

295 Business methods in the digital economy are sometimes described only as designs that are applied in a new environment. Thereby, there may easily arise a question of the grounds on which a business method should be characterized as a protectable invention. Business methods may often be described only as the delivery of a method of organizing space. See Raskind 1999, 64.

296 The competitiveness of the overall European Union is considered to be based on competition at the level of private enterprises, where private investments operate as a driving force. See Kuronen 1995, http://www.gsf.fi/~kuronen/public/Bangemann.html

297 It is very common to protect customer lists and databases, brand names and logos, research and development, and work produced by employees. See Chandra 2002, 546.

298 Some of these protected business operations even lack industrial applicability. Industrial application would be utilized as a means to exempt them from the patent system requirements of social observation or human behavior. For example, methods of doing business as such lack the requisite industrial applicability. Business methods do not manipulate physical forces to produce or transform material objects. See Thomas 1999, 53.

Ideas as such are also crucial in business, particularly in the digital economy. The significance of ideas is due to *different values* being embedded in information. First of all, information is costly to produce, but cheap to reproduce.[299] Therefore, the price of information is rather relative. It is not possible or even reasonable to price information and information products according to their real production costs. The overall pricing process needs to be evaluated in terms of the coexistence of production and reproduction.[300] Pricing is in fact more likely to be founded on the *consumer base* than on the producer base. The price of information is generally defined through the value which the information has each time for each consumer. People often ascribe very different values to a particular piece of information. Using the consumer base for pricing information entails some further requirements. The rate of digital business is dependent on the nature of information as an *experience good*, which makes information even more intellectual than it is by definition.[301] This *intellectualization of information* makes intangible assets especially difficult to value. The valuation of information is linked squarely to its experiential character. Intellectuality makes it essential for the consumers to experience assets in order to value them. Information is *an activity* rather than a possessable object; that is, it is experienced rather than possessed.[302] Thus, in terms of its very essence information is a *communicational asset*.[303]

One fundamental factor in defining the character of information is its *virtuality*; i.e., in virtual terms any product is an experience good, which basically means that any product may be converted into such a good. For example, a magazine may be virtualized when, instead of being read, its content is experienced. Information differs somewhat from physical products in that it is an experience good every time it is produced or

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299 In other words, the production of information goods involves high fixed costs but low marginal costs. See Shapiro - Varian 1999, 3.

300 Information may be offered to customers at a very low price or even completely free of charge. The information vendor pays basically nothing for distributing additional free copies. For information goods, copies are free for the producer as well as for the consumer. See Shapiro - Varian 1999, 22.

301 Experience goods thus include many values that no classes of property are able to acquire. See Lessig 2004, 28.

302 See Shapiro - Varian 1999, 5. Information is like a life-form which consists of communicating with its surroundings. Information is a process and thus less like an inflexible object to be implemented in unchangeable conditions. This makes information a relationship that does not exist in isolation but rather is linked to its more fundamental meaning. See Czerniawska - Potter 1998, 223.

303 A good example here is computer games as they endeavor to offer experiences to the people playing, whereby they resemble fictional literature or films. Games have, however, one special character that is significant in the digital economy. They provide the players with something to interact with, creating an experience. See Manninen 2004, 19 - 20.

consumed.[304] This has two consequences when communicating information to consumers. First, one has to pay for something that one does not know beforehand. The payment is charged for information or, more likely, for an *opportunity to get to know* something. The communication of information is thus rather asymmetric. Second, information *conveys experiences*. Basically, this means that information has the ability to create experiences; it does not actually contain them. This is the core of the communicativeness of information.

2.3.2 Communication as strategies

Business strategies are rather closely linked to business ideas, which are generally the core of an enterprise. In this sense, for example, information security or data protection may be considered a business idea. Business overall is based on two fundamental elements that are closely related to each other but still describe business from slightly differing viewpoints. These are the *business idea* and the *business concept*. The business idea is the insight by which the enterprise finds its position in the market. Without a business idea, there is no trade, and thus no communication through the exchange of commodities. Communicativeness in the business idea suggests its significance in business. Business ideas are generally defined as the *source of functionality* in business.[305] The idea is thus not the end point of the inventive process but rather its beginning. Further, a business idea may be based on an innovation that can be exploited in the market. It may be simply the discovery of a certain market niche.[306] A business idea can also be called a *strategic innovation*, whose aim is to achieve a dynamic comparative market advantage in a certain market.[307] The business mission, for its part, defines why the

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304 See Shapiro - Varian 1999, 5.

305 A business idea and a marketing strategy are often described as the complementary elements of an enterprise's marketing model. See Timmers 1998, 4. A business idea answers the question "why" and does much to define the core of the business concerned. See Markides 2002, 17.

306 See Kokkonen 1993, 52. A business concept does not have to be unique in order to be usable. Other essentials elements in addition to the business concept are the strategic decisions made in the business and their realization. All these elements together then create the success of the enterprise. See Karlöf 1986, 29.

307 A strategic innovation may be connected, for example, to a particular clientele, with the strategic thinking applied to either identify new customers or resegment the existing customer base more creatively. The aim may also be to form some new customer segments. Often customer needs remain unchanged, but customer priorities change. For example, customers still need warmth and style in their overcoats, but, compared with thirty years ago, style has risen on the list of customer priorities. See Markides 2002, 24 - 25. Often this kind of innovation has created such advantage that the competitors have not been able to reach the leading enterprise. Often the competing enterprises tend to

enterprise exists at all.[308] In this task, it is essential to be able to recognize the needs of customers and to communicate with them. An enterprise's identification of its business mission and

business idea is based on its resources.[309] The most essential of these resources is the *enterprise's core knowhow*, which, given that ideas are the basis of knowhow, requires some intellectual investment.[310]

Creating and maintaining competitiveness depends crucially on strategic innovations. Competition is based on *communication between competitors*.[311] Strategic innovations have in fact been described as the behavior of actors competing against each other in the market. Strategy is thus a kind of *communicative game* where all market actions are fundamentally based on the communication between competitors.[312] Communication

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extend or expand their business concept into new business branches, an example being fast-food enterprises. See Ståhle - Grönroos 1999, 56.

308 The concepts *"business concept"* or *"business mission statement"* are essentially Anglo-American concepts. In Scandinavia we are more likely to speak about the *"business idea"*. Usually the business concept clarifies the justification of the existence of a certain business. It is also often a process which significantly clarifies the economic existence of an enterprise. See Karlöf 1986, 29.

309 Close to the business concept is the *business revenue model*, which describes the competitive advantage of an enterprise more precisely than the business concept alone. Business mission and business concept are often used as synonyms. Kokkonen 1993, 52. A business concept can also been described as a detailed description of the advantages of an enterprise. It consists of three elements and the relationships between them. These elements are market segment and the needs of it, products and services, and organization structure, which means the resources and knowhow of an enterprise and the way in which it operates See Räsänen 1994, 40.

310 Defining the core knowhow of an enterprise is not always simple. The core knowhow can be for example a certain technology, like *Honda* (core knowhow: motors of high quality) or *Apple* (core knowhow: architectures of operating systems). For more details, see Lokka - Möller 1994, 9.

311 According to *Constantinos Markides*, the strategic innovations emerge in this way: at a given time the mass market is served by a number of competitors. A new company spots a segment or a niche and goes after it. The existing competitors do not care because the company is not really taking customers away from them. They still keep control of the mass market. Given the way the new company plays the game in its little niche, it may not even be seen as a competitor yet. Then, suddenly the niche grows, and the niche company emerges as the new market leader. See Markides 2002, 27.

312 All the vital shifts in market share occur not necessarily because companies try to play the game better than their competitors but because they change the rules of the game. Exploiting the rules of an old game in a brand new way creates innovation in business. In this respect, business is always based on *business designs*. Two prototypical business designs are the *"make-and-sell"* model and the *"sense-and-respond"* models. The make-and-sell model is founded on the organizations predictions on the demands of market, producing the product, and going out and selling it. The make-and-sell enterprise relies thus on interchangeable parts and economies of scale. The sense-and-respond model, on the other hand, works through the clients 'desires. The sense-and respond enterprise describes itself as an adaptive system that is responding to unpredictable requests. It is further built

also takes place between enterprises and consumers. Communication between a marketer and market is essential for making something work in the market.[313] This communication on the whole is based on *strategic innovations*, where strategic innovativeness is founded on some change in a business.[314] Strategic innovativeness gives an enterprise a sharp *competitive edge*. Communicativeness as a strategic innovation is vertical as well as horizontal.[315] Verticality is illustrated in the breadth of innovativeness. Succeeding in developing a strategic innovation and thus gaining a sustained competitive position often gives an enterprise the possibility to exploit the strategic innovation in other sectors of the market.[316]

2.3.3 Business as relations

Business strategies may be carried out according to several different patterns. These patterns are generally described and classified as *business relations*. Business relations are fundamentally based on communication between an enterprise and its customers, which actually makes these relations characteristically communicative.[317] The most traditional

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around dynamically linked subsystems and relies on economies of scope. See Barabba 1998, 37.

313 Success in the market is often based on breaking the given rules. This is rather risky when coming up with new ideas and does not always guarantee success. It is one thing to get an idea but another to make it work. See Markides 2002, 13 - 14.

314 For example, *Henry Ford* was not the first to invent the assembly line but, instead, he came up with the idea that even the working class may act in a consuming role. The innovation was to change the income of the work force into demand for the items produced by this very same work force. Goods had traditionally been produced only for consumption by the idle class. See Pantzar 2000, 111.

315 Strategic innovativeness is based on communicativeness inside the sphere of market actors. This is why strategic innovation is basically founded on answers to three questions, which form up strategical levels of innovativeness; "Who is going to be the customer?", "What services or products should be offered the chosen customer?", and "How should these services or products be offered cost-effectively?" The answers to the who, what, and how questions form the strategy of any company. See Ståhle - Grönroos 2000, 66 - 67.

316 The answers to the question who, what, and how are determined by what that company thinks its business is. See Markides 2002, 15. The questions may also concern building the competitive advantage, positioning the company, the marketing mix or the product-market strategy to be followed. See Timmers 2000, 32.

317 A company that identifies such changing priorities, like relations, instead of needs, can reach a specific niche of customers. Similarly, a company can identify a specific customer segment that competitors are not currently serving. The reasons for this vary, but not necessarily because the companies do not know about the needs of those customers. They may have decided that the customer segment is not big enough to go after, or that they cannot serve this segment profitably. If a new company can serve this niche

relation emphasizes a product that is to be sold. Here, the view is product oriented or *object oriented*, with the principal focus on the goods to be marketed. An object orientation is useful when marketing mostly concentrates on products. The view is static and may not be applied directly to any communicative or dynamic business relations, as the overall view might become too narrow in focus. All products contain communication, which is generally embedded in them.[318] In this sense, products have been *informatized*. Goods are thus made more like intangible units.[319] On the other hand, information and its significance are brought into an object-oriented perspective by *commodifying* the information involved. Here, information becomes more like other tangible objects. At the same time the communicational basis of products has changed. Therefore, defining businesses only by the products to be sold may be too narrow an approach, one which might lead businesses astray.[320]

An object orientation is not a necessity when describing business activities. An alternative approach is to focus on the *customer function* that the enterprise is trying to fulfill. Such an approach places more emphasis on customer communication. The view thus makes customers the primary focus and at the same time encourages companies to *identify the underlying functionality* of their products. In other words, the static, product oriented view is tilted the other way, towards a more dynamic, function-oriented view.[321] It is strategically more significant to focus on customers rather than on mere products. In this context, the quality of products and services offered to customers depends on whether a company is able to serve its customers better or more efficiently than its competitors can.[322]

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efficiently, it has a new customer segment at its disposal. This is not because any new customer needs have emerged but because the company has found a more efficient way to fulfill existing needs. See Markides 2002, 25.

318 This may also mean that goods contain both material or objective information and common social language, or discourse. See Vähämäki 2002, 68.

319 Another good example of informatization is found in distribution. The distribution of products is called logistics. Logistics is not, however, only the distribution of concrete objects but is at least as much concentrated on communicating information about the objects being distributed. See Sakki 1999, 24.

320 Some examples of a product-oriented strategy are *Ford* in the car business, *Boeing* in the airplane business and *Philip Morris* in the cigarette business. See Markides 2002, 21.

321 By asking what benefits the customer really derives from a product, a company can identify its true value added and more precisely define its business. For example, instead of thinking of a certain business as a car business, it is better to think of it as a transport, or entertainment, or some other business, depending on the function its product fulfills. See Markides 2002, 22 - 23.

322 Overall customer satisfaction is actually a result of the enterprise's unique combination of assets and capabilities. All the capabilities of an enterprise are thus significant together. See Markides 2002, 24.

The third view of business strategies concentrates on the business *portfolio of core competencies*.[323] It is these competencies that enterprises exploit in business. The portfolio view is somewhat more dynamic than the views that concentrate solely on products or customers. The portfolio view is also more dynamic because of its communicativeness: a properly functional portfolio has to take into consideration the communicative part of a business in order to be functional. In other words, a portfolio is one of the communicative components of an enterprise.

2.3.4 Functional transactions

2.3.4.1 Simple electronic transactions

The digital economy is mainly based on developing network services. The most fundamental of these is *traditional electronic commerce*.[324] The core of the electronic economy lies basically in a rather broad description that consists of the production, advertising, sale, and distribution of products via telecommunications networks.[325] These operations of the digital economy also constitute the kernel of private governance. Three corresponding stages in the process of electronic commerce can be distinguished: searching, ordering and payment, and delivery.[326] The ways to engage in electronic commerce are various and thereby electronic commerce is generally defined simply as *doing business electronically*.[327] Basically electronic commerce includes the Web marketing of

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323 For example, *Sony* might say it is in the business of selling pocketability or portability. *Apple* might say that it is in the business of supplying user-friendliness. See Markides 2002, 22.

324 Electronic commerce may be interpreted widely or narrowly. In its widest sense, electronic commerce often includes any kind of transaction that has been carried out by using digital technology on open networks, closed networks, and credit or debit card transactions. Open networks are networks like the Internet, closed networks like the *Electronic Data Interchange* (*EDI*). See Hart - Chaitoo 1999, 912.

325 The most important communication service for e-commerce is the Internet. Access to the Internet and e-commerce is based on portals that act as connections and provide access to the Internet. Clients have thus become one of the most important assets of enterprises, and especially enterprises controlling portals. The holder/owner of a portal also controls access by clients and makes a profit from this. See Sakki 1999, 208 - 209.

326 See Hart - Chaitoo 1999, 912. E-shipping may include only Web marketing in order to promote the company and its goods. This basic model may then be augmented by a variety of possibilities to order or pay. See Timmers 2000, 35.

327 Electronic commerce includes the electronic trading of physical goods and of intangibles, such as information. Moreover, electronic commerce includes the provision of electronic services, or electronic support for collaboration between companies. See Timmers 1998, 3.

an enterprise, which in practice involves promoting an enterprise and its goods or services.[328]

Cyberspace is an effective instrument for channeling electronic commerce.[329] It represents a modern form of communication that is governed privately. Electronic commerce may include items that are delivered electronically to the purchaser over open communication networks (e.g., music) and items that are delivered through conventional distribution channels (e.g., books). On open networks, pay-per-view or pay-per-listen models depending on the content constitute the most traditional business models.[330] The communication network is mostly used for delivering content, such as concerts, plays, or movies produced by the entertainment industry. The pay-per-view model has also been used for some cable televison content deliveries.[331] Commercial activities included in these deliveries focus on the sale of products that may be advertised, ordered, and paid for electronically.[332]

Electronic commerce may be described in more communicative terms. I essentially combines the traditional marketing channels with electronic applications. However, the structure of electronic commerce resembles the design of traditional sales and is thus not as such any more communicative than traditional commerce. Communication needs to be carried out on a different basis, i.e., in the *relationship between the operating parties* to the sale. Since the Internet is an open communication system based on a certain common

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328 Here, an increasingly common addition is the possibility to order and pay electronically. Benefits sought for the enterprise are increased demand, a low-cost route to a global presence, and cost reduction in promotion and sales. On the other hand, e-business may be carried out as an e-mall, that is, a collection of e-shops basically enhanced by a common umbrella, for example, a brand. E-procurement is yet another form of e-business, offering electronic tendering for and procurement of goods and services. See Timmers 1998, 5.

329 For example, many Web servers have been developed through which vendors can advertise and sell products. This is basically founded on the distribution of products and the logistics connected to this includes mainly material management. See Sakki 1999, 23. The services available via the Internet fall into six categories: *one-to-one messaging* (e.g., e-mail), *one-to-many messaging* (e.g., mailing lists), *distributed messaging databases* (e.g., newsgroups), *real time communication* (e.g., chat), *real time remote computer utilization* (e.g., telnet), and *remote information retrieval* (e.g., www and Gopher). See Gulliksen 1999, 14.

330 It is thus control of these most crucial elements of electronic commerce that gives a powerful position to the holder of a patent - if these elements are patented as business methods. Patents may be granted, for example, for real-time credit/debit card processing, the use of electronic shopping carts and digital coupons and the ability to record and analyze user-browser histories. See Henderson - Kane 2000, 10.

331 In the area of music, old-fashioned jukeboxes are the best known example of a pay-per-view system. See Rosenblatt - Trippe - Mooney 2002, 26 - 27. Moreover, electronic commerce on open networks may be either complementary to traditional business or it may represent a whole new line of business. See Timmers 1998, 4.

332 These products may be delivered physically or electronically. See Hart - Chaitoo 1999, 912.

protocol, it has become a boundless environment for communications and electronic delivery. Commercial activities in fact provide the infrastructure that makes such transactions possible and economic incentives channel private governance through these transactions.[333] Electronic commerce is not a particular sector of the economy but may be applied across a large range of services. Clearly, there is no business sector that could not operate electronically.

2.3.4.2 The communicative balance of business models

A business model is generally defined as a combination of business activities. A business design includes the business relationships that are made possible by business activities in general and it is thus the totality of diverse operations carried out by an enterprise.[334] It includes the entire system of delivering utility to customers and earning profits from that activity. The functionality and operativity of an enterprises are embedded in a comprehensive system of activities and relationships, that together constituting the business design of the enterprise.[335] A company's business model thus indicates the means by which the company makes a profit by specifying where it is positioned in the value chain, or the value network.[336] In this respect, business models are closely related to methods of private governance.

A form of private governance the business model is commonly described in terms of information and the products and services associated with it.[337] Accordingly, the foundation of electronic business models lies in possibilities to manage electronic transactions. The majority of economic activities that are carried out entirely on the network constitute a combination of information, knowledge, and ideas that are digitizable and usable in various ways. Basically, a business model is an *architecture of product, service and information flows*. The architecture constitutes of a communicative governance structure which includes various business actors operating in different

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333 This includes in particular basic and enhanced telecommunications services. See Hart - Chaitoo 1999, 912 - 913.

334 An illustrative example of a business method as a consortium of business activities is *Amazon.com*'s one-click ordering model. *Juha Pöyhönen/Karhu* describes the one-click model as an example of an *agile contract*. One advantage of the agile contract is that it enables the governance of contracts through profiling. See Pöyhönen 2001b, 204 - 205.

335 See Barabba 1998, 35.

336 Today the value chains are increasingly described as *value networks*. The aim is not anymore to decrease costs but rather to produce as much added value as possible for a customer. See Haapanen - Vepsäläinen - Lindeman 2005, 25 - 26.

337 Business models are often considered products of the digital economy and e-commerce. See Rajala - Rossi - Tuunainen - Korri 2001, 18 - 19.

roles.[338] The overall view of a business model is that it is internally communicative; it is based on the electronic impulses involved in delivering the digitized products that constitute the physical basis of a service transaction.[339]

Business models are based more on *customization* than on marketing. This means that it is no longer enough to minimize the purchase price in order to succeed in competition. In other words price is only one element of the overall value when striving to optimize the financial performance of the entire business. Competitiveness more likely requires a focus on *customer communication*.[340] The communicative basis of customization is capitalized differently than that of marketing in a purely price oriented approach. Pricing requires information about customers and their individual buying habits and motives, with this information best obtained directly from the communicating customers.[341] It is therefore significant to consider a customer as a constant part of the enterprise value network. Customer loyalty then creates economic incentives to maintain private governance through business models based on customer communication. In sum, one essential factor in building up a sustainable business model seems to be to concentrate on customers.

Customer information and continuous communication with customers constitutes the essence of marketing and creating business models.[342] A good example of governing client information is *usage metering*. Usage metering is a means to monitor and charge for the consumption of many immaterial utilities. Usage metering works well with electricity, or water, or other utilities that are consumable and measurable like them. Digital rights management technologies also work well with metered usage pricing because they are capable of measuring and reporting to a server precisely what the user is doing with the content. The technologies are also applied to things other than pricing. Observing what a customer is doing with one's content helps one determine which particular content items users find most interesting. This allows a business to perform tasks such as

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338 To become completed the definition must also include a description of the potential benefits for the various business actors, and a description of the sources of revenues. See Timmers 2000, 32.

339 Some electronic activities being handled completely on the Internet are, for example, the capacity to browse search, order, and pay for selected goods and services. See Hart - Chaitoo 1999, 915.

340 See Benkler 2000, 562.

341 See Shapiro - Varian 1999, 53 - 54.

342 Characterizing the customer population and identifying different customer groups create some essential competence in congregated market places. See Rajala - Rossi - Tuunainen - Sorri 2001, 30.

improving its editorial selection process or steering advertisers towards more highly trafficked content.[343]

2.3.4.3 Networking

The communicative balance of a business model is based on governing the different communicational patterns within the model. A business model therefore requires that different information streams be combined in order to communicate properly. A business model can be conceived of blend of *three overlapping and interlocked streams* that are crucial in business. The communication between buyers and vendors is tightly structured through *value streams*. These streams are in one way or another, based on communication and the communicative relationships being built through cooperation. These critical streams, more precisely *key business processes*, make the communicative structure very much part of any modern business model.[344]

The second crucial stream - *revenue* - is more or less fixed inside the company, although it is also part of the communication realized between an enterprise and its customers. The perspective here is nevertheless company oriented, inasmuch as revenue is still the primary focus of any company. The third instrumental stream has to do with information flows and is called the *logistic stream*.[345] In the digital economy, information logistics is one of the main focuses of any enterprise because of the great importance of information, ideas and innovativeness. These essential elements are the main factors in a sustainable business model and in its competitiveness in the digital economy. Variance in business models is fundamentally bound to the changing balance between these three critical streams. Networking is in these cases carried out between enterprises. Good examples are a furniture store *IKEA* with its purchase networks, or *Nokia* by keeping its brand, R&D, and customer management but at the same time establishing network relations in distribution and manufacturing.

The communicative balance of business models can also be seen in networking.[346] Traditionally, sales have typically been based on a cooperative relationship between one seller and one buyer, with the essential communicational structure based on the simple

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343 Usage metering is valuable especially for video content to see how people are viewing video clips and which segments are the most popular. Textual contents is the other popular group. See Rosenblatt - Trippe - Mooney 2002, 28 - 29.

344 This applies at least to the companies operating on the Internet. See Rajala - Rossi - Tuunainen - Sorri 2001, 19.

345 See Rajala - Rossi - Tuunainen - Sorri 2001, 19.

346 Networking is actually founded on mutually connected business relationships where there also exist certain chain dependencies between relationships. This may be called *indirect connectedness*. See Håkansson - Snhota 1997, 19.

value stream of this relationship. The structure must, however, be adjusted slightly when the number of actors either sellers or customers increases.[347] A network effect occurs when individual users of a product gain value from others using the same product.[348] As a result of the network effect the critical mass of customers will be rather exponential, which is unique to the environment of Web services.[349] It thus becomes profitable to attempt to gather as many potential customers as possible. These complex marketplaces take the form of e-malls, mega-marketplaces or simply e-marketplaces.[350] They are conceived of as rather cooperative and therefore their purpose is not only to encourage a simple sale but to stimulate communication. Basically, an electronic mall or an e-marketplace consists of a collection of e-shops that have built a common site on the Web. These shops are usually promoted under a common umbrella, which might, for example, be the use of a well-known brand as a trademark.[351]

The network effect suffers slightly from the isolated position of customers who communicate simply through communicative relationships with the marketplace, that is, vertically.[352] This vertical communication seems to work adequately, but *horizontal communication* is also needed if a vendor and customers are to become a complete and

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347 Networking in this sense is decentralized; that is, it does not have a certain defined center, nor any clear boundaries. Networking is thus founded on the *chain effect* that results from connectedness. Accordingly what happens in one business relationship then affects another one, with a change in one relationship propagating through the network. The chain effect is not automatic or deterministic but occurs when transmitted by at least some of the actors. See Håkansson - Snhota 1997, 19 - 20.

348 The network effect may, for example, increase the favor of a certain product among consumers. See Shapiro 1999, 93 - 94. Here the converse is found in marketing, where the pure open architecture strategies are only the second best alternative. The best way for the platform owner to introduce a new platform technology might thus be to make it profitable for a large number of unidentified enterprises to develop compatible hardware and software accessories. See Lichtman 2000, 618.

349 Many of the electronic marketplaces have a common Web page which is used as the starting site for the Web services. This is also how these service providers get customers. See Järvelä - Tinnilä 2000, 64 - 65.

350 The purpose of these marketplaces is to encourage as many customer relationships as possible. See Timmers 2000, 36. For more marketplace models, see Mercer Management Consulting, White Papers
http://www.mercermc.com/Perspectives/Whitepapers/Commentaries/Comm00BeyondtheExchange.pdf

351 An e-mall operator would not have an interest in an individual business that is being hosted. Instead, the operator may be seeking benefits in enhanced sales of supporting technologies, or benefits in servicing, or advertising space and/or brand reinforcement. For more details, see Timmers 2000, 36 - 37.

352 A network structure as a form of organization differs from a hierarchy in which components are assumed to be invariably linked. Accordingly, it is also different from the market as a form of organization generally assumed to be an atomistic structure. See Håkansson - Snhota 1997, 20.

genuinely networking community.[353] This mainly requires communicative relationships among fellow clients in addition to co-existing horizontal communication. The communicational structure of networking business is thus somewhat *more complex* than that in two-party relationships. This complexity further affects private governance and its organizing power. Marketers and their audience are still communicating, but the network architecture needs to be enhanced and governed continuously. The network effect is thus never complete.

Another good example of networking enterprises in the digital economy is *virtual enterprises*. A virtual enterprise is generally described as a form of cooperation among several legally independent enterprises that produce services based on a common business understanding.[354] Most of these enterprises are founded on the principle of modularity.[355] The key element in a virtual enterprise is *partnering*, rather than staffing up. Partnering is rooted in the core competencies of an enterprise, which are then further joined with those in other companies.[356] The most important task for a virtual enterprise is hence the capability of forming alliances and modifying operations accordingly.[357] On the other hand, a usable innovation may be brought about the end-users. Here, an illustrative example is an *SMS* (*Short Message Service*) for sending short text messages to mobile phones. SMS is an innovation prompted precisely by the users of mobile phones.[358]

2.3.5 Informational restructuring

2.3.5.1 The independent significance of communication

Communication changes the significance of information. Accordingly, when the structure of business activities is to be renewed, the traditional foundation of the customer-vendor

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353 For example, the vast majority of new technologies today are generated within corporate structures. See Suarez-Villa 2001, 14.

354 See Pöyhönen 2002, 581.

355 A virtual enterprise has several advantages. It may be advantageous, for example, when adapting to the increasingly global competitiveness of the market, producing shorter product lifecycles or IT-enabled opportunities, or when adopting new organizational forms. See Gallivan 2001, 280.

356 This is the very essence of making enterprises virtual. As the traditional organizations break down, the walls *between* organizations are falling too. See Tapscott 1996, 85.

357 This kind of business model is introduced even by some enterprises operating in more traditional ways. For example, *Nokia* has modified its operations towards a more project-oriented operational frame. See Tervo 2004, 108.

358 Originally SMSs were used only for the purposes of network maintenance. It was thus end-users who ultimately made a SMS a killer application. See Tervo 2004, 164.

relationship needs to be restructured on a different communicative basis where information is concerned. This is use of information conflicts with the traditional one. The shift towards informational restructuring has emerged with the increased significance of information in the digital economy and the information-oriented character of the economy. Information has traditionally been a mere representation of something else, i.e., *recycled information* concerning something, and therefore in itself, has traditionally been considered lesser in value than what it represents.[359]

The traditional form of communication, even if it was founded on information and communication, was rather narrow. There was not very much interactivity: rather, the communicative model was based on a clear ownership strategy.[360] As such the system was rather *centralized* and *closed*. Communication was mainly based on one moderator at the core who was clearly considered the owner of the information. As such an ownership strategy as the anchor of private governance is simple: it is clearly based on the theoretical foundation of ownership in general, where the owner has the privilege of deciding on the use of the object owned. This applies to information as well: only the owner of information is able to decide on the importance of the information and on making it available. Yet, given that a high degree of interactivity constitutes at least part of the significance of private governance as the core of business operations, private governance needs to be structured in a more functional way than traditional governance. Centralized communication namely *impoverishes the communicative structure*. Control remains under the power of only one actor, the owner. This is also where the biggest problem lies: information does not always have equal value for everyone and its value may also vary according to the other information in the marketplace.[361]

The value and significance of information is thus *variable*. This is why it is impossible to know or define it beforehand. Moreover no one can estimate its value when it is *combined with information* from elsewhere in the business.[362] This can be illustrated by examining information and its significance from a slightly different viewpoint. One stable way to design an e-business is a *model that offers solutions* and this

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359 For example, an electricity bill shows how may units have been used and how much one has to pay. See Czerniawska - Potter 1998, 40.

360 This is the traditional method of sharing knowledge. This was also the only method that organizations could adopt when their knowledge assets were kept in the physical domain. See Czerniawska - Potter 1998, 198. This obviously applies also information.

361 See Czerniawska - Potter 1998, 198 - 199.

362 This is also found in the different types of innovations. Some innovations are *autonomous*, meaning that they can be developed independently from other innovations. On the other hand, some innovations are *systemic*, meaning that their benefits can be realized only in conjunction with related, complementary innovations. See Chesbrough - Teese 1998, 28 - 29.

model is clearly based on the shift in the importance of information.[363] The traditional way to establish competition is to keep information incomplete, but in the solution-offering model consumers have the opportunity to get as much information as they want. The *offering of information* is thus the main idea of the model. The focus is on supporting consumer choices. The model overtly combines products and services with information and in this way allows the customers themselves to make more informed decisions. The *shift in the informational structure* is clearly recognizable in this development. It has very much to do with the fact that information about an object can now be separated from the object itself giving the information a *value of its own*.[364]

Digital business models are closely linked to *interactivity*, which clearly changes the informational structure of business actions.[365] The more information there is available, the more active consumers need to be, with the communicative structure of giving and receiving information definitely playing a crucial role. The strategy of *sharing information* in these cases is called a pull strategy; i.e., those who want to access a piece of information pull it to themselves.[366] Information is produced and communicated in various ways and investing in searching for information makes it possible to provide different information to different consumers in addition to combining sets of different information and different products.[367] Information is then arranged around communities of common interests, with the users themselves selecting where they wish to place information and which communities they wish to access.[368] Information and the

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363 See Beyond the exchange: Promising business models for the next round of B2B e-commerce. Mercer Management Consulting, White Papers http://www.mercermc.com/Perspectives/Whitepapers/Commentaries/Comm00BeyondtheExchange.pdf

364 See Czerniawska - Potter 1998, 40.

365 Business actions as business strategies may, for example, be bound to open source software since enterprises are generally able to make profit by distributing the open source software. They may add value to the software through additional proprietary products or by bundling it with their own products. See Bergquist - Ljungberg 2001, 308. Open source software has sometimes even been considered as a kind of *virtual organization* where the context and the processes allow the agents to coordinate their work effectively. See Gallivan 2001, 284.

366 *Pull strategies* require well-developed information sources, wide and indexed databases of information, selected software and hardware, procedures designed to ensure the acquired and updated information, systems that ensure user availability, and the monitoring of proper functionality. The opposite is *push strategies*, where information is arranged around communities. All these communities have common interests with regard to the information. See Czerniawska - Potter 1998, 200 - 201.

367 See Czerniawska - Potter 1998, 163 - 164.

368 Strategically this is defined as a push strategy. This model was used by the early Internet users, who banded into different communities of interest. People wishing to find out about a topic could scan the list of available groups and select those that they wished to subscribe to. See Czerniawska - Potter 1998, 203.

gathering of it are thus based on *interactivity*, the communication itself being interactive. From the viewpoint of the consumer this resembles closely a *flood of information*, which in practice requires his or her active participation.

The difficulty in *managing the flood of information* lies in identifying which group should be set up.[369] The information cannot be delivered to everyone and, moreover, the whole community is not interested in the same information. Information is thus relative and diverse interests are linked to the relevant information. In adhering to functional lines, however, there is a risk that cross-functional opportunities will be lost. For example topic-oriented approach might lead to a quite haphazard process in which individuals are misled in looking for information matching their interests. Information includes thus a relative value that is generally associated with *commodified information*.[370] Information itself has thus become a consumable commodity due to the replacement of material streams by informational streams that are characteristically intellectual.[371]

2.3.5.2 A sifting communicative balance in the value chain

The digitization of the economy is changing the information delivery structure, and the digital economy has caused direct modifications to business models themselves. This has altered the balance of the sales prototype from the traditional exchange between a trader and a purchaser. The traditional business model needs to be changed in one way or another if one examines the traditional value chain from a slightly altered perspective.[372] The modified view of the value chain is due to a slightly different interpretation, reflected as a shifting balance in and the evolving structure of communication.[373] A good example of this is peer-to-peer (p2p) delivery as a business model.[374]

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369 See Czerniawska - Potter 1998, 203.

370 Basically, this means that the information needed will be retained for use at the optimal costs. Further, the information produced inside the organization is shared in an economically optimized sufficiently effective way. See Pöysti 1999a, 202.

371 This concerns information logistics, which connects information processing, information management, and data system and data communication architectures. See Pöysti 1999a, 202.

372 Often we speak about the restructuring of value chains. Mostly this is due to more effective operations, widening the service base, updated information spreading, and customer-based additional services. See Järvelä - Tinnilä 2000, 75.

373 The value chain was essentially based on the distribution of products. The prototype of distribution was the process from buying from producers to selling through distributors. See Haapanen - Oksanen 1986, 9.

374 For example, *Napster* was a solution based on peer-to-peer communication that is fundamentally based on meta-information. By these means, the information producer and the end-user are brought into mutual communication, with the service provider only

Business models on open networks are mainly based on their success in *delivering digital content*. Success is necessary in two senses. On the one hand, it is needed for establishing a market and on the other for satisfying consumer requirements. In the digital framework this is generally realized by restructuring the communicational balance, one way to affect it being simply to *ease communication within the value network*. This is accomplished by changing the relationships of different stakeholders. An illustrative example of this is an electronic auction, which offers an electronic implementation of bidding mechanisms.[375] E-auctions may offer integration of the bidding process with contracting, payments, and delivery and, at the same time, benefits for the supplier and buyers in the form of increased efficiency and saved time.[376]

An e-auction is a good example of a business model in the digital economy in another sense as well: it is based on *two different forms of communication*.[377] One, bound to the price, is further based on *incompleteness*. It is never sustainable to reveal the price one wants for something or that one would be willing to pay for something. Concealing the best price, and thus concentrating on maintaining different prices for different customers, usually brings the best profits.[378] The other is *transparency*, which is primarily based on the identification of traders. The identity of a seller is important for two reasons: first, bidders care about the reputation of the seller for describing the product accurately and for delivering it as promised. Second, sellers may have special knowledge that makes buying from them dangerous.[379] The terms of bids, on the other hand, reveal the prices offered by the other bidders.[380] The overall process of an e-auction is based on both transparency and incompleteness, like most of the transactions of digital economy. In digital transactions, transparency and incompleteness are also the essence of private governance, in contrast to the public consumer-protected view.

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producing information about services. See Still 2002, 294.

375 One kind of e-auction is now patented by *Priceline.com* (U.S. pat. 5,794,207).

376 There is no need for physical transportation until the deal has been established. Sources of income for suppliers are reduced surplus stock, better utilization of product capability, and lower sales cost overhead. See Timmers 2000, 37 - 38.

377 The infrastructure of an e-market has four main parts: ways for trading partners to find each other, communication facilities and protocols for working out deals, legal enforcement of contracts resulting from the deals, and a communication system to tell other traders about the deal. See Hall 2001, 14.

378 See Hall 2001, 11 - 12.

379 See Hall 2001, 28.

380 Finally, transparency may be sought by keeping the terms of deals transparent. See Hall 2001, 30.

2.3.5.3 Communication at the level of networking

The balance of traditional business models may be sliding towards *implementing the basis for all revenue differently*. Competition is not necessarily focused only on simple reciprocal relationships between individual actors, each of whom is acting alone on his or her respective side. Electronic tendering and procurement of goods and services bring in some possibility to choose from a greater number of suppliers.[381] In these cases the change in the balance is due to the significance of information, with the whole value chain becoming virtual, i.e., *a virtual value chain*. In a virtual value chain, it is information that has most greatest significance. Moreover, products at each level of the value chain may be converted into virtual ones. In other words, each stage of the process is capable of producing information products.[382] This changes the communication throughout the value chain by implementing variations in the value chain itself. Multiple steps in the value chain may be integrated in order to exploit the information flow between those steps as further added value.[383]

Further, the communicative balance in the overall value chain may be altered by leaving the *marketing to a third party*. Essentially, this means that the value chain will not be completely integrated by only two dominant players. In other words, the basic schema of two cooperating actors is changed through the addition of an extra operator. Third-party marketplaces thus complement the existing two-party channels, modifying conventional dualistic communication.[384] Further, the value chain may prompt *otherwise separate parties to operate together*, shifting communication more towards varied balancing within the value chain.[385] This takes the form of allowing customers to configure their product or service from a variety of different options; i.e., they are given an opportunity to describe exactly what they want.

Electronic actions offer an illustrative example of networking, too. E-actions are closely related to business models where all the players in a value chain are integrated

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381 See Timmers 2000, 36.

382 See Korpelainen - Lampikoski 1998, 176 - 177.

383 Value chains may also be moderated by value-service providers. These are specialized in several functions for the value chain. The functions may be, for example, electronic payments or logistics in which revenue comes from consultancy or transaction fees. See Timmers 2000, 39 - 40.

384 They are additional to on-line channels. See Timmers 2000, 39.

385 This is called choice board customization, see Mercer Management Consulting, White Papers
http://www. mercermc.com/Perspectives/Whitepapers/Commentaries/Comm00BeyondtheExchange.pdf

and become interdependent. The system rests on a tight core and an operating network that is supported by that core.[386] These interrelated hubs then further assimilate players all the way along the value chain into joint communication and transactions. The value chain itself becomes communicative and thus functional as a network. These networking consortia are founded on a hub as a common operative core. The networking communities may, however, also operate without any hub as their basis, in which case they are simply called *virtual communities*.[387] The ultimate value of a virtual community comes from its members, who add their information to the basic framework.[388]

2.4 Patenting software

2.4.1 The significance of a software patent

Private governance is essentially based on governing the natural business value chains, motivated by the economic profit to be had from governing those value chains. This characteristic pattern has, however, a tendency be modified by public governance, which takes the form of patenting or copyrighting software. The core element of software protection is the computer program. A computer program or computer software may be defined in terms of several elementary parts that make up the functional totality of all software-based inventions. Four elements are typically distinguished. First, a software application includes *source code* that is written by programmers in a high-level computer language. Source code is translated into *object code*, which is a machine-readable version of the source code. The most controversial part of a software application is the *algorithm*,

386 For more on the hub model, see Mercer Management Consulting, White Papers http://www.mercermc.com/Perspectives/Whitepapers/Commentaries/Comm00BeyondtheExchange.pdf

387 Communication in the networks is also provided through organizing collaborating platforms. These provide a set of tools and an information environment for collaboration between enterprises. This can then focus on specific functions, such as collaborative design and engineering or project support to a virtual team. See Timmers 2000, 38.

388 The fundamental framework of a virtual community is provided by a company operating the virtual community. A virtual community is often also an important add-on to other marketing operations in order to build customer loyalty and receive customer feedback. The members of a virtual community are often customers or partners. Business opportunities lie in managing the platform and in selling the specialist tools, with managing the platform mainly consisting of membership, or usage fees. Selling the specialists tools consists of designs, workflow, or document management. See Timmers 2000, 38 - 39.

which is a sequence of instructions represented in the computer code.[389] Finally, a program consists of a *"look and feel"* that inspires the way the program appears on the screen and interfaces with users.[390] Software is thus rather complex and because of its abstractness it is also relatively complicated to represent it in any clear two-dimensional form.

Software is the fundamental element of a computer system. A computer consists of both hardware, that is, the equipment itself, and software, which includes operating instructions for the machine.[391] Both components are usually protected in different ways and all of the interests, i.e., those of right-holders, their competitors and users of the computer programs, generally need to be taken into consideration.[392] In software protection, patent and copyright are hence considered *complementary forms of protection*.[393] Copyright protects the computer code itself as a *code language*, whereas a patent protects the *functional technical ideas* and principles.[394] These forms of protection are employed accordingly and together they constitute complete protection for computer programs.[395] The legal protection thus comprises two complementary approaches.[396] This protection is cumulative in the sense that the exploitation of a particular program may infringe both

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389 The arrangement of commands as the core of an algorithm may be presented in either the source code or the object code. See Bynum 1998, 284.

390 See Bynum 1998, 284. Further, a computer program may be broken down in terms of six parallel levels of declining abstraction: the main purpose, the program structure or architecture, modules, algorithms and data structures, source code, and object code. See Derclaye 2000, 59.

391 The brains of the operation, i.e., the algorithm, is thereby divided from the brawn, i.e., the hardware. See Kerr 2002, 48. It is precisely the expansion of the Internet that has brought about some fundamental changes in both the hardware and software industries. For example, innovation and value chains have been fragmented, moving towards differentiated and more modular patterns. See Holtgrewe - Werle 2001, 55.

392 Moreover, all these interests ought to be preserved in parallel. Accordingly, they should be balanced. See *COM (2000) 199 final*, 5.

393 This is the view in Europe. See *COM (2000) 199 final*, 19. Parallel protectability through copyright and patent may even diminish the need for completely new sui generis protection for computer programs. See Amper 1998, 13.

394 Copyright would be utilized as a form of protection for computer programs that do not satisfy any requirement of a technical character other than that they process data. See Klami - Neejärvi 1997, 593.

395 A computer program is often typically manufactured as a collaborative effort of several programmers. *Horizontal cooperation* consists of a series of parallel tasks realized by a programmer or a group of programmers. *Vertical cooperation* is carried out by building on the work of other programmers. See Koivumaa 1995, 130 - 131.

396 See Tepora 2004, 195.

the copyright of the computer code and the patent covering the underlying ideas and principles.[397]

The main rule in the protection of computer programs and software is to protect them as *literary works*.[398] This is accomplished through exclusive rights by copyright, with copyright operating as a form of public governance.[399] Copyright does not, however, protect any ideas or principles, which nevertheless are the most significant element of a program. Thus the fundamental kernel of a software application may easily be excluded from copyright protection. On the other hand, expression may be used as an idea.[400] This occurs in practice by creating something merely only by exploiting the idea embedded in the expression.[401] This is not, however, the only loophole where the protection of software is concerned. Namely, copyright disregards the original work of the

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397 See *COM (2002) 92 final*, 8.

398 This is the main rule of the *Berne Convention*, article 2. A similar set of provisions is included in the *WIPO Copyright Treaty*, article 4 and *TRIPS Agreement*, article 10 (1). At the level of the European Union, the copyrightability of computer programs is based on *Directive 91/250/EEC of the European Parliament and of the Council of 14 May 1991 on the Legal Protection of Computer Programs* and in Finland on *Copyright Act 1§*. *Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the Harmonization of Certain Aspects of Copyright and Related Rights in the Information Society* does not change this. In the United States, computer programs were outside the scope of copyright protection until 1976. This was based upon the reasoning of *White-Smith Music Publishing Co. v. Apollo Co.*, 209 U.S. 1, 28 S. Ct 319 (1908). The Supreme Court of United Sates held that since the expressions contained in piano-player rolls were not directly obvious for humans and because the underlying work could not be directly reproduced without the aid of a machine, the piano-rolls were considered not to be amenable to copyright protection. See Koepsell 2000, 61.

399 Additionally, the person having the right is specified. Restricted acts generally require the authorization of the right-holder whereas acts which do not constitute an infringement are determined. The conditions for the protection of the program are defined. See *COM (2000) 199 final*, 6.

400 The difference between expression and idea is the one of the focuses of copyright today, even in the area of software. The difference is most problematic in the branch of knowledge products, where it is essential to be able to distinguish unprotectable ideas from protectable expressions. Fixing this boundary is actually rather significant for the information industry. See Bobko 2001, 67.

401 This is carried out, for example, by using the melody as a beat, and as such an element of the rhythm. This is used in sampling, which is thus mainly claimed to be only transformation. See Vaidhyanathan 2001, 145.

programmer almost totally.[402] Owing to the character of software with its several levels of originality and authorship.[403]

The kernel of a software application is based on a *mathematical algorithm* that constitutes the core of the software.[404] An algorithm is generally simply defined as a formula or set of steps for solving a particular problem.[405] It is also described as a detailed sequence of actions that are further intended to perform a specific task. It is the mathematical algorithm that is the most sensitive part of the computer software where protection is concerned. An algorithm is not necessarily a technical in nature; it may form part of non-technical processes as well. An algorithm may underlie either a computer-implemented invention or an invention relating to a conventional machine or the process carried out by that machine. Thus, an algorithm often constitutes a crucial part of even mechanical or electrical machines, but software differs from these in one respect. An algorithm is the most crucial part of a piece of software in that a computer *program is executed by instructions* directed to the computer by algorithm. A conventional machine operates though its mechanical or electrical components; the functionality of a machine is thus not achieved by an algorithm.[406]

The technical nature of a computer program generally operates as the basis of public governance through patenting. The patentability of software is thus based on patenting an algorithm. A software patent converts ideas into inventions, the fundamental purpose of commodifying ideas in this way being to treat them like all the

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402 Software is rather distinct from other fields of research and development. Traditionally software development was considered a craft or an art. Software is nevertheless rationalized in commercial industries, where it still counts as knowledge work. It is thus an interpretative process of creative problem-solving. See Holtgrewe - Werle 2001, 49.

403 This applies very much to knowhow, especially when software is transferred to a new owner. The transfer of a new machine in its conventional sense may be carried out by transferring only the machine and leaving the knowhow involved in manufacturing this machine out of the transfer. Software cannot, however, be transferred in this way, since anyone who comes into possession of a computer program has all of the manufacturing knowhow with it. See Reichman 1994, 2517, especially footnote 453.

404 A computer program as a term may describe a large range of examples. It may thus either be described as a basic algorithm capable of application, or then it may be described as indefinite number of some more specific uses to detailed instructions for the solution of particular problems. See Cornish 1996, 181.

405 An algorithm is a formula or set of steps for solving a particular problem. To be an algorithm, a set of rules must be unambiguous and have a clear stopping point. We use algorithms every day. For example, a recipe for baking a cake is an algorithm. Most computer programs, with the exception of some artificial intelligence applications, consist of algorithms. See Webopedia http://www.webopedia.com/TERM/a/algorithm.html

406 See *COM (2002) 92 final*, 7.

other commodities in the market.[407] Patentability is based on the overall patentability of inventions. The views of patentability vary somewhat in Europe and the United States and the fundamental difference lies in the *technicality of an invention*. In Europe an invention must make a technical contribution.[408] Inventions are generally protected through a patent only when they satisfy three contextual prerequisites: *technical character*, *technical potency*, and *reproducibility*.[409] It is thus essential for a patentable invention offers a solution to a technical problem. An invention must also be *industrially utilizable*, *novel*, and *inventive*.[410] A computer program as such is not generally a patentable invention.[411] On the other hand, a computer program can be patented as part of another invention, whereby the program gets *indirect protection*.[412] In Europe, software is thus considered patentable only as part of some additional physical application.[413]

The European Patent Convention *EPC 52 (2)* in fact denies the patentability of computer programs. Computer programs *as such* are defined as not being inventions and are accordingly excluded from patentability.[414] An invention may be patented if a

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407 Computer software has not always been a commodity; rather it has generally been treated as a public good. Only the diffusion of workstations and personal computers made software to turn into a valuable private good which can be treated separately from hardware. See Holtgrewe - Werle 2001, 43.

408 The third powerful actor in the global market is Japan. In Japan there is a doctrine similar to the one in Europe. An invention has to be a highly advanced creation of technical ideas by which a law of nature is utilized. See *COM (2002) 92 final*, 5.

409 It fulfills the requirement of technicality if a program has the *potential* to produce a technical effect when loaded and run on a computer. See *EPO T1173/97* and *EPO T0935/97*.

410 Technological qualifications, i.e., technical character, technical potential and reproducibility, constitute only a part of the industrial utilization of an invention. See Klami - Neejärvi 1997, 590.

411 The main rule in protecting computer programs in Finland is to copyright them. The copyright of a computer program excludes, however, the ideas and principles that constitute the fundamental basis of the computer program. See *COM (2000) 199 final*, 20.

412 The investigation of patentability is generally carried out with regard to the invention as a whole. This is also how a computer program can be patented when the invention as a whole is technical enough. See Klami - Neejärvi 1997, 590 - 591.

413 This was precisely the implication of the *Freeman-Walter-Abele Test*. Under that test the mathematical algorithms in question were required to be applied to or limited by physical elements or process steps. See Quinn 2002, 142.

414 EPC 52 (2): "The following in particular shall not be regarded as inventions within the meaning of paragraph 1:
(a) discoveries, scientific theories and mathematical methods; (b) aesthetic creations; (c) schemes, rules and methods for performing mental acts, playing games or *doing business*, and *programs for computers*; (d) presentations of information. See accordingly in Finland, *Patent Act 1§*. (Italics added here.)
See http://www.european-patent-office.org/legal/epc/e/ar52.html#A52.
The unpatentability of computer-implemented inventions is to remain in Europe given that the European Parliament dismissed the proposal for patentability of computer-

computer program is part of it. Technicality is thus one central element in providing any public governance of software by patenting it. When run on a computer all the programs are definitely technical because a computer is a machine.[415] An invention may thus be patented when it augments the existing technology with some technical contribution.[416] It is thus fundamental for all inventions that they have a technical character, i.e., an invention has to belong to a *field of technoloy*.[417] On the other hand, even in Europe an invention that is otherwise patentable may not be excluded from protection merely because it uses a computer program.[418]

In the United States an invention need only fall into the category of technological arts, with no technological contribution is required. The difference between Europe and the United States thus lies in the requirement that in Europe the patentability of an algorithm is closely bound to the prerequisite of physical structure as the core of patentability.[419] The unpatentability of software is nevertheless the main rule in United States as well and it was fundamentally stated by the United States Supreme Court in *Gottshalk v. Benson*.[420] The core of the case was a patent sought for a mathematical

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implemented inventions (COM 2002/92 final) in the beginning of July 2005.

415 As such they are, accordingly, patentable inventions. See *EPO T 0931/1995 Controlling pension benefit system/PBS*.

416 This, however, diverges from the patentability of business methods in the USA and Japan, where it is possible to patent even some non-technical inventions. These inventions only have to have great economic significance; there exists no prerequisite of technical investment. See *COM (1999) 42 final*, 13 - 14.

417 See also *TRIPS*, article 27 (1), according to which patents must be available for inventions in all fields of technology.

418 See *VICOM T208/84*, [1987] 2 EPOR 74 and VICOM's application [1987] 2 EPOR 74, 80 - 81. The VICOM case concerned hardware and a computer program which together would digitally process images in a sophisticated way. The hardware and software were thus combined and the invention was not a computer program as such. See Lambert 2000, 8. It was not sufficient that mere changes in the physical state of hardware were produced. In relation to software making a technical contribution to the internal workings of a computer, this was thus not enough, but there was still a requirement of *further technical effect*. Thus, a patent may be granted in every case where a program for a computer is the only means, or one necessary means, of obtaining a technical effect. See *IBM twin cases T 0935/97* and *T 1173/97*. See IBM's application [1999] RPC 861 - 871. See Widdison 2000, 5 - 6.

419 Software was thereby used to control the patentable electronic circuits and it was considered as patentable as those circuits. Software was thus as industrial in character as the more traditional technologies. An increasing number of computerized processes have been eliminated, or at least obscured, the demarcation line between patentable and non-patentable processes. See Thomas 1999, 13.

420 Software algorithms could therefore not be patented. See *Gottshalk v. Benson* 409 U.S. (1972).

algorithm, which was deemed as unpatentable.[421] The landmark case in this respect was *In re Alappat*, where a federal circuit court considered a programmed computer to be a patentable invention.[422] Programing alone, i.e., complementing a computer by software, was enough to convert it into a new machine and as such an invention. Thus, the mere fact that an invention uses a computer or software makes it part of the technological arts, with all that is needed for patentability being that the invention provide an *"useful, concrete and tangible result"*.[423] An invention that provides a useful, concrete, and tangible result is patentable and the existence of an algorithm as part of the invention will not make it unpatentable per se.[424]

The peculiarity of patenting mathematical algorithms stems from the most fundamental characteristics of a patent, i.e., its exclusivity. A patent provides an exclusive right of use to the patented item. Mathematical formulas like algorithms are thus generally considered abstract ideas and as such part of the public domain. Use of them should be *common and free*. If an algorithm were patented, the patent-holder could deny others the use of the mathematical formulas that make up part of the algorithm.[425] Patenting mathematical algorithms would thereby remove and exclude parts of mathematics from the public domain. Patentability in the case of mathematical algorithms would mean that the abstract ideas involved would be excluded from all free utilization.[426]

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421 See Kerr 2002, 49.

422 *In re Alappat* 33 F.3d, 1544. Programming thus creates a new machine. In this respect, a general purpose computer becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software. The patentability of computer programs is based on three radical cases where patentability of software was consolidated. The first of these was *Gottshalk v. Benson*, 409 U. S. 63 (1972) where the patentability was denied. Further, there was *Parker v. Flook*, 437 U. S. 584 (1978) where the decision was similar that in Gottshalk v. Benson. On the other hand, in *Diamond v. Diehr*, 450 U. S. 175 (1981) the court stated that the application of an algorithm does not necessarily exclude an invention from patentability. See Henderson - Kane 2000, 8 - 9.

423 This is why, for example, business methods are patentable in the United States. See *COM (2002) 92 final*, 5. The paradigmatic case in this respect in the United Sates was *State Street Bank & Trust v. Signature Financial Group* 149 F.3d 1368 (Fed. Cir. 1998), cert. denied, 525 U.S. 1093 (1999).

424 See Korn 2002, 1370.

425 See Bynum 1998, 284.

426 See Thomas 1999, 13.

2.4.2 Software as functionality

Software is essentially a combination of writing and functional components of a machine.[427] It is not an expressive application that could easily be included in the scope of either a patent or copyright.[428] Software has elements of both. The most fundamental difference is based on the *significance of instructions* as the kernel of a piece of software. Software is a functional construction that is further based on certain behavioral patterns in the form of instructions.[429] Instructions for a computer are not the same as instructions for a human being, however: they are more theoretical. Even when read by a human, computer code remains abstract machine code and as such can be executed by the machine only. Instructions to human merely describe how to perform a task, whereas software instructions are actually a part of the machine that executes the task.[430]

Software is technical and as such characteristically *mechanical*. The mechanical character of software is manifested even more clearly in the interplay of software and hardware: any function that can be implemented in software may correspondingly be implemented in hardware as well. This is due to software-configured universal machines that are capable of performing a variety of functions only by being configured in different ways by computer software. The unexpressive, but at the same time functional, character of computer software is the core of a computer and its operativeness. Instead of being the manual for an intricate and complicated machine, computer *code is the machine itself*. In other words, software is not text but a machine built of text.[431] In being a functional entity software also changes the character of its internal

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427 Software programs have a dualistic character. The technology of the program in use can be duplicated in the same way that one creates and duplicates literary works. See Reichman 1994, 2517, especially footnote 454.

428 On the other hand, the protectability of a computer program is relative. The main purpose or function of a program is generally not considered an unprotectable idea. On the other hand, source and object codes are almost always found protectable. See Derclaye 2000, 59.

429 A computer code may be viewed as both text and performance. The text of a computer code consists of both the source code and object code and the performance is what the computer does when it uses commands. See Derclaye 2000, 56.

430 Unlike recipes or manuals the source code instructions do not instruct a human how to carry out computational processes. Humans do not follow source code instructions to regulate voltages. Humans may also choose not to execute instructions, that is, an action that a computer is completely incapable of. See Burk 2000, 17.

431 A software-configured universal machine is equivalent to a dedicated machine that is hardwired to perform the same task. In other words, as physical machines are built from tangible media such as wood, steel, or plastic, so programs are built from source code. See Burk 2000, 17 - 18.

communication. Instructions to humans and instructions to machines are both functional but in entirely different ways. The distinction lies in the different functions of language. Human language is always functional, as it conveys information to humans.[432]

In contrast to human languages, computer code is carefully designed to optimize the speed and efficiency of the machine's operation. Its purpose is thus by no means to inform a reader. The function of computer code is not to convey meanings but to configure a virtual machine. Computer code, in other words, determines the type of machine that the computer will become. Unlike instructions to humans, computer instructions are functional in the sense that they produce a physical outcome.[433] However, the functionality of a software patent may be approached slightly differently. There is always a certain cooperative relation between the *utilization of inventions and society at large*, meaning that in order to be functional the products need to be used and exploited somehow in society. Use may require specific devices or none at all. For example, books can be read with no additional tools but films have to be shown using a projector to become useful to the audience.[434]

2.4.3 Software as patenting technology

Software patents were originally based on the technical character of inventiveness.[435] The technical conception of software derived from the traditionally *hardware-oriented world*, where computer programs were programs made for a particular computer.[436] The view of software today is rather the opposite; i.e., the technology-oriented world has changed

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432 Language is at the same time both functional and expressive, because its function is to convey meaning. When language is well crafted, its words and phrases are closely chosen to optimize that function. See Burk 2000, 18.

433 For instance, blueprints may instruct humans how to build a machine, but computer code is part of the machine. See Burk 2000, 18 - 19.

434 The requirement of technical aids constitutes one of the threats of digital media. This also applies to software and digitization. Digitization cannot be carried out without specific tools. The necessities are a computer (hardware) and a program (software). The threatening point here is that it is the same technology that is used in both producing digital media and copying them. The same technology one needs to use the digital work is the technology that can be used to make multiple and qualitatively perfect copies of the work. To cite *Pamela Samuelson's* example, selling computer programs is comparable to selling a customer the Ford automotive plant at the same time as selling him or her a Ford automobile. Each instance of the program has the potential to become its own factory. See Samuelson 1990, 326.

435 An invention should show *technical progress* over the prior state of the arts. It should thus in some practical sense be a better way of doing things. See Cornish 1996, 165.

436 Computer programs were thus simply what one told one's computer to do. These programs were typically written by the hardware manufacturer and were delivered bundled with the hardware. See Widdison 2000, 2.

towards being completely *software-oriented*, with software reflecting computer instructions or data in general.[437] In this context anything that can be stored electronically is software, whereas storage and display devices are hardware.[438] Software is often further divided into two categories: systems software, which encompasses the operating system and all the utilities that enable the computer to function, and applications software, which includes programs that do real work for the users.[439]

Difficulties in setting out the prerequisites for patenting in the case of software algorithms have led to an *emphasis on technicality* in protection. Technicality in this sense has been achieved at the expense of functionality. In order to become patentable, an invention must be bound to technology in one way or another. This is why software applications on open networks are often based on computer software and thus mathematical formulae or algorithms. Mathematical patterns or algorithms are not, however, patentable as such, which means that software is usually patented in the form of a technical device expressed in a specialized form. In this way, software patents are largely limited to tangible and specific machinery only.[440]

Ideas and mathematical algorithms are often considered as corresponding to each other.[441] At the same time, ideas are excluded from the scope of patent. Underlying this is the view that ideas cannot be patented. In other words, protection ought to be attached

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437 Software is thus the heart of a computer and hardware is only a device to run one's favorite software. The development thus went through several steps, where the software first came to be seen as something separate from, albeit still subordinate to hardware. Further, programs were perceived as not only separate from hardware but of equal importance to it. See Widdison 2000, 2.

438 The distinction between software and hardware is sometimes confusing because they are so integrally linked. Clearly, when one purchases a program, one is buying a piece of software. But to buy the software, one usually has to buy the disk (hardware) on which the software is recorded.
See Webopedia http://www.webopedia.com/TERM/s/software.html

439 For example, word processors, spreadsheets, and database management systems fall under the category of applications software.
See Webopedia http://www.webopedia.com/TERM/s/software.html
In this sense, a database alone may even constitute an invention and thus a protectable work. See *Committee Report KM 1987: 8*, 123 - 124.

440 The unpatentability of software as a traditional rule was stated by the U.S. Supreme Court in *Gottshalk v. Benson*. The core of the case was a patent sought for a mathematical algorithm. According to the ruling of the *U.S. Supreme Court*, any patent granted for a mathematical formula would be bad for the public, and thus unpatentable. Software algorithms could therefore not be patented. *Gottshalk v. Benson* 409 U.S. (1972). See also Kerr 2002, 49.

441 The idea/algorithm dichotomy in the area of patentabilty has been compared to the idea/expression dichotomy in copyright. See Koepsell 2000, 71.

to the physical embodiment of an idea.[442] Thoughts or other similar mental action are not patentable either because patentable methods cannot be dependent on the intelligence of the person operating the device.[443] The unpatentability of mentality sets further prerequisites for patentable processes whereby a patent needs to be based on *true manipulative steps*.[444] The technically communicative function of a software patent is founded on the difference between publicly necessary information and private use. Inventions based on mental steps are often so abstract that they are seldom truly sustainable objects of patent. Moreover mental processes are often basic tools of scientific and technological work whereby permitting an exclusive right to mental steps would restrict the freedom of inquiry.[445]

The clear distinction between privately used knowledge as patentable knowledge and public domain information is still maintained. Public domain information includes ideas, which are not patentable. Also excluded from the scope of patentability are the law of nature and mathematical algorithms, which are considered part of those laws.[446] Pure mental steps are thus not patentable either. The change in the unpatentability of algorithms was effected by a novel interpretation of the concepts of "mental acts" and "physical steps". Mental steps can be interpreted broadly, for example, as aesthetic, emotional, imaginative, or creative thoughts or reactions, and as such their unpatentability is clear.[447]

The clarity of "mental steps" is, however, slightly changed through the implications of software. Mental steps that can be implemented by a machine are sufficiently definite to make the steps physical and the process patentable. Computer implementation of processes of mental steps hence make it possible to develop software patentability further.[448] Mathematical algorithms are widely considered to belong to the class of laws of nature and as such are unpatentable mental steps. The controversy of pure physicality in software patenting is also clearly seen when considering the

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442 This view is called the *mental steps doctrine* and basically it barred solely mental activities from receiving patents. Similarly, methods that required comparison of sounds, or correlating the readings of one scale with another, were considered unpatentable because they depended on "correct mental comparisons". See Burk 2000, 33.

443 This physical transformation requirement is to ensure that the patent extends protection only to the application of a law of nature or algorithm. Natural laws would alone be unpatentable. On the other hand, the physical transformation requirement also allows for the protection of computer programs used in manufacturing processes but questioned the patentability of free-standing computer programs considered to be unpatentable mental steps. See DiMatteo 2002, 16.

444 These steps must further be accurate physical steps. See Burk 2000, 33.

445 See Burk 2000, 35.

446 The exception was declared in *Gottshalk v. Benson* 409 U.S. (1972).

447 See Burk 2000, 33 - 34.

448 See Burk 2000, 34.

copyrightability of business methods. Literally expressed teachings in a copyrighted book are protected through copyright.[449] The copyright protects the author's own verbal explanation of the teachings, but it does not prevent others from teaching the same concept in different words or other expressions of their own. A clear distinction is drawn between a book and the art which it is intended to illustrate.[450]

2.4.4 Software as novelty

The basic scope of a software patent has traditionally been fixed to *technological novelty*. Novelty is essential for patenting because of the purpose of a patent.[451] Novelty thus loosely corresponds to originality in copyright.[452] The purpose of both systems is to bring out new inventions and accordingly restrict the utilization time of the old ones. It was primarily industry and industrial production where patented inventions were to be used in the first place. The fundamental purpose of patentability is to protect investments in *useful new technology* and at the same time to provide an incentive to finance further research and development.

On the other hand, the patent system is fundamentally constituted to protect technology, mainly the machines that use or are made by using technology. Software is patentable as part of a technical device or process.[453] This technology, when patented, is also referred to as technologically novel machines or devices. However, a technological solution is not the most important element of a business method, which has caused further problems and controversy in patenting those methods. As business methods are

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449 Baker v. Selden 101 U.S. (1879). Selden had published a book, Selden's Condensed Ledger, explaining his bookkeeping system. The book included blank forms for practicing the system. Baker published a variation of these forms, but they were adaptable for carrying out the same bookkeeping system. See Stern 1999, 112.

450 See Stern 1999, 113.

451 A patented invention has to be new in the sense of constituting a part of the state of the art. Further, the information concerning the invention may not be published by anyone, including the inventor or someone having no connection to him or her. See Cornish 1996, 148.

452 Originality is considered one of the foundations of copyright. See Blume et al. 1998, 126 - 127. The originality of computer programs has been questioned by the *general nature of programs*. Computer programs were considered so general that no programmer would simply be able to create any different program. This was probably true in the early days of computers but in modern times there exist so many possibilities in writing programs that it is practically impossible for two persons to create two identical programs. Computer programs have thus been considered works that can reach the required level of originality. See Koivumaa 1995, 72 - 73.

453 The typical application in this category was one for a "new" machine or process in a familiar area, in which the only novelty was the use of a computer program to run the machine or implement the process. See Cohen - Lemley 2001, 9.

not tied to particular machinery or devices, they are clearly not patentable in this perspective.[454] It is more likely the *new operational framework*, i.e., open networks, that may be considered the invention when applying traditional business methods on open networks.[455] The new relation in status between patenting hardware and software is fundamentally based on a new way of thinking about issues. Accordingly, development will also clearly be based on rethinking how software technology is maintained, developed, and distributed.[456]

What is problematic here is that business method patents easily make it possible to implement traditional business methods on a computer or the Internet and thereby exclude others from using them. Business methods are thus characteristically unique and many of them have been employed in and run by businesses for a long time already.[457] A business method, however, closely resembles software in that it is often pure software applications that embody the business methods that are realized in cyberspace.[458] In sum, the patentability of business methods is closely bound to the patentability of software processes.

2.4.5 Software as a commodity

Patenting is a means to create commodities. In order to become patentable, an invention is generally examined in terms of commodification. In this respect, commodification is actually a *varying process* where the varieties observed are closely linked to the qualities and characteristics of software. The patentability of software is connected at least to the *technical character* of the software, whether it is *abstract and physical,* and the *essence of a process* as a core element of the software. These three elements of software patents then have additional implications for the patentability of software.

The commodificational character of a software patent is well illustrated in the controversial relationship of the software patent and the business method patent. The distinction between a software patent and a business method patent lies precisely in the scope of protection they involve. Software is somewhat easier to categorize in this

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454 See Merges 1999, 3.

455 This is considered to apply, for example, to the business method patent of *Priceline.com* with the advent of the Internet enabling the enterprise to obtain the exclusive right to a traditional business method. See Quinn 2002, 123.

456 The latest "revolution" in the software industry actually has nothing to do with breakthrough technology. See Potter 2000, 2.

457 See Korn 2002, 1371 - 1372.

458 A good example of this is recent business method patents. The best known of these are the ones for *Amazon.com* and *Priceline.com*. Both of them basically consist of an old method that is only applied in a new way in the cyberspace. See Chandra 2002, 546.

respect because it *cuts across two areas* of patentable subject matter at the same time.[459] In this respect, software is dualistic in its fundamental character. Here the software falls into two classes of protectability in that it can be viewed both as *a process and a product*. As a product, software works as a physical transformation and as such is treated as a commodity and as a product at the same time. As a product, software inherently works as a physical transformation and thus meets the utility standard for patentability. In contrast, a business method can only be included in patent law in the category of process. Hence, a process patent has been considered the most difficult to obtain. A business method can thus only be included among patentable entities through the category of processes. [460]

The twofold basis of the patentability of software has set the foundation for its further development, which has accordingly taken place on two fronts. First, the scope of process was reexamined, and second, the scope of patenting the software itself was reevaluated. These steps were both taken at the same time. The first step consisted of the patentability of a process as such and made a *pure process patentable*. The only prerequisite for a process to be patented was that a certain method or a particular application was included in the process.[461] In *Diamond v. Diehr* a piece of software was involved, as the process at issue was carried out by a computer program. The existence of the computer program combined two developments with regard to the process and the software. The approach taken in *Diamond v. Diehr* thus made software a patentable subject matter, but only if it was patented as a part of something else.[462]

Nevertheless, computer-related inventions were now considered to be patentable and, conversely, the inclusion of a mathematical formula or a computer program did not make a patent automatically invalid. A computer program used within a process was thus

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459 The first step towards the creation of the business method patent was carried out precisely in the area of software patents by the U.S. Supreme Court in *Diamond v. Diehr* 450 U.S. 175, 185 (1981). In Diamond v. Diehr the issue was a process for continuously monitoring the temperature inside a synthetic rubber mold, using a computer and the well-known Arrhenius equation for measuring cure time as a function of temperature and other variables. The process was deemed patentable subject matter. See also *Diamond v. Chakrabarty* 447 U.S. (1980).

460 Process patents are thus harder to obtain than pure product patents. The inventor of a process is mainly considered as to be a creator of ideas rather than the creator of a practical invention. Furthermore, a presumption against patentability often also works against the process inventor. See DiMatteo 2002, 17.

461 See Cohen - Lemley 2001, 9.

462 See *Diamond v. Diehr* 450 U.S. (1981). In Diamond v. Diehr, the possibility of patenting computer programs was assessed for the first time since Gottshalk v. Benson which served as the first step toward the patentability of business methods and electronic commerce patents. See Quinn 2002, 138.

no longer unpatentable *per se*.[463] The only exception remaining was that the possible laws of nature in a mathematical algorithm had to be applied to a physical element or process by which it could be used it in an inventions and thereby get a patented.[464] A mathematical algorithm may include a mental process that can be represented in a mathematical formula and when it does so, it can be patentable as long as it produces some useful, concrete and tangible result.[465] The unpatentability of mathematical algorithms is thus no longer a strict rule. Accordingly, the development towards patentability of such algorithms is progress towards a more abstract scope for patentability. The essence of development is the usefulness of an invention, not its technical implications.[466]

The requirement that patentable software must produce a useful, concrete, and tangible result as the core of patentable software moves the balance of patentability from physicality towards *abstractness*. Even physical structure becomes unnecessary, as long as the process or the idea is useful.[467] This clearly derives from the approach to patentable business methods, as they may be abstract. Business methods are essential in e-commerce transactions that based on business models that may include original ways of doing business. Software-assisted methods are patented as long as they demonstrate the required degree of novelty and non-obviousness, and produce a useful, concrete and tangible result.[468] This was the essential finding in *State Street Bank & Trust v. Signature Financial Group*: mathematical algorithms were deemed patentable where they produce a useful, concrete and tangible result.[469] Mathematical algorithms are not generally

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463 The unpatentability of software was the main rule in the 1970s and software patent applications were rejected on the grounds that software was really just a concatenation of unpatentable algorithms. See Cohen - Lemley 2001, 8.

464 See DiMatteo 2002, 16.

465 See Burk 2000, 34.

466 A pure algorithm patent is that is contested in *AT&T Corp. v. Excel Communications, Inc.* 172 F.3d 1352 (Fed. Cir. 1999). The patent claimed a method for a phone company to determine whether both the caller and the recipient of a long-distance telephone subscribed to the company's network. See Chandra 2002, 556.

467 See Cohen - Lemley 2001, 10. This naturally corresponds only to United Sates. In Europe the patentability of software is to remain related to technological contribution as a part of an invention.

468 See DiMatteo 2002, 19.

469 See *State Street Bank & Trust v. Signature Financial Group* 149 F.3d 1368 (Fed. Cir. 1998), cert. denied, 525 U.S. 1093 (1999). In State Street, the patent was directed to a data processing system for Hub and Spoke Financial Services Configuration. It describes a data processing system for implementing an investment structure that is known as the "Hub and Spoke" system. This system allows individual mutual funds (Spokes) to pool their assets in an investment portfolio (Hub) organized as a partnership. This decision is actually considered as *a business-method exception* in patentability. See Chandra 2002, 554.

patentable as they are based on mere abstract ideas.[470] In this instance the physicality of an invention was challenged rather seriously. A physical transformation is only one of the countless possibilities of bringing about a useful result. A physical transformation was no longer considered necessary.[471] The essence of a process is manifested in the duality of the scope of software patents. Software patents fall into two basic types. One consists of pure software patents claiming improvements in programming or inventions embodied wholly in a program. These cases involve pure software patents, as described above. The other type comprises computer-related inventions, in which there is software involved in the machine or process.[472]

These inventions are likely to be the core of a business method patent given that the conducting business in cyberspace online are patentable, as illustrated in *State Street*. The decision in the case made it clear that business methods implemented through computer processes were no longer excluded *per se* from the category of patentable subject matter. Hence, in the in conducting business both computer programs that implement business methods and business methods themselves are patentable. In other words, the exception of the unpatentability of business methods was eliminated.[473] The essential nature of a process is illustrated in another way as well in patentable online business methods. In these applications, both the computer program that implements a business method and the business methods themselves are patentable subject matter.[474] This holds true as long as a business method fulfills the general prerequisites of novelty and non-obviousness. In contrast, a work may contain elements that must be used incidentally to the idea, system, or process that the work describes.[475]

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470 See Chandra 2002, 551.

471 See Cohen - Lemley 2001, 11.

472 The distinction is reported by Cohen - Lemley 2001, 20.

473 At the same time, the prerequisite of pure technological contribution was abandoned in the United States. The ability to patent computer software was tested through the so-called *Freeman-Walter-Abele Test*, where it was first determined whether a mathematical algorithm was recited directly or indirectly in the claim. If it was, then it was next determined whether the claimed invention as a whole was no more than the algorithm itself or if the claim was directed to a mathematical algorithm that was not applied or limited by physical elements or process steps. The Freeman-Walter-Abele Test was first introduced in *Arrhythmia Research Technology, Inc. v. Corazonix Corp*. 958 F. 2d 1053 (fed. Circ. 1992.). See Quinn 2002, 138 - 139.

474 See DiMatteo 2002, 18.

475 This is stated in the USA in the case *Baker v. Selden*, 101 U.S. 99, 103 (1879). These incidental elements of a work are not copyrightable See Major 1998, 94.

2.4.6 Towards a more innovative view

2.4.6.1 Software as property

Software is generally protected through intellectual property rights, with the protection carried out in the form of either a patent or copyright. The demarcation between the two is fundamentally based on two overlapping and hence parallel dichotomies, i.e., that of *expression and idea* and that of *idea and algorithm*.[476] On the one side of the demarcation line are legally protectable, *concrete*, and *specific* aspects of innovative contributions, the underlying assumption being that there are an infinite number of possible ways to express single idea.[477] On the other side are the legally unprotectable, *abstract,* and *general* aspects of those contributions.[478]

In the context of software, the pure property view is called into question by what are known as *legal hybrids*, which are combined forms of several traditional intellectual property rights.[479] Mainly this development has proceeded from patent-oriented towards more copyright-oriented protection.[480] The most drastic change involves the basic requirements of these forms of protection, given that the legal hybrids actually resemble each other more closely than they resemble the traditional objects of patents and artistic property laws.[481] For example, a database that contains elements of both copyright (originality and formality) and patent (inventiveness and access to information) may be considered a legal hybrid in this sense.[482] In Finland in *Supreme Court* case *KKO:2000:56*

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476 See Koepsell 2000, 71.

477 This is thus the actual foundation of creativity, and the purpose of intellectual property law is not to limit the number of creative works being produced from this background. See Koepsell 2000, 73. The most significant area where the problem of legal hybrids occurs is that of small-scale innovations that do not rise to the level of novelty and non-obvious inventions or original and creative works of authorship. See Reichman 2000, 1745.

478 See Stern 1999, 107.

479 The general patent/copyright dichotomy was broken down by some novel technical innovations. Among these innovations were, in addition to computer programs, integrated circuit designs, biogenetically engineered organisms, new plant varieties, and electronically generated databases. See Reichman 2000, 1749 - 1750.

480 See Reichman 1994, 2455.

481 Few of the hybrids protect art in the traditional sense and even fewer fall within the scope of patents. See Reichman 1994, 2501.

482 Databases closely resemble computer programs in that they get less protection from copyright than their producers need to support the expenses of data collection and assembly. The only copyrightable element in a database is the way in which the data have

(S98/423), a database has been granted copyright protection as a compiled catalogue on the basis of the labor and professional skills used for collecting the information included by the organized catalogue.

> *KKO:2000:56.* A name day calender collected and published by the University of Helsinki was a catalogue in the sense of the Copyright Act of Finland 49§ (1) as it included a great amount of information. Protection was also granted on the basis of Copyright Act 9 §.[483]

The hybrid character of intellectual property has a strong influence on the market, this influence being either direct or indirect. The dual character of legal hybrids in fact allows them to compete on two different fronts: they may be presented as disembodied representations of unprotectable matter or as components of material supports that are distributed on the market.[484] Communication in the market easily becomes concentrated in the hands of a single distributor holding the hybrid rights.[485] On the other hand, originality is not always a necessary requirement for protection, i.e., copyright as in established the *Court of Appeal of Helsinki HHO S 1987/951*, where the focus was the labor put into collecting and combining information. The case concerned teaching material used in a leadership development course where the literary material was considered protectable because of its originality as well as the amount of labor used in creating and collecting it. The main focus was thus on the work involved instead of originality.

On the other hand, this view has been questioned lately (in May 2005) on the behalf of computer programs by *The Court of Appeal of Vaasa* in case *VaaHO DR03/1245* (leave to appeal pending). The Court of Appeal took a strict position on protecting labor or temporal investments in creating a copyrightable work, e.g., a computer program. It

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been selected and arranged. Copyright thus does not protect the data as such. The process of assembling the data, where the greatest investments have to be made, remains completely beyond the scope of protection. See Goldstein 2003, 197.

483 Art. 49 of Copyright Act in Finland (34/1991) reads as follows: "A catalog, table or program, or any other production in which a large quantity of data are compiled, shall not be reproduced without the consent of the producer until 10 years have elapsed from the year in which the production was published. The term of protection shall expire at the latest, however, when 15 years have elapsed from the year in which the work was completed." Art. 9 of same provision reads as follows: "There shall be no copyright in laws and decrees, or in decisions and declarations of public authorities and other public bodies."

484 See Reichman 1994, 2501.

485 On the other hand, the hybrid character of a database is well illustrated in the basis of its protection. Database protection is not based on any technical achievement or showing any creative output. Rather, protection is granted to anyone who makes a substantial investment in the development of the database. See Reichman - Samuelson 1997, 54 - 55.

was thus only the originality of the program that was emphasized as the basis of copyright. Here the program was not original enough but was instead considered only a slight modification of the original copyrighted program. Copyrightability was thus denied and the charge of a copyright infringement was dismissed.[486]

The property view of software has another direct *influence on communication*, which stems from the exclusive character of property. As an exclusive right, patent or copyright gives the owner a privilege to exclude all others from interference in or use of the patented/copyrighted object.[487] In this sense, exclusivity is absoluteness. Absoluteness at the same time affects the overall communicativeness within the communicational structure by defining a certain, often rather restricted, circle that is included in the core of communication. The rest are excluded from the communication. In this way the communicative structure becomes somehow absolute as well, which often makes property rights restrictive in the context of communication. Restrictive property rights make it impossible to realize social innovations, which are the very essence of business method patents as innovations. Business methods as innovations are essentially social creations.

2.4.6.2 Software as regulation

The very core of a business method remains basically undefined at the level of legislation. In the European Patent Convention there is no implicit definition of business methods, although *EPC 52 (2)* prohibits the patentability of pure business methods *as such*.[488] Accordingly, *EPC 52 (2)* leaves computer programs outside of the scope of patentability. However, it is possible to get a patent for an invention that requires a computer program. An invention may be patented when it augments the existing technology with some technical contribution.[489] On the other hand, methods involving

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486 The opinion is contrary to the opinion of the Copyright Council of Finland concerning the very same case in *TN 2003:10*. The Copyright Council considered the source codes of those computer programs original enough to get copyrighted. See *TN 2003:10*, 15.

487 Patent law, being founded on exclusivity as its core, is designed to create a barrier against idea theft. The purpose is to create an incentive for inventors to invent and use their ideas. Exclusivity is one of the incentives in the patent system. See Lessig 2002a, 208.

488 See the content of EPC 52 (2) above.

489 This, however, includes a divergence from the patentability of business methods in the USA and Japan where it is possible to patent even some non-technical inventions. These inventions only have to include a great economic significance, but there exists no prerequisite of technical investment. See *COM (99) 42 final*, 13 - 14.

only economic concepts and business practices have not been considered as inventions within the meaning of *EPC 52 (1)*.[490]

This parallels *35 USC §100 (b)* which states that "...a patentable process is a process, art, or method and includes a new use of known process, machine, manufacture, composition of matter or material." Historically, business methods have not been patentable in the USA, where a business method was considered to fall within the statutory subject matter of "process". In the USA an exception to denying the patentability of business methods was established in 1908 in the case *Hotel Security Checking Co. v. Lorraine Co.* where the invention at issue was a method of book-keeping detached from the means of carrying it out. Essential to the denial of a patent was the separation of a method itself and the means of doing it. A business method as an invention was not patentable, and, accordingly, the ruling of The U.S. Supreme Court established the very basis for unpatentability of business methods. In the exception there are bound together, on the one hand, the impossibility of protecting methods themselves and, on the other, the pure definition of a business method.[491]

The legal regulation of business methods is thus rather vague in that this kind of regulation binds software closely to its artificiality.[492] The conditions for the different lines of development are mainly due to their nature. Tangible objects may be distinguished naturally, whereas intellectual ones need to be demarcated. The constraints of the latter are thus artificial.[493] The restrictions are mainly artificial in the sense that they do not really promote progress. Instead, the restrictions simply benefit one person at the expense of others[494] The artificiality of business methods is best revealed by examining the *changing environment* and the significance of monopolies in it. Both the property view and the regulative view are based on clearly structured monopolies. The monopolies are constituted on the radical technological shift and its effect on the

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490 See Basinski 2001, 13 - 14. The main rule for patentability in Europe, the *EPC 52 (1)*, reads as follows: "European patents shall be granted for any inventions which are susceptible of industrial application, which are new and which involve an inventive step. "See http://www.european-patent-office.org/legal/epc/e/ar52.html#A52

491 The core of the exception lies in the definition of a process and the capability of business method to fall within that definition. See DiMatteo 2002, 14.

492 The regime tends to expand beyond its initial justification as intellectual property rights as a reward or refreshment of inventiveness. The restrictions imposed are artificial and therefore they do not promote progress. They simply benefit one person at the expense of another. See Lessig 2002a, 217.

493 This may be further illustrated in terms of difference between the primary and secondary legal relationships. Primary legal relationships are used for *juridifying reality*. They constitute the legal rules that convert reality into a juridified form. Secondary legal relationships are then constructed on the primary ones. See Pöyhönen 2001a, 187.

494 See Lessig 2002a, 216 - 217.

expanding activity on the network. However, there exists one crucial difference in the means by which these monopolies are restricted.

A monopoly may be granted indirectly, by granting an exclusive position, or directly, by ownership. The result is quite the same in both cases, but there is a difference in the construction of the controlling power. The main difference between property and monopoly (i.e. when the monopoly is created through regulating communication) lies in their different relationship to the surrounding environment. Property is absolute in that it is similarly valid for everyone. For this reason property has always been described as *a strong right*. A monopoly in contrast is more relative due to both its regulative nature and its artificiality. The regulation is mainly concentrated on organizing behavioral patterns although it is at the same time aimed at communication, societal communication in particular.

This difference also affects the ways of looking at communicative structures in property and in monopoly. First, the absoluteness of property makes the communication clearly fixed. The exclusivity of the owner gives him or her the power to draw the borderlines of the communicative structure, and largely also the content. The owner is thus in a position to decide who gets what information from whom. Second, absoluteness defines the circle of those who may participate the communication. Some are totally excluded while others are included, which makes the communication structure itself unbalanced. Third, absoluteness distinguishes the communication and the communicational environment. As a strong right, absoluteness makes the communicational gap rather strong and clearly visible.

On the other hand, the relativity of monopoly nudges communication towards a more flexible approach. A patent ensures that information will not become closed, for the other side of the exclusive position is that it opens up access. Anyone at all is free to get information when it has become public. This *ensures flexibility* relatively well. Furthermore, the relationship between the scope of a patent and the surrounding environment is flexible. This is due to the free circulation of information which in turn derives from the flexibility of a patent as a monopoly. All of these aspects include communicational patterns to be sustained as a crucial part of public governance. Here regulation is aimed at influencing inventiveness but in a roundabout way. Patenting pure technological invention is direct and has a direct effects on protecting technology. A patent is granted for a certain invention that includes a certain technological application and it is hence already a step towards innovation. In the case of social innovation it may not, however, be enough to invent a new technology, for it seems that there would also be a need to inspire people to learn how to use the new technology.[495] Inventions and

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[495] See Dreyfuss 2000, 265. Technological and social innovations may be bound together. For example, a faster communication network may make the services more usable. Fast broad-band services are cheap and a reasonable price operates as a connecting link

knowledge thus need to be used in a way that is fruitful for the economy and society overall.

2.4.6.3 Software as function

The functionality of software is based on communication. A patent is granted to protect the inventor and grant him or her sufficient revenue from the invention. In this respect, business processes have their own clear revenue logic and communicative patterns. In other words, business processes have inherent revenue patterns that provide the foundation for business revenues. Business revenue is generally founded on practical knowledge that is embedded in the methods of doing business.[496] These methods as such thus often create their own rewards. Basically the revenue from an invention in the case of business methods is derived from success in the market. Hence an adequate return on the inventive process of a business method or a successful business idea would create sufficient incentive to invent.

Success and reward are closely linked to the communication between the market and customers, success being achieved by attracting the attention of customers in the market. Revenue is clearly connected with success in the market and is usually even considered a sufficient reward. This same principle applies to business methods, in that the pressure of competition and competition by emulation have been sufficient to provide enough innovation in methods of doing business.[497] Business methods are not derived from laboratory research or experimentation but develop and are implemented in an environment of rivalry and imitation. Business methods are thus shaped through *interactive responses*. This interactivity is further shaped by the customary practices that also make up part of the business methods.[498] Communicative consumers buy and the inventor gets the reward depending on the customers 'decisions. The advantage achieved by the first in the market is often called the *first-mover advantage* and is created without imposing the costs of a patent.[499] Often the first-mover achieves a leading market position and extends it before the others enter the market. This reflects the balance

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between services and end-users. See Tervo 2004,147.

496 The self-rewarding character of business methods is actually one of the most fundamental differences in patenting, for example, biotechnology or computer-related inventions generally and business methods. Business methods are in fact much older than even the patent system itself. See Thomas 1999, 31 - 32.

497 See Raskind 1999, 78.

498 See Raskind 1999, 81.

499 See Lessig 2002a, 212.

created by public governance in relying on private governance but modifying forms of governance to accommodate the public interest.

The real advantage lies in the ability to establish a first-mover position and to increase one's consumer mass. Because of its rapidness, the first-mover advantage is usually also the most effective advantage in the hectic digital market. A first-mover needs no patent, and patenting some crucial inventions would even hinder inventiveness.[500] The first-mover advantage is closely linked to the internal communication of two or more parties.[501] On the one side is the one who markets the invention; on the other side is the customer who buys. The communication in the case of the first mover advantage is thus more variable in nature than pure trading. Basically the first-mover advantage is based on the cooperation and communication of the creator of the business model and the customer. The more customers use a certain business model, the stronger it becomes. A good example is the explosive use of e-bookstores.[502] This communication frames the operational lines of a certain business model in its entirety. In this way the first-mover advantage embodies rather well the communication between an inventor and the customer base of an enterprise.

The strong protection of a business method may in fact grant a double advantage to the protected actor. Revenue is achieved through the first-mover advantage and, further, through the patented business method and the position reached thereby.[503] Functionally this position is very strong indeed. On the other hand, the distinction between the property view and the first-mover advantage view turns the communicative pattern upside-down. The first in the market does not necessarily need the exclusive position created through a patent or any other legal instrument because the *revenue model is fixed to a different part of the communication process*. For the first in the market, it is precisely the communicative environment and its internal communication that become crucial. Communication takes on the main role in building up and ultimately achieving first-in-the-market status.

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500 In other words, there would be no need to refresh inventiveness by granting patents. See Dreyfuss 2000, 277 - 278.

501 For example, enterprises with a weak market position usually opt for openness in order to attract allies who are likewise too weak to survive. Openness is hence employed as an instrument for networking. Openness may often take the form of open computer code. See Holtgrewe - Werle 2001, 46.

502 For example, *Amazon* in www.Amazon.com and *Barnes & Noble* in www.bn.com These bookstores are actually *virtual malls* where one can buy anything.

503 This position closely resembles patenting procedures where the result may also be patented if there is no other process for producing this result. In this way, for example, a new species of plant or animal could theoretically become patentable. See Wallius 2001, 57.

2.5 Innovation: The business method patent as a social innovation

2.5.1 Communication among business, technology, and society

Business is communication. Consequently business methods are a certain form of communication as well. The *business method process* is usually defined as a process where the purpose of invention lies in the entrepreneurial strategy, with a business method defined as an application including any method or any technique, or a computer-assisted implementation of either of these.[504] Accordingly, a business method is generally defined as an architecture for the product, service and information flows.[505] Further, it is very much a method of processing data or performing calculations which is uniquely designed for or utilized in the practice, administration, or management of an enterprise.[506] The range of use of business methods thus lies particularly in business, and the applications are usually technical in nature. On balance, the communicational requirements are actually implemented already in the core of a business method.[507]

This definition, like the business method as a concept, clearly binds together two core elements: *business and technology*.[508] These elements make up the kernel of the communication inside the concept of the business method. The core of development is thus generally founded on technological development and on new technological

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504 See Pollack 2002, 70.

505 A business method includes a description of the various business actors and their roles. Moreover, it may be defined as a description of the potential benefits for the various business actors, and as a description of the sources of revenues. See Timmers 1998, 4.

506 A business method may include any technique used in athletics, instruction, or personal skills, or any computer-assisted implementation of such methods or techniques. See Chandra 2002, 562. See also *Business Method Patent Improvement Act of 2000, H. R. 1332*, http://www.aipla.org/Content/ContentGroups/Legislative_Action/107th_Congress/House_Of_Representatives1/hr1332.pdf

507 Communicativeness as the core of a business method is illustrated, for example, in the interaction of business methods and the market. Business methods are largely a product of market interaction among competitors. It is often enough in changing business that there is some commercial rivalry. See Raskind 1999, 85.

508 This may be readily seen in business method patents. Business method patents have taken on more significance in the business world. Businesses have started to pay much more attention to the intellectual property in their business methods and processes. Further, business method patents are used both offensively and defensively and have become a great source of revenue for companies. See Chandra 2002, 557.

inventions.[509] In addition, a business method includes the communication between business and technology, even crucially so, whereby it rests squarely data processes that are performed by computers.[510] Using a programmed computer at the same time produces information that may then be put to some further use. In this way a computer actually controls a step in the operation of the production process.[511] It is precisely this *communicational double core* that is classified and divided when examining the requirements for patenting business methods.[512]

In this light, the communicational aspect of business methods may be approached from two directions of intellectual property law, i.e., patent and copyright. This is due to the *legal background* of software, which is the very kernel of business methods implemented in a totally digitized environment. Software may thus be protected through patent or through copyright. Accordingly, a business method as an invention is usually built up in the form of software or a computer program.[513] In order to be able to act functionally in cyberspace, inventions for which a patent is sought need to be constructed technically. This is also due to the *communicational background* of the digital environment. In this way business method patents are fixed to different operations in the overall business method. First, communication is realized as it relates to customers and gathering information about them using a patent based on a business plan for a new company starting to get into the new area. The communication here is related to business methods that inform customers about the enterprise and its existence.[514]

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509 This was the foundation of the significance of technology in development when the technology was more or less physical. In the present day, engineers produce essentially *technical knowhow*, where the significance lies in the ability to store information about the methods or processes of production. This information at the same time confers some commercial advantages on those who possess it. See Reichman 2000, 1750.

510 The scope of the business method patent includes a new class of machines, that is, basically computers, and methods for performing data processes, for calculation operations and the practice, administration, or management of an enterprise, for processing financial data, and for determining what to charge for goods and services. See Love 2000, 1.

511 The information produced may also be exploited as such. See Cornish 1996, 181 - 182.

512 It was traditionally even impossible to patent anything beyond technology; patent protection was limited only to technology, i.e., to tangible things and to physical procedures. See Raskind 1999, 61.

513 A computer program has been defined in the legislation. For example *17 U.S.C. §101*: "A computer program is a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result."

514 These business methods often deal with determining who one's customers are while at the same time including operations research and market analysis. See Love 2000, 1 - 2.

On the other hand, business models on the Internet are based on the *commerce and exchange* itself.[515] In this way business models strive to control and govern the trade. In other words, commerce is governed by conducting money exchange and credit before, during, and after business transactions. Further, in order to govern commerce there is also a need to track resources, money, and products. These means of governing commerce and trade are thus patentable as long as they are related to a computer system or executed by a computer system that is appropriately programmed with software.[516] Therefore, granting patents for pure business methods is not riskless. Business methods are attempts to control and govern trade, with enterprises using patents for controlling the development of electronic commerce.[517]

Software generally constitutes the kernel of a modern business method in the digital economy.[518] Software as an invention is protected in two different ways, both forms falling within the scope of intellectual property rights.[519] Their path towards further innovative applications, however, is different. Software is first protected through copyright. Underlying this is the historical notion that software is a written work.[520] There is nevertheless one crucial difference between software and other written works: the ability to express something in particular is not the main purpose of a computer

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515 Priceline.com is an illustrative example of this in that it has acquired patents in several different areas related to electronic commerce and exchange, for example, a system for connecting users of professional services to a world-wide database of professionals who can dispense advice over the network (U.S. pat. 5,862,223), a system for anonymous communication between people (U.S. pat. 5,884,272), or a system of selling airline tickets (U.S. pat. 5,797,127). Through these patents *Priceline.com* has even been considered to have gained a significant position in media convergence See Henderson- Kane 2000, 10.

516 In this way, business method patents are closely linked to the internal operations of an enterprise, i.e., how they manage their people, their space, their time, their parts, and their inventory. See Love 2000, 2.

517 See Henderson - Kane 2000, 10.

518 This seems to apply especially in the present day and the future. Traditionally, most of the activity was based on hardware, and patents were likewise associated with traditional hardware inventions. A transition towards computer systems and software has nevertheless occurred. At the same time, the e-commerce aspect of business methods has clearly been coming to the fore. See Love 2000, 2.

519 In the case of business methods this two-fold protection is actually totally applicable. A business method is namely rather impossible to keep a trade secret because the technical knowhow is generally available to everyone. See Reichman 2000, 1762 - 1763. On the other hand, knowhow is not generally protected as an exclusive right but has to be kept a trade secret in order to get protected. See *Government Proposal HE 114/1978* vp., 14.

520 Copyright Act of Finland 404/1961 Article (1): "A person who has created a literary or artistic work shall have copyright therein, whether it be a fictional or descriptive representation in writing or speech, a musical or dramatic work, a cinematographic work, a photographic work or other work of fine art, a product of architecture, artistic handicraft or industrial art or a work expressed in some other manner. Maps and other descriptive drawings or graphically or three-dimensionally executed works and *also computer programs shall likewise be considered literary works*." (Italics added here.)

program. Computer software is designed for *making computers functional*. From the viewpoint of communication, copyrightable works are generally designed for human communication, whereas a computer program is designed to run a computer.[521] In this sense, programs are more operative and as such active. The communicative purposes of these two forms of protection are thus completely different at the level of functionality.

In addition, in order to become copyrightable software must represent a certain level of *originality*. This is even precisely stated by *The Finnish Supreme Court* in case *KKO:2003:88* (R2001/192) where a computer program was considered a copyrighted product and as such protected by an exclusive right. The copyright-holder had, among other rights, a distribution right. Hence, to get any protection through copyright a computer program has to be an original manifestation of the creativity of its author. Originality is the essential element of copyrightability, which means that the amount of work invested will not ensure the author a copyright if the result of the work is not original enough. Labor alone does not fulfill the requirement of originality.[522]

> *KKO:2003:88.* A had been marketing and trading software products manufactured and distributed by software producers. The trading and marketing was carried out, among other means, by repackage programs for updating and changing the contents of packages. A had also traded software diskettes, demonstration products and software with licenses written by A. In the trading, A had used protected trademarks owned by other software producers. Here only the computer programs were protected by the intellectual property rights, i.e., copyright.

Level of originality is not, however, the only distinction between copyright and patent. Namely, patentability has one additional qualifier that draws a clear distinction between patent and copyright. Whereas copyright is mostly aimed at protecting *cultural values*, patents are granted for inventions that may have some *use in manufacturing*.[523] In this sense, a patented invention ought to be useful, with usefulness considered precisely the potential for industrial application.[524]

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521 This has been discussed in the United States, where the *works of utility doctrine* states that functional works are not a proper subject of copyright protection. See Samuels 2000, 81.

522 This view is particularly stated in *Feist Publicatoins, Inc v. Rural Telephone Service Co*, 111 S. Ct. 1282 (1991). The decision concerns the white pages of the telephone directory. In the argumentation of this particular case, the work invested in the collection of numbers was not enough to take the work over the threshold of originality.

523 A patentable invention has to be useful. Usefulness, or utility, of a patentable invention requires that the invention must achieve the intended results and that these must be capable of replication. See Cho 1998, 182.

524 See Lambert, 2000, 8.

Originality and usefulness are defining factors of both copyright and patent. This has to do with another function of them both: in the digital economy neither copyright nor patent is as such sufficient. There is always some *requirement of further innovativeness* that needs to be realized on the basis of those patented inventions or copyrighted creations. Innovativeness is thus a step forward from a copyrighted creation or patented invention.[525] However, innovation is possible only on the basis of stable and creative inventions, which are the main cornerstones of further innovativeness. The existence of originality and usefulness are thus both rather essential for innovativeness overall.

2.5.2 The pure business method patent as communication

2.5.2.1 From abstract to concrete

Business methods are closely related to innovativeness. In this respect business methods are communicative. At the same time, they may also be considered *social innovations*.[526] The social character of business method is imparted to it through its communicative kernel.[527] However, communicativeness is changed by digitization; it is not weakened but strengthened in the digital environment. Today, a business method is essentially a method of processing data or performing calculations, and it has to be uniquely designed for, or utilized in, the practice, administration or management of an enterprise.[528] Given this context, a business method is generally created through computer software. Accordingly, the problem in patenting a business method is the very same as in patenting software; i.e., a line of demarcation must be drawn between a concrete, patentable object and an abstract, unpatentable one. The distinction becomes more salient in the

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525 On the other hand, the source code of a computer program was original enough and it has been considered a copyrightable creation according to the *Copyright Council of Finland TN 2003:10*, 13 - 14.

526 Social innovations in this sense may even bring innovations among consumers. They let the consumers do things that used to be possible for experts exclusively. For instance, the principle of the *Kodak* system is the separation of the work that any person whatsoever can do in making a photograph from the work that only an expert can do. This is actually a social innovation. See Lessig 2004, 33. Another good example is *Napster* by making it possible to exchange music files regardless of any controlling service provides.

527 This may lie in the background of the sceptical attitude towards business method patents. It has been thought that they may easily stifle e-commerce. See *COM (2002) 92 final*, 11.

528 See Pollack 2002, 70.

fundamental consideration of an unpatentable idea and a potentially patentable embodiment of an idea.[529]

The distinction between an idea and its expression in software is clearly revealed in examining software as copyrightable intellectual property. The very essence of copyright is that it is founded on the expression found in a work. It is thus only the expression of an idea that is the focus here. The way in which a certain idea is expressed can be copyrighted, whereas the underlying idea is left open to access and use.[530] As an expressive manifestation, software has traditionally been protected through copyright.[531] A pure business method, however, is clearly different from this. A business method is fundamentally founded on an idea an having an idea as the basis of business method makes it rather complicated to protect through pure copyright. A business method or business idea is unquestionably an *abstract construction* given the abstract character of the idea forms the core of the method.[532]

The distinction between idea and expression is clearly manifested in copyright in the United States, where it is examined in terms of what is known as the *merger rule*.[533] The merger rule is based on an evaluation of the *description* of a work. The rule is at least partly based on communication, which in turn is grounded on the coexistence of abstract and concrete elements in the same work.[534] The characterization required by the merger rule is carried out successively along a continuum *from concreteness to abstractness*.[535] The rule thus makes it possible to assess a work both as a concrete creation and an abstract idea. When a work is concrete, it is a *specific* type of work: on the other hand, when it is abstract, it is a *general* type of work. Communicatively the structure is thus driven from the more specific towards the more general.

It is thus the *originality of a work* that plays a significant role when sharpening the edge between specificity and generality. Further, at each point of evaluation, features of

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529 This distinction between an idea and its embodiment is reported by Stern 1999, 109.

530 Drawing the distinction between idea and expression is rather complicated. Instead of drawing a thick line it might also be reasonable to look at the impression of the total work in question. See Vaidhyanathan 2001, 107.

531 The strictest reading of the idea/expression dichotomy would support the thinnest possible copyright protection. See Vaidhyanathan 2001, 86.

532 A pure business idea may be compared to a scientific idea that will not enter the scope of patentability. One basis for this is that patents on methods would destroy legitimate competition and impede scientific progress. See Stern 1999, 119 - 120.

533 See Stern 1999, 108.

534 This is well manifested, for example, in the definition of a new machine in the sense of patentable software that is part of a computer. An invention ought to be considered as a whole given that programming creates a new machine when a general purpose computer becomes a special purpose one by programming it to perform particular functions pursuant to instructions from program software. See Schallop 1999, 95 - 96.

535 In terms of copyright, concrete is specific and abstract is general. See Stern 1999, 108.

the work may be considered as a part of its protected expression or as part of its unprotected idea. It is thus the divergence between idea and expression that is the focus. The principal criterion for a work to be protected for expression is *whether the protected expression leaves only some or no alternative for a possible unprotected expression available for use by others who might want to apply the same ideas*. When the possible alternatives are only few, or none, expression is considered to merge into idea.[536] On the other hand, when the expression is concrete, the related communication is also more closely connected to this particular form of expression. When the expression is more abstract, communication is carried out more on the level of ideas. In other words, the form of expression directly affects communication involved.

2.5.2.2 From creativity to usefulness

A patentable invention must be *useful*. A business method or even a mathematical algorithm is patentable at present provided it produces a useful, concrete and tangible result.[537] Usefulness is thus one of the crucial prerequisites of patentability. This does not, however, mean that all discoveries must be useful in some way. An invention may well be functional but as such it may not be patented. Therefore, at least some degree of usefulness is always an essential requirement of patentability.[538] Usefulness also connects an invention and society overall closely together and, accordingly, promotes effective communication.

The usefulness of an invention is a *societal qualification*. In this sense a business method becomes a useful invention when it is related to society. Societal communication occurs through the *mutual relation of usefulness and inventiveness*. Further, the implementation of an invention fundamentally encourages societal communication. Societal communication has another task in the area of patenting business methods: an invention gets its justification from its usefulness in the societal framework. The inventor needs to show that the world needs the invention. In other words, there has to be some unmet need somewhere in the economy that the invention fulfils.[539] In this sense, an invention

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536 The merged idea/expression thus makes the expression ineligible for copyright protection. See Stern 1999, 108 - 109.

537 Mathematical algorithms are thus not patentable as they are based on mere abstract ideas. This is the essence of the decision in *State Street Bank & Trust v. Signature Financial Group*. See Chandra 2002, 551.

538 See Quinn 2002, 128 - 129.

539 See Hall 2001, 188.

ought to be *exploitable in the societal framework*. Exploitability is thus closely bound to usefulness.[540]

Usefulness is thus closely bound to the prerequisites for patenting business methods. Usefulness is likewise often related to the technical character of an invention. Accordingly, as a patentable invention, a business method also ought to produce a useful result.[541] Business methods are, however, characteristically not technical, whereby the usefulness of business methods must be examined through the distinction between *practical and liberal arts*.[542] Business methods, like music and paintings, fall within the liberal arts or cultural arts rather than the practical arts; they would seem inappropriate as objects of patents. On the other hand, the practical arts have sometimes been described as technological arts. This classification brings to mind the requirements for patenting software and at the same time any business method that now needs to be carried out by means of programmed computer. This generally suffices to make a business method part of the technological arts and as such patentable.[543]

2.5.2.3 From tradition to novelty

Inventions are generally new. Indeed, the patentability of an invention rests on the criterion of *novelty*.[544] An invention has to be considered new in order to become an individual and an independent invention. The requirement of novelty is defined in terms of the *existing technology or the state of the art*.[545] Here, novelty in fact breaks down the paradigmatic traditions through fresh approaches. On the other hand, a lack of novelty

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540 This is manifested in an exemplary manner in the *European Patent Convention*, where a prerequisite for patentability is some industrial use of the invention. *EPC article 57*: *"Industrial application*. An invention shall be considered as susceptible of industrial application if it can be made or used in any kind of industry, including agriculture. "See http://www.european-patent-office.org/legal/epc/e/ar57.html#A57

541 This is precisely where the boundaries of patentability are tested in granting patents for business methods. It is thus processes that are causing problems in patenting as a process is not necessarily any set of technical steps anymore. On the other hand, it seems that any sort of communicable technique can be articulated as a series of steps. See Thomas 1999, 4 - 5.

542 The distinction is made by Stern 1999, 127.

543 The definition of "useful arts" is variable. Stern explains it to be "bodies of knowledge relating to the trades that artisans play." See Stern 1999, 127 - 129.

544 See Hall 2001, 188.

545 The prerequisite of novelty is stated in *EPC 54 (1)*: "*Novelty*: an invention shall be considered to be new if it does not form part of the state of the art".
See http://www.european-patent-office.org/legal/epc/e/ar57.html#A57

will result in a patent not being granted.[546] In this respect novelty also means that the information concerning an invention has not been published before applying for a patent. Here an explanatory example is found in the decision of the *Finnish Supreme Court KKO:1988:16* (S86/1155) where 45 pieces of a dropper included in the patent application had been sold before applying for the patent. A patent was denied because the invention became public before the patent was sought.

> *KKO:1988:16.* A had sold 45 droppers before applying for a patent. The transactions were made without any agreement on keeping the content of the invention a secret. The invention was therefore made public by providing access to the information for an undefined number of people and offering them a possibility to familiarize themselves with the invention to be patented. The patent was denied because the invention had been made public before a patent had been sought.

The novelty of an invention is closely connected to the *creativity of an idea*. An underlying idea is creative when it is novel, surprising, and valuable.[547] In this sense business methods may clearly be defined as novel creations, for the very character of a business method is founded on creativity and novelty. This is actually a rather crucial prerequisite for a business method to become successful in the market. Novelty is firmly established as the core of a business method even more when examining the additional attributes of creativity. Creativity is first of all not an *all-or-nothing phenomenon*. It is a continuous process where an idea and its excellence develop successively. When related to society overall, a business method may thus be considered a social process. On the other hand, defining the creativity of an idea is not a matter of degree. There are actually various ways in which an idea can be creative, and therefore the assessment of creativity is carried out in terms of *in what respects* an idea is creative. Creativity is thus defined rather *subjectively*. Moreover, an idea may be more creative than another in some ways, and less so in others.[548]

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546 A patent is thus invalid when it is granted for an invention that is not new or if the inventive step is lacking. The patentability of computer-implemented inventions may even have some other problems. Patents for computer-implemented inventions may strengthen a big market player's market position or patents for incremental innovation may entail additional economic costs. See *COM (2002) 92 final*, 6.

547 See Boden 1998, 309.

548 In other words, the question is not whether an idea is creative or not. See Boden 1998, 309.

Even in itself an idea is thus relatively creative and its applicability is rather extensively dependent on the framework in which it is to be exploited.[549] Novelty as creativity may be further examined through the difference between copyright and patent. The difference between these two forms of protection becomes apparent when one contrast the *essential level of creativity* each requires. To get a patent issued, an inventor needs to demonstrate that the invention is new.[550] The patentable invention has to be novel in the sense that *noone has seen it* ever before. Novelty thus refers to real novelty. In contrast, originality in copyright is at a lower level. An author may get his or her work to copyrighted as an independently created work even if the work is closely similar to an existing one. The only prerequisite is that the author has not in fact copied an existing work.[551] The originality of copyright is thus somewhat more subjective than that of patentability.

2.5.2.4 From private to public

Patent is basically *an agreement* between an inventor and the government in which the inventor reveals the core idea of his or her invention and receives a patent in return.[552] Private information is thus made public. In this way a patent actually operates as a *communicative instrument* between technological development and society at large. The communication is vertical in that it occurs between the governing power and the inventor. In other words, it is the governing power that opens up the possibility for this kind of communication. The inventor grants the public access to his or her invention and as a reward gets the exclusive right to exploit the invention for a restricted period of time.

This is exactly where the *communicative link* is established. There always exists a need for proper disclosure in order to open public access to the content of an

549 Many software-related patents can be described as having no practical application except to digital computing. For instance, cryptography and cryptographic technologies (for example, *Schlafly v. Caro-Kann, Corp.* U.S. pat. 4,405,829) has practical use generally only in digital computing. See Schallop 1999, 107.

550 In other words, no one in the world must have seen the invention before. The invention has to be non-obvious to a person having ordinary skill in the art to which it pertains. See Samuels 2000, 128.

551 Originality needs, however, to include at least some minimal level of creativity. The mere compilation of facts as a creation does not reach the level of originality required for copyrightability. Further, facts as such are not copyrightable because facts exist independently, not on the basis of someone's authorship. See Samuels 2000, 128 - 129.

552 See Hall 2001, 189.

invention.[553] Business methods are comparatively complicated in terms of opening up public access to patented information. The crucial problem lies in the *high level of abstraction* of business methods. A business method is a rather abstract creation and it is relatively complicated to describe in any concrete manner.[554] The patentability of a business method is closely connected to the ability to draw a line of demarcation between an unprotectable abstract idea and the protectable physical embodiment of an idea.[555]

The mutual coexistence of private and public in business method patents is also manifested in a slightly different perspective, i.e., in the patentability of software. Software patents that have been granted for generic computer programs can operate on a variety of computers.[556] The granting of such patents means the overall view of patentability is evolving slightly, at least as far as business methods are concerned. In the network economy, there is thus a crucial desire for the *compatibility and interoperability* of computer software. This is in fact the fundamental prerequisite for the network effect and, accordingly, for the crucial networking of the digital framework.[557]

2.5.2.5 From evolution to inventiveness

A patentable invention has to fulfil the requirement of *non-obviousness*.[558] Non-obviousness is closely related to inventiveness. To be non-obvious, an invention has to be based on some previously unknown knowledge. In addition an invention is considered to involve

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553 On the other hand, disclosure and in this way making the invention public draws a demarcation line between a patentable and an unpatentable invention. When an invention has become public, it is no longer patentable because it lacks novelty. An invention is public when a large group of people has access to the information included in it. See *NU 1963:6*, 123.

554 The disclosure may also be implemented widely and it is sometimes even too extensive. *Priceline* (U.S. pat. 5,794,207) included in its patent an illustration of how to use the method. The illustration was described in a manual that was focused on what is called embodiment, e. g. an example of how to run a business by means of the patented method. The purpose of the manual is to disclose enough about the invention so that someone else could build a business based on it. On the other hand, when examining a method similar to Priceline's, the legal question is not whether it has copied the method described in the manual. The manual is thus only an illustration. See Hall 2001, 190 - 191.

555 This is precisely the demarcation line of patentability in general. See Stern 1999, 130.

556 Traditionally, software was closely bound to hardware and software and algorithm patents were integral to the operation of specific hardware devices. In the present day, software applications are less dependent on hardware. See Moy 2000, 68.

557 In other words, the consumer demand for software enjoys positive network effects in that the attractiveness of a product increases with the number of people using it. This applies in the are of software, too. See Moy 2000, 69.

558 See Hall 2001, 188 - 189.

an inventive step if it is not obvious to a sufficiently skilled person.[559] In the case of business methods, non-obviousness has a close relation to patenting traditional business methods that have merely been implemented in the new framework.[560] These traditional business methods may have be in use for a long time and are hence part of the public domain. Therefore, only applying a business method in a new environment does not make it a new one.[561]

Non-obviousness has a close relation to novelty. In assessing the novelty of new applications, non-obviousness constitutes an important analytical tool. Non-obviousness is actually a rather central prerequisite when defining the patentability of a business method. The level of inventiveness and thus the level of non-obviousness are defined through the *state of the art*. Such an assessment requires the careful definition of a line of demarcation, with the distinction again lying along the continuum abstract/concrete. On one side of the line are the legally protectable aspects of innovative contributions as concrete inventions. These are mostly *concrete and specific applications*. On the other side are the legally unprotectable contributions. These are based on the *abstract character* of inventions and general aspects of them.[562]

Inventiveness may further be examined through copyright. An illustrative aside here is the copyright law of the United States, where there exists what is known as the *doctrine of scènes à faire*. This doctrine recognizes that certain genres require certain elements, or at least almost always utilize these elements. Without these stock elements,

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559 See *EPC 56 article*: "An invention shall be considered as involving an inventive step if, having regard to the state of the art, it is not obvious to a person skilled in the art. If the state of the art also includes documents within the meaning of Article 54, paragraph 3, these documents are not to be considered in deciding whether there has been an inventive step."
See http://www.european-patent-office.org/legal/epc/e/ar57.html#A57

560 For instance, Amazon.com's famous business method called the *one-click patent* (U.S. pat. 5,960,411) is a good example of an invention based on pure obviousness, or at least rather close to obviousness. The patent thus covers Amazon.com's ordering model in the network environment. The invention is to be related to a computer method and system for placing an order and, more particularly, to a method and system for ordering items over the Internet. The business idea itself is based on profiling, where the trade services are offered slightly differently depending on the customer. The counterargument for non-obviousness is well based on Barnes & Noble's online bookstore and its feature called the *Express Lane*. Express Lane permits orders with a single click. However, the question still remains whether on-line shopping rises above an idea that would occur to almost any Web store designer. See Hall 2001, 195.

561 A business method as an invention is considered obvious if the only significant difference between the combined teachings of the prior art and the claimed invention is that the claimed invention is appropriate for use with computer technology. The presumption of obviousness is thus created when the most significant difference from the prior art is the implementation of the method in software. See Korn 2002, 1377.

562 Establishing a workable criteria for this kind of line of demarcation is even a larger problem in intellectual property law. See Stern 1999, 107.

those to whom the work is directed may fail to receive the relevant cues. This doctrine has been extended to aspects of computer programs that necessarily result from hardware standards and mechanical specifications, software standards and compatibility requirements, computer manufacturer design standards, programming practices, and the practices and demands of the industry being served.[563] In this way, these elements have become a part of the *scènes à faire* for computer programs. Moreover, in the context of business and computer programs, the doctrine of *scènes à faire* has been extended to practices and prerequisites of the industry that the computer program generally serves. Hence, the concept of expression and the *scènes à faire* are already defined or circumscribed in terms of business functionality.[564] Elements that are considered mere ideas or only a part of the *scènes à faire* get only some protection or no protection at all, while the expressive elements of a work get much more protection.[565]

In the context of societal communication, inventiveness contributes to the communicational pattern in a slightly different way. Communication is not truly vertical: rather it may be described as *mutual communication*. Mutuality in communication is based on constructing impersonal relationships, in which respect mutual communication differs somewhat from horizontal communication. Horizontal communication may be mutual, but the communicating parties may be rather loosely connected. On the other hand, the core of horizontal communication is to construct cooperative networks whereas mutual communication builds more on the substantive content of the communication. Patented business methods constitute a crucial part of mutual communication, with inventiveness and non-obviousness both forming core aspects of this communication.

2.6 Summary: The significance of ideas and the social nature of innovativeness

Freely circulating ideas constitute the basis of innovativeness. Further, innovativeness is founded on governing ideas and using them in a reasonable way. The essence of innovativeness lies in the free circulation of information, with the strict harnessing of ideas easily preventing or disturbing that innovativeness. The digital economy is fundamentally based on innovativeness in using and in creating new business models. It seems to encourage the control of ideas, which is mainly due to the importance of innovativeness and innovations as the kernel of the functions of digital economy. Further, in the digital economy ideas and innovations are generally commercialized in order to create economic wealth and growth. This is realized by commercializing ideas or

563 See Stern 1999, 136 - 137.

564 See Stern 1999, 138 - 139.

565 See Stern 1999, 143.

products but also through creating competitive business methods that represent social innovations.

Business methods clearly bind together business and technology, with the core of the method is generally based on technological development and new technological inventions. A business method is generally defined as an architecture for product, service and information flows. In this respect business methods include communication in their essential core. The communicational aspect of business methods is approached from two directions of intellectual property law, i.e., patent and copyright. This is due to the legal background of software, which has become the very kernel of the business methods being implemented in a totally digitized environment. Software can be protected through patent or through copyright and business methods as inventions are usually built up in the form of software. In order to be able to act functionally in cyberspace, applied inventions need to be constructed technically.

The communicational background of the digital environment is linked to different operations within the overall business method. Communication is realized as it relates to customers and gathering information about them, whereas a business is sooner founded on informing customers about the enterprise and its existence. Business models in the digital economy are based on commerce and exchange, with the models endeavoring to control and govern trade. Computer software is designed to make computers functional, and business methods are created for functionality as well. Further, the communicational background of business methods lies in the originality and usefulness of the software or business methods involved. Copyrightable software needs to be original, and patentable software ought to be useful as well. This is in fact the difference between copyrighted and patented software: copyright is aimed more at protecting cultural values and patents are granted for inventions that may have some use in manufacturing. Originality and usefulness set some further requirements for innovativeness. Innovativeness needs to be realized on the basis of patented inventions or copyrighted creations. Innovativeness is thus a step forward from a copyrighted creation or patented invention.

Business methods are thus closely related to innovativeness, which makes them communicative. Accordingly, they can be considered social innovations; i.e., they are in continuous communication with the surrounding society. The societal communication in the core of a business method is based on the clear distinction between an idea and expression in software. In external communication, it is founded on the expression revealed to the outside world. In other words, it is the expression of an idea that is the focus when communicating with the public. On the other hand, expression as a qualifier is ambiguous. In this respect a pure business method is slightly different when it is fundamentally founded on a rather hazy idea. A business method as such is relatively abstract in character. A business method may be assessed on a twofold basis: it may be a concrete work or an abstract general type of work. The distinction lies in the originality

of the work, with the features of the work having to be assessed as part of its protected expression or as part of its unprotected idea at each step in the evaluation.

The social character of a business method is further manifested in its usefulness. Generally, usefulness is related to the technical character of an invention, given that patentable inventions should produce a useful result. Usefulness is not, however, embodied exclusively in technicality but may include a more abstract useful result as well. Accordingly, the usefulness of a business method may be examined through the distinction between practical and liberal arts. In this perspective a business method is a useful invention when it serves to society. Usefulness is closely related to society when it closely connects the patentable invention and society at large. Societal communication is thus carried out through the mutual relation of usefulness and inventiveness. As an invention, a business method hence gets its justification from its usefulness in the societal framework. The inventor needs to show that the world needs the invention, there generally always being some unmet need somewhere in the economy for the invention to fulfil. Usefulness also implies that the business method is exploitable in the societal framework.

The novelty of an invention is a social relationship. An invention thus has to be considered new in terms of existing technology or the state of the art. Novelty is also closely connected to the creativity of an idea. In this respect a business method may clearly be defined as a novel creation in that by its very nature it is founded on creativity and novelty. This is actually a rather crucial prerequisite for a business method to become successful in the market. In this respect, novelty and creativity comprise the core of the communicativeness of business methods as they relate to society overall. The communicativeness and the social character of business methods are thus even further emphasized through creativity. Creativity is a continuous social process where an idea and its success evolve and develop. The creativity of an idea is not a matter of degree, for the assessment of creativity addresses in what respect an idea is creative. Creativity is thus defined rather subjectively.

A patent is an agreement between an inventor and the government. The inventor reveals the core idea of his or her invention and at the same time makes the information public: a patent is a reward. In this way a patent operates as a communicative instrument between technological development and society. The communicative complication of disclosure in business methods stems from their high level of abstraction. This is the problem of social innovations in general. A business method is an abstract creation and also often complicated to describe in any concrete manner. Therefore, the patentability of business methods is closely linked to the ability to draw a line of demarcation between an abstract idea and the physical embodiment of an idea. This again stems from the subjective character of business methods.

Patentable inventions have to fulfil the requirement of non-obviousness, with inventions in general required to include previously unknown knowledge. The level of

inventiveness and thus the level of non-obviousness are defined through the state of the art, with the difference assessed on the axis of abstract and concrete. This is likewise the communicational focus of non-obviousness. On one side of the line of demarcation are the legally protectable aspects of innovative contributions as concrete inventions; on the other are the legally unprotectable contributions. The latter are based on the abstract character and general aspects of inventions. Non-obviousness is defined using this line of demarcation. On the other hand, the interplay of concrete and abstract is based on societal communication. Here, communication is not truly vertical, however; rather, it may be described as mutual communication. The core of mutual communication is to build up some substantive content for the communication itself. Patented business methods thus constitute a crucial part of mutual communication, with inventiveness and non-obviousness both being core aspects of this communication.

3 MONEY TALKS!

3.1 Money and society

Money is communication. As such it is utilized as a *societal communicative instrument*. This implies that money becomes one of the most essential links between the economy and society, given that these are considered social relationships.[566] Money is not, however, a fundamental necessity; social relationships may surely be created and managed without money. An illustrative example is the *ritual exchange* of valuable objects in which there is no money involved at all. Nevertheless the exchange of valuable objects actually constitutes a primitive form of exchanging money.[567]

In societal communication, money also serves as an *indication of human needs*; i.e., human needs are often expressed through money.[568] This means that some individual human needs are converted into more general, abstract needs. Money makes the needs and requirements of people somewhat more abstract. These needs are then constituted and maintained as a market.[569] Modern society, as well as modern exchange, employs goods rather than money as the instruments of exchange. Goods are thereby utilized as the denominators of human needs. This is fundamentally due to utilization as the basis of modern society, which makes it possible to use goods and supplies in exchange. In this way the communicativeness of modern society is embedded in goods and their mutual relationships.[570] These relationships then further constitute a social network that draws on human relationships.[571]

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566 In Simmel's sociology, this is clearly found in the polarity of the metropolis and the monetary economy. Whereas the metropolis is the point of concentration of modernity, the mature money economy is responsible for the diffusion of modernity throughout society. See Frisby 1990, 62. See also Renner 1949, 136 - 137.

567 In primitive societies, certain categories of goods, such as livestock or articles of clothing, serve as primitive forms of money. There is also less trade with objects of daily use than with raw materials, implements, and jewelry. See Habermas 1989, 163.

568 An illustrative example of this is open source software communities, which have often been described as *gift economies* in which gifts are exchanged for reputation. See Raymond 2001, 80 - 81.

569 See Tolonen, H. 1992, 225 - 226.

570 Money is considered to have structure-forming effects when it becomes an intersystemic medium of interchange. The economy is constituted as a monetarily steered subsystem when it regulates its interchanges with its social environments via the medium of money. See Habermas 1989, 171.

571 Vähämäki writes about the *soul of a thing*. All things have a soul and it is the soul in particular that includes the communicativeness and the value of a thing. See Vähämäki 2003, 66.

Human relationships ,although founded on the exchange of goods, need to be anchored to societal foundations.[572]Moreover, the relationships are illustrations of the general communicative interests that comprise the governance architecture. The governance architecture is further based on the communication of the interests of the state, the market and the commons.[573] These interests, as well as human relationships in society, need to be valued. In this respect, the anchoring nexus cannot be based on a name or idea, as both of these entail a kind of second level bound to the society. Names and ideas both have several social tasks in addition to their connective character. Accordingly, the societal dimension entail a crucial requirement of that *most absolute value* be used in the governance architecture. This value is found in money.

3.2 Credit money and the static credit relationship

3.2.1 The verticality of credit relationships

In communication, money is generally the kernel of capital, with capital being the linking element between money and innovativeness. Increasing innovativeness as one of the core aspects of the digital economy always requires some capital. This is realized through money, which is utilized by business management as an *organizing instrument*. Money is a tool for strategic business designs and thereby an instrument for realizing rapid innovativeness at a high level. Capital is essential for business investments in the functional economy. Capital consists of either *equity* or *current liabilities*. Because of the size of investments, the financial capital of an enterprise is generally based on current liabilities, and thus is often dependent on the ability of an enterprise to get credit. This is naturally due to the lack of paid-up capital in small and newly established enterprises. In sum, credit seems to be the only possibility for such enterprises to get their business started.

The different varieties of capital may be examined in terms of *how dynamic* they are. These dynamics derive form the essence of the financial structure. This has a direct implication for the different ways in which communication can be seen as related to finance. Communication and finance thus operate in a close mutual coexistence. In this respect communication constitutes a *structural part of capital*. At this scale capital in its most static sense may be found in the credit relationship. The statics of the relationship

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572 In the Habermasian sense the lifeworld is only a subsystem that defines the pattern of societal system as a whole. Societal systems ought to be anchored in the lifeworld through a certain institutionalization. See Habermas 1989, 154.

573 This may further be considered as the interplay of *communicative action* and *strategic action*. Communicative action is more likely to be founded on linguistic communication, whereas strategic action is based directly on causal influence. See Tuori 2000, 113.

are founded on the basic elements of legal relations, i.e., the distinctiveness of the legal subject, legal object and legal relationship. This is indeed the very core of the overall traditional make-up of legal relationships.[574] This threefold structure also constitutes the communicativeness of the credit relationship and makes it static at the same time.

The credit relationship is basically a *bilateral legal relationship*. It is thus closely bound to a structure having two different subjects as the actors in the relationship. This is what gives the relationship verticality.[575] A credit relationship is an economic relationship in which two parties have committed themselves to *non-simultaneous payments*.[576] In other words, the relationship is typically based on continuity, with non-simultaneousness being its one of core aspects. At the same time, non-simultaneousness causes some grave problems for the statics of the relationship. The payments are equal (or as agreed) but the non-simultaneousness leaves the relationship *open and therefore variable*.[577] On the other hand, non-simultaneousness of payments requires trust as the basis of the overall relationship.[578] As a rule, the payments are to be carried out simultaneously, with the collateral remaining only secondary.[579] The essence of the relationship is still as static as the primary character or the approximate equality of the parties.

The vertical credit relationship is based on non-simultaneousness in the responsibilities of the parties. On the other hand, non-simultaneousness as the core element of this relationship emphasizes the communicative character of money and hence the communicativeness of capital. Payments that are not carried out simultaneously leave the credit relationship open and thereby transformable. Further, the openness and transforming character of this relationship need to be founded on some degree of communication. Therefore, in order to be *functional*, this open relationship needs to be based on communication. On the other hand non-simultaneousness keeps the boundaries of the communicative pattern rather open. Openness keeps the

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574 This closely resembles the functions of the *basic norm* as described by *Hans Kelsen*. A basic norm is supposed to be valid and thus it authorizes further norm creation. A norm belongs to an order that is founded on such a basic norm, because it was created in a fashion determined by the basic norm. See Kelsen 2003, 197.

575 Actually many transactions today do not involve money at all. Instead, they are based on credit, with the trader of goods receiving a *promise* form the buyer to pay money in the future. Credit is thus nevertheless tied to money. See Stiglitz 1997, 724.

576 See Tarkka 1993, 49 - 50.

577 An illustrative example of this kind of openness in a credit relationship is the right of a bank to set off debts. This right actually even strengthens the power of a bank in a credit relationship given that most income is governed by a bank and through bank accounts. See Koulu 1992, 588 - 589.

578 Fundamentally, the trader or the creditor has to trust in the promise of the buyer or the debtor. See Stiglitz 1997, 724.

579 See Havansi 1984, 120.

communication within certain bounds and anchored to certain relationships. Yet even a non-simultaneous credit relationship is characteristically founded on money; i.e., money drives communication. Thus, money creates a *link for communication*, with the communication itself clearly embedded in the financial relationship. Basically, it is the credit relationship as a basic relationship that shapes governance through communication.

Further, the credit relationship is based on *bilateral consensus* requiring the free will of both parties.[580] As such, the credit relationship is based on consistent agreements between the parties. The parties must thus both have the intent to be bound in order to enter into the relationship.[581] Consensus really is enough: there need not be any supplementary elements. As long as both parties are committed to the relationship, the relationship remains stable. It is precisely this intent that requires free will. Free will then forms the basis for further communication. This is where the core of the communicative pattern is constituted. The kernel is thus founded, on the one hand, on *bilateral commitment* and, on the other hand, on the *significance of money* as a communicative medium. In the vertical credit relationship these two main elements are also the cornerstones of the governance structure, in which money operates as the basic medium.

3.2.2 Abstractness and the communicativeness of money

A credit relationship in its traditional sense is structurally vertical. This is due to the non-simultaneous kernel of this relationship, where the main focus is on the compact organization of the positions of the actors. The communicative pattern of the traditional credit relationship remains rather unfit for the purposes of intellectual property. It mainly seems to be too static due to the need to define the legal object narrowly. The legal object includes credit as an object and the overall collateral security. This is exactly the reason why intellectual capital is rather hard to fit into the static pattern of the vertical credit relationship.

There thus exists a crucial need to create a sustainable governance instrument for intellectual property. This is due to the *significance of money* as the kernel of the credit relationship. Namely, as a governing tool money is *relatively intangible*. Despite its intangible character as a governing tool in the static communication pattern, money ought to be treated as an object. This is also why it needs to be defined extremely rigorously. On the other hand, the intangibility of money is decidedly complicated to

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580 See Havansi 1984, 114.

581 The intent to be bound is actually the basis of the whole contract as it is defined as a *consensual contract*. The opposite is a *real contract*, which also requires something concrete, for example an object that is handed over, to become binding. See Aurejärvi - Hemmo 2004, 11 - 12.

understand within the framework of the traditional legal system. The legal system in its traditional sense needs concrete structures, i.e., *objects*, in order to operate. Objects are clearly easier for traditional legal thinking to work with. It is obvious that traditional legal thinking concentrates more on governing legal objects than legal relationships. Things are easier to handle than relationships from the viewpoint of the legal system.[582]

Money is traditionally defined as an object.[583] Instead of seeing money as an object, however, it is possible to see *money as positions*. Then again, when examined as positions, money becomes extremely hard for the traditional legal system and its internal logic to understand. As positions, money may be treated as an abstract construction, as a mere object it clearly differs from its fundamental role as a communicative instrument in multi-party relationships.[584] Further, as an abstraction, money may be used for arranging mutual societal relationships. In this sense, money operates as a tool of governance where it belonging to both the private and public spheres of governance.[585] This stems from the abstract character of money, which makes it detached from the fundamental reason for payment.[586] Money is hence *loosened from its purpose*. This is where the non-simultaneousness of the credit relationship connects *intangibility* as the abstract character of money and the *communicativeness* of the credit relationship. Money is a governance tool for mutual cooperation and at the same time maintains that relationship.

3.2.3 Communication, relationships and governance

The credit relationship may also be studied from the *viewpoint of communication*, which imposes some additional tasks on the relationship. The most fundamental purpose of a credit relationship, from the viewpoint of communication, is not to construct an interrelated communicative pattern. On the contrary, a communicative pattern is based on bilaterality: it requires and can only even benefit two parties. This is the basis of the

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582 In this sense, a subjective right (*subjectives Recht*) is not actually a concept in the legal order but rather a concept of jurisprudence. See Mincke 1979, 51 - 52.

583 On the other hand, money that is stored in a bank account is often considered only as a unit of bookkeeping and is actually a rather abstract construction. See Koulu 1992, 590 - 591.

584 Money is thus generally defined as a medium of exchange, this rather narrow focus creating some difficulties in understanding modern capitalist credit money. Credit money as a special means of debt or promises to pay issued by states and banks becomes a means of payment and a store of abstract value. See Ingham 1999, 18.

585 Money may be employed even as a form or medium of governance. See Habermas 1989, 180 - 181.

586 This is clearly the idea of a negotiable promissory note. The legal basis is the foundation of the negotiable promissory note but it does not have to be mentioned, nor is the duty of the debtor explained through this. See Aurejärvi - Hemmo 2004, 99.

verticality of a credit relationship. In other words, a credit relationship is fundamentally constituted in such a way that it can only accommodate two parties. A multi-party relationship is rather impossible from the viewpoint of traditional legal thinking. Parties to a credit relationship are bound to each other through the relationship. On the other hand, a credit relationship is the basic element of a vertical credit relationship.

Credit money constitutes a special connection within the vertical credit relationship. The relationship operates as a connective link, with this special nature embedded directly in the relationship. The connection makes the whole relationship *dualistic* and at the same time *duplex*. There actually exist two ostensibly corresponding relationships. These relationships are, however, not similar when compared to each other because of the binding character of the relationship. One party is obligated to pay while the other is entitled to demand payment. These obligations and entitlements correlate with each other and constitute the overall vertical credit relationship.

An illuminating counterexample may be found from joint ownership. A tangible thing may be owned jointly, with the mutual relationships of the part-owners being parallel and at the same time equivalent. The relationship itself does not alter the structure as a whole and the communicative structure of the relationship remains the same, no matter how many part-owners there are. This exemplifies one of the most crucial problems when constructing governance through money. The example shows why the credit relationship is slightly different as a relation. This is exactly where money and traditional tangible or intellectual property differ from each other from the viewpoint of governance. Further, this has direct implications for how to govern risks for credit losses. It seems that a two-way credit relationship is too static for the more complicated design of risk governance, particularly in the case of enterprises whose capital is mostly comprised of intellectual assets

On the other hand, credit is guaranteed through a collateral security.[587] The quality of the security instrument as a guarantee is closely *bound to its value*, more precisely its economic value. Therefore, it is extremely important to be able to calculate its value exactly and reliably.[588] The difficulty of calculating value is where the problems emerge in the area of intellectual capital. It is extremely complicated to define the value of intellectual assets in any reliable way. Additionally, credit relationships in the area of intellectual property are more complicated than in simple duplex two-party relationships like the traditional credit relationship. This derives form the character of intellectual property and essence as a consortium of several different forms of governance.

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587 See Havansi 1984, 22 - 23.

588 On the other hand, in a pure credit economy there would be no need for money: rather, the overall system of credit relationships could be defined as mutually corresponding credits. Money would thereby be utilized only as an indicator of value. See Tarkka 1993, 50 - 51.

3.3 The market and communicative relationships

3.3.1 The market as relationships

Free capital is one of the four main principles of the Internal Market Act of the European Union.[589] Particularly at the level of corporate Europe, it is the integrating financial market that is one of the cornerstones of integration overall.[590] One explanation for this may be found precisely in the correspondence between economic and social relationships; i.e., social and economic relationship are clearly interrelated. Social relationships may be conveyed through the economy and exchange may include societal functions. In these societal functions money operates as the basis of the relationship between things as expressed in economic interaction.[591]

Money is generally considered an instrument for *making earnings*. Money is thus a tool for making profit and as such is founded on its capitalistic potential. Money is also a factor of production in the manufacturing process. As a part of the manufacturing process money creates economic growth and as such it is entitled to compensation. Money thus operates as a tool to *arrange economic relationships*, with money itself used as *tool of exchange*.[592] Money hence has a kind of dual task as an instrument of governance and as a tool of exchange. In this respect money constitutes a particular mechanism of exchange in transforming use values into exchange values. This is exactly how money operates for communicating human needs in societal cooperation. Through money the *natural exchange* of goods is transformed into the *commercial exchange* of commodities.[593]

Money has *different functions* in exchange.[594] These functions are based on the substantial distinction between the tasks of money as capital and as a tool of exchange. The distinction is linked, on the one hand, to payment for labor and, on the other, to the

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589 See the *Treaty on European Union*, done at Maastricht on the 7th of February 1992: Preamble.

590 See Rudanko 1995, 66 - 67.

591 See Frisby 1990, 66.

592 This implies a legal interest. See Tolonen, H. 1992, 229 - 231.

593 See Habermas 1989, 171.

594 The so-called *meta-theory of economy* that underpins the classical or neo-classical analysis of money is concerned exclusively with money as a medium of exchange. The other functions of money, i.e., as a unit of account, as a means of payment, and as a store of value, are assumed to follow from its function as a medium of exchange. See Ingham 1999, 17.

opportunity to trade.[595] Payment for labor is the essence of capital, whereas money in trade makes up the core of exchange. Money is generally employed in a dual use, with the way it is used depending on its task in society.[596] In an exchange-oriented society the opportunity for commerce seems to be the main task of money. Thus the significance of money is not as important in the manufacturing process, which is essentially based on the labor force. Instead, the main function of money is the possibility it offers to buy something and sell it further at a profit. The significance of money therefore lies especially in its usability in trade and exchange, where it has an active role as creator of value.[597]

3.3.2 The materialization and juridification of money

Money is a crucial instrument in exchange. In exchange the significance of money is based on its *materialization*, by which money becomes an asset and is further utilized as such. This means that the value of materialized money is based on its potential for profit and the use of this in the market.[598] Materialized money offers a clear point of reference for money as a tool of governance. The utilization of money and its advantages in governance are both realized in practice by *accepting money in payments* made to the state's offices. All ways to make a payment form part of the monetary system.[599]

The materialization of money is carried out in parallel with and at the same time as the *juridification of money*. This is significant if money is to be concretized as the kernel of governance, and the parallel materialization and juridification of money makes it possible to exploit the features of money. This then enables the creation of a sustainable governance system based on money. On the other hand, these two structural elements differ to some extent. The materialization of money is still bound to its *usability in the market*, while juridification is more functional from the *systemic view*. The juridification of money is thus more likely to linked to how communicative relationships are arranged in which money is still one significant and rather essential instrument. On the other hand,

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595 For example, money made it possible for a merchant to buy a ship and import spices to be sold back at home. See Tolonen, H. 1992, 230.

596 This may actually lead to failure in recognizing that money in fact necessarily *consists of social relations* between economic agents and a monetary authority. All monetary systems, like the one where money is considered as commodity, are social systems. Further, credit money is qualitatively distinct form a system in which money itself is essentially the social relation of the promise to pay. See Ingham 1999, 19.

597 See Tolonen, H. 1992, 230.

598 See Tolonen, H. 1992, 231.

599 The monetary system is thus formed through accepting money as a payment. It is not the issue, but the acceptation, which is decisive here. State acceptation thus delimits the monetary system. See Wray 1999, 51.

the constitution of communicative relationships overall fits in with the framework of societies organized around a state in the sense described by Habermas. Such states include markets for goods and steer those markets as symbolically generalized exchange relations. The steering relies on the medium of money.[600]

Money consists generally of claims and obligations that are directed to societal actors. It is thus constituted *significantly by social relations* and cannot be fully understood outside them.[601] Therefore, money would be best understood as credit money, which is fundamentally a social relation or a network of social relations.[602] The juridification of money, on the other hand, is foundational for rights governance. Money is used as a central tool of the governance structure but the framework is based on legal relationships. In the market, money is utilized as an asset, which is also the basis of governance. Juridification alters the significance of money and divides it into certain relationships.[603] The market-oriented task of money as a communicative tool is founded on the rise of the monetary market. Money itself has become a commodity that can be used and exchanged in the financial market.[604] On the other hand, as a commodity, money as a medium of exchange may have an exchange ratio with other commodities. It may thus symbolically and directly represent commodities or real tangibles.[605]

Along with the materialization of money the characteristics of the market increase the value of money as an exchange instrument. The financial market is based on three elements that define the use and qualifications of money as a commodity in that market. All these elements are based on the materialization of money in the sense that increasing value may be clearly attached to it. These definitive elements are utilized as a *reference point of the materialization* of money. First, money gets its own value through the *uncertainty and*

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600 See Habermas 1989, 165.

601 In this sense, society is based on the modern monetary system where even culture is filtered through the economy. The human beings living in this society are only objects that are considered as a payment and a counterpayment. This is actually the kernel of societal communication. See Simmel 1999, 57.

602 In this sense, a barter exchange of commodities is essentially bilateral, whereas monetary relations are *trilateral*. Monetary exchange, unlike exchange in general, involves a third party of those authorities that may legitimately produce money. See Ingham 1999, 23.

603 Token money is often identified through the legal tender laws that determine what must be accepted as a means of payment. An even more accurate definition would define token money through its acceptance in payments made to the state's offices. Then all means by which a payment can be made to the state form part of the monetary system. Thus, it is the decision of the state to accept the payment at state pay offices, and not legal tender laws, that creates token money. See Wray 1999, 51.

604 See Tolonen, H. 1992, 245.

605 However, in this view money can act only as a neutral veil or a catalyst of the economy. Money is thus not an autonomous economic force. See Ingham 1999, 17.

risks that are associated with its use.[606] For example, using money to grant a loan is a risky business where the creditor sometimes suffers a loss. The risk of using money in this way requires that the activity will be compensated. Second, the materialization of money and the reason for the increase in its value lie in the *costs* involved in granting loans.[607] In practice, the granting of loans is uncertain and this uncertainty ought to be covered. The granting of loans also requires labor, in which respect it also entails a risk of losing money. The materialization of money is thus connected with governing uncertainty and the losses caused by the granting of loans. Materialization in this sense is likewise the basis for defining the absolute value of money.

The third element of materialization of money has to do with the market and thus has a direct effect on the functionality of exchange. Here, money and exchange operate as interactive instruments of governance. This element is based on the significance of money *as a practical tool of the market*. The practical aspect of the market is always fixed to the value of money. At the same time, however, money constitutes its own market and operates in this market. The value of money is thus bound to the demand for and need for it, which are heavily dependent on the time and place where money is actually used. The value of money is therefore not always the same; rather it varies in different places and at different times.[608]

3.3.3 The communicativeness of money

Money is fundamentally communicative. However, it operates only as a *symbol of value relations*.[609] It operates as an essential market instrument that is an essential precondition of private governance. Private governance is thus fundamentally founded on the market and this kind of governance only becomes possible at all through money.[610] This makes

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606 This is one element of the development of money as it is in today and more specifically it concerns the risk associated with granting a loan, *periculum mutui*. See Tolonen, H. 1992, 245.

607 Again, as *Hannu Tolonen* puts it, this means labor and costs, *ratio laboris*. See Tolonen, H. 1992, 245.

608 The third element is closely connected to the value of goods and in the financial market also to money itself as the basis for an increase in value, *ratio loci vel temporis*. See Tolonen, H. 1992, 247.

609 According to Simmel, money becomes the symbol of aesthetic indifference to the subject's demand for particular objects. It can also perform the universal role of the medium for the attainment and circulation of all particular objects of demand. See Simmel 1978, 74 - 75.

610 The state is generally and traditionally considered an organization in which there exists a collective capacity for action and guidance by the state is generally based on binding decisions. In the capitalistic economic systems some other functions are depolitized and

market governance a fundamental element of the governance architecture. Money is thus a crucial prerequisite of any functional market in that it is precisely the instrument that communicates the concrete and individual needs that are to be constructed in the form of a market.[611]

The communicative combination of needs may be realized only through the *commensurable measure* which makes it possible to convert the values of different things so as to make them comparable to each other. Reciprocity and commensurability are also significant instruments for enabling exchange.[612] Exchange is carried out through the utilization of money as a commensurable medium that further enables the reciprocity of exchange. This is only realistic when the values of different exchangeable objects take on a mutual relationship in one way or another.[613] In this respect commensurability is the foundation of materialized exchange.[614] Commensurability is based on communication through products, mainly tangible things. On the other hand, commensurability as the basis of exchange is founded on labor, which is very much the core of the overall circulation of goods in modern exchange.[615] In sum, exchange is crucially defined as communication that has become materialized.

Goods constitute the basis of exchange.[616] Accordingly, the materialization of communication implies that the communication itself is ultimately carried out through things. The social power of money rests on its ability to bring together the *content and form of value*.[617] Communication is thus not personal in character nor is it carried out I with human beings. In this sense, a communicative materialized good has, parallel to its value,

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given over to non-governmental subsystems. In these systems the steering medium, instead of binding decisions, is money. See Habermas 1989, 171.

611 See Tolonen, H. 1992, 249.

612 The opposed internal relation of money and commodities is founded on particular attention, not just to money as the form of value, but also to money as the content of value. Money does not consist only of the content and form of value but of the value relation as the determining process in the development of the social power of money. See Kennedy 1999, 195.

613 When a thing has a value like this it would not be consumed, but kept for exchange. See Tolonen, H. 1992, 255.

614 Commensurability may be examined in terms of exchangeable things, such as tangible commodities or money. These things are thus social categories which derive directly from the value relation where the basis lies in the value itself. Value relations hence derive from content and form just like social relations of production in general. See Kennedy 1999, 199.

615 When labor takes on a commensurable form it becomes a good. See Tolonen, H. 1992, 254. Commensurability is possible only when the labor benefits the whole community and it is possible to work for others. See Vähämäki 2003, 65.

616 Most relationships between people can be interpreted as forms of exchange. See Simmel 1978, 82.

617 See Kennedy 1999, 200.

a societal task, with this value fixed to the materialization of money.[618] In sum, money is communication, and communication is (partly) money. On the other hand, the fundamental commensurability may only be achieved through a *competent cooperative instrument*, which operates as a kind of intermediary between social relationships and money.[619]

The communicativeness of money is based on some *basic aspects of value*.[620] From the viewpoint of communication the most essential of these is admittedly the *proportionality* of the value, which is closely related to the commensurability and reciprocity of values. Proportionality requires that values are defined in relation to each other. All objects have a value of their own but these values are then further defined through each other. An amount of one thing corresponds reciprocally to an amount of something else. On the other hand, communicativeness is fundamentally based on the usability of goods. Value is therefore attained through the use value of a materialized thing. It is further related to society, where all materia has its own task and position. This societal significance is the core of the societal value of goods.[621]

Values may be examined *separately*, without any connection to the counterparts that define the values of usable things. Here the things remain mere things, however, and as such have no societal relationship.[622] In this sense a value is clearly like a *range of possibilities*.[623] Value is not thus expressed directly through a thing, but rather through its societal task, or in its value in societal communication. Here, the analysis of values requires communication between at least two value-bearers. In this configuration one actor represents a payment to the other and together they constitute a communicative

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618 At the same time, the societal assignment of a good is based on the value itself. See Vähämäki 2003, 68.

619 See Simmel 1978, 80 - 81.

620 These aspects are basically connected to the interrelated cooperation of things and the relationships of them. See Vähämäki 2003, 67 - 68. In an exchange-based society these aspects are, however, easily applied also to money.

621 For instance, fabric and a coat become commensurable through their relative value as used by a society. See Vähämäki 2003, 67.

622 Those things are examined here only in terms of their utilization value. On the other hand, in society the things represent more than their pure utilization values. Things play a role in society and shape the societal communication. They serve as the bearers of value. The societal value is not important for the societal task itself. See Vähämäki 2003, 67.

623 For example, intellectual property rights, when examined as property rights, are often considered as a set. This applies even if copyright, patent, or trade secret rights are absent from the bundle. Intellectual property rights as a bundle of rights are founded on three criteria: there ought to be an interest capable of precise definition; there ought to be an interest capable of exclusive possession and control; and the putative owner has to establish a legitimate claim to exclusivity. See Cho 1998, 44.

consortium of counterparts. These counterparts are then the structural elements of fair exchange (*iustitia commutativa*).[624]

Value is thus generally defined as a societal relationship and as an operative position. These different yet overlapping aspects form the basis of the value of materialized things. Accordingly, they also comprise the basis of money as a socially communicative instrument. In this way values that are embedded in things and their societal tasks may also be realized in the communication that is carried out through money. Money can thus be used as a special *interconnecting instrument*. Money operates as a special exchange mechanism that transforms use values into exchange values.[625]

3.4 Intellectuality as a denominator of capital

3.4.1 Money as capital

Money is communication, whereas capital as such is not yet communication. It is thus expressly money that makes *society run* by communicating in social relationships. On the other hand, in societal interaction, the relativity and reciprocity of values constitute the essence of money as a tool of exchange. The essence of money thus lies in its communicativeness. Moreover, communicativeness is closely linked to the character of money given that money connects two very different communicative and structural elements. Money is defined through its *material aspect* as an informational agent and, on the other hand, through its *common aspect* as a social unit.[626] In this light money can be used in two tasks of governance; as a medium and as a position.

Money is often described as capital. However, it is not constructive, or even possible, to define capital in general as money, at least not juridically. Even the most fundamental capital of an enterprise includes several different elements that are made up of different kinds of capital. Therefore, there exist even crucial types of capital that go far beyond money. The communicativeness of money has some structural influences as well, whereby all of the *structures underlying* capital are communicative.[627] This is clearly manifested in two main forces of the digital economy knowledge and globalization. Both are considered the kernel of the new economy's characteristically communicative

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624 Fair exchange is mainly carried out through contracts. It is defined by the desires and needs of contracting parties and competition. See Tolonen, H. 1992, 254.

625 At the same time, the natural exchange of goods is converted into *commerce in commodities*. See Habermas 1989, 171.

626 This is essentially also the basis of materialized things. See Vähämäki 2003, 67.

627 Capital has become more ubiquitous than ever. Technology and technocapitalism with it are replacing the growth of capital as the most important function of society with the growth of knowledge. See Suarez-Villa 2001, 4.

elements. Accordingly, one of the crucial aspects of capital is its *knowledge basis*, which has become heavily emphasized with the digitization of the economy. Knowledge is thus defined as the kernel of the capital of an enterprise, as its chief assets are no longer necessarily physical ones.[628]

On the other hand, capital still does consist of money, with property or capital utilized as an instrument for constituting the social relations underlying capital. This is very much based on the communicative character of the capital itself. The essence of all classes of capital is nevertheless ultimately money. As such, money operates as an intermediary for certain societal structures, which are eventually founded on money. In society, law thus *mediates the relations* that are embedded in money itself. This is well manifested in the exchange of tangibles, where the exchange constitutes a network of social relations. In this context, as a form of capital, intellectual capital is also kind of a *replacement for money*. This does not mean that money would totally be replaced by intellectual capital, but that the social relationships *inside* the influence of money or intellectual capital need to be structured somehow in a fresh way.[629] It is thus no longer the exchange of tangibles in the traditional way that governs the social network of capital.

One interesting point in the discussion concerning the differences between money and capital comes from the viewpoint of property. Property has traditionally been described as something tangible, such as pieces of equipment, raw materials and premises, which were the most essential factors of production in the Industrial Age.[630] Yet, money has always been considered the most sustainable *denominator of property*. Conversely, property has generally been described as some amount of money. The crucial role of money has nevertheless made it possible to realize some forms of profit that are associated directly with money. A good example of such proceeds is *money laundering*,

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628 Globalization has a clear connection to the Internet and communication through open networks. Intellectual property and thus the significance of knowledge as the core of intellectual property is experiencing rapid growth in the digital economy. See Lemley 2000, 531.

629 For example, the value of intangible capital is complicated to calculate. This is basically due to two reasons: first, most enterprises are incapable of estimating, measuring, or reporting the qualifications of their knowledge capital and how it is related to their strategy. Second, outsiders are only seldom capable of estimating which element of the knowledge capital is really important. See Ståhle - Grönroos 1999, 59.

630 The development from these factors of production towards intellectual ones has contributed to the breakdown of the traditional paradigm of property. These traditional factors of production are nowadays only a small part of the whole value of an enterprise. See Koulu 2003, 4.

which is merely an instrument for legitimizing some illegally gained money.[631] This is carried out simply by paying out money through normal business channels.[632]

Money laundering reveals some other elements of the digital economy. These elements are introduced through the *differing character of money and property*. In the digital economy money is mainly based on different kinds of property. *Digital property* often includes intellectual assets, such as copyrights, trademarks, or patents, although it may also include some benefits that are dependent on future events. Money laundering gets its characteristics through the consistency of money. Money laundering itself is forbidden, but this concerns only money. Property laundering is actually completely allowable legally e, as it only consists of intangibles, not of pure money. One of the basic characteristics of the digital economy thus offers opportunities and tools for money/property laundering.

3.4.2 Information as capital

Money includes information as one of its fundamental elements.[633] Information is also one of the *intellectual manifestations of money*. Information and its reproduction define the overall functionality of the digital economy precisely because one characteristic of the digital economy is innovativeness and the free circulation of information.[634] In the digital

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631 Money laundering is used for decriminalizing money, i.e., for converting illegal money into legal. Money laundering is described as converting criminally acquired money to make it to appear as thought originally it was acquired totally legally. Money laundering is a means used to convert funds that proceed from illegal activities into financial uses that involve legal instruments, such as bank deposits, investments in stocks and bonds or real estate. See Grosse 2001, 3.

632 Money laundering is realized in three steps. *Robert E. Grosse* describes these steps as follows: First, the placement of cash into the banking system is the step in which the money launderer disposes of the criminally derived cash proceeds. Second, after the funds enter the financial system, the launderer further separates the illicit proceeds from his or her illegal source through layering. This layering occurs through a series of financial transactions which closely resemble legitimate financial transactions. Finally, integration of the funds into the legal economy moves away from the financial transfers and into the realm of real or financial assets or purchases. This is accomplished in such a way that the funds appear to be derived from a legitimate source, such as earnings from an ongoing export-import business or the purchase of stocks and bonds by foreign investors. Integration is the final stage of the process of providing a legitimate explanation for the criminally derived funds. By this stage, distinguishing between licit and illicit funds is extremely difficult. See Grosse 2001, 3 - 4.

633 This is clearly seen in the case of *electronic money*, where money is even essentially described as information. See Friedman - Macintosh 2001, 277 - 278.

634 The accumulation and reproduction of information concerning technological knowledge comprise the essence of the success of society. Those that emerge at the top of the hierarchy of the reproduction of knowledge and thus technocapitalism are the ones that

economy money is converted into information or, rather, into information products. The economy is dependent on the newest and most innovative activities.[635] Information and its derivatives thus make up one of the main forms of capital in the digital economy and information products even give their owner the capacity to control information flows in society.[636] Accordingly, information becomes both one of the most important *operational foundations* of an enterprise and a useful and powerful *means to increase* its competitive edge. In this respect information has a dualistic character in the capitalizing functions of an enterprise.

The capitalizing function of information has its potential in business, an enterprise's capital. It is clearly a *manifestation of the competitiveness* of business innovations. Further, information resources and the core knowhow of an enterprise together constitute its fundamental capital.[637] As resources of the enterprise, information and knowledge are thus closely connected to each other.[638] The characteristics of these two elements are slightly different as their visible forms being realized in the terms of two different classes of knowledge, i.e., explicit knowledge and tacit knowledge. Explicit knowledge can be communicated to others in an understandable form, whereas tacit knowledge is something that an individual knows or is able to do, but is not able to transfer or communicate to others.[639] Information as the knowledge resource of an

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can build up and reproduce new knowledge most effectively. See Suarez-Villa 2001, 5.

635 Most of the activities of the digital economy are based on the newest and the most innovative activities, such as biotechnology, software design, microelectronics, advanced computing, bioinformatics or nanotechnology. These innovations are highly dependent on new knowledge and creativity. See Suarez-Villa 2001, 5.

636 This has an impact even on the autonomy of people living in society. See Benkler 2001, 61.

637 Together these assets form a *knowledge reservoir*. A knowledge reservoir gets its value by joining together both tacit knowledge and explicit knowledge. See Paija 1998, 33.

638 In this arrangement, knowledge may, roughly defined, be divided into two main forms, tacit knowledge and explicit knowledge. One of the crucial elements of knowledge is data and, moreover, data that can be converted into information, for this is the data that can be understood. Understanding is not, however, enough for full exploitation of information. To become understandable and most of all usable data needs to be transformed into knowledge. Only in the form of knowledge can information be utilized and turned into action. This is why the notions of information and knowledge must not be confused. See Ståhle - Grönroos 2000, 31. Tacit knowledge is elaborated into explicit knowledge, and thus becomes capital belonging to a certain enterprise. On the other hand, tacit knowledge is associated with the other tacit knowledge existing in an enterprise. See Nonaka - Reinmöller - Senoo 2000, 90.

639 It is argued that explicit knowledge is the tip of the iceberg, with the most of the mass beneath the surface. See Ståhle - Grönroos 2000, 32.

enterprise is closely connected to both of these forms of knowledge.[640] A business's core knowhow is also foundationally defined through different ways of doing things and this knowhow is often embedded in the organization and its employees, exactly like tacit knowledge is.[641] Therefore, core knowhow has mostly developed through experience and learning or in unexplainable ways of doing things.[642] It constitutes a significant part of business capital overall given that an enterprise as a complex is based on innovativeness and continuous development.[643]

Information has other implications as part of the information capital of an enterprise. Namely, information as the fundamental *content of digital products* and services has now become significant.[644] A great deal of the capital of an enterprise may be embedded in information products, with these information resources then constituting an integral part of the enterprise in the digital economy. Innovativeness and ideas in fact require this. Knowhow is basically used as the kernel of the innovative force of an enterprise, with knowledge forming the foundation of operations and means to improve the company's competitive position.[645] Competition on the market is thus also based on knowledge as a competitive value. In innovative competition, an enterprise trades its

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640 The knowledge resources of an enterprise consist of a combination of human and physical resources that make it possible to organize activities. These are then tied into the activities of other companies. Beneath the activities of an industrial company there is a pooling and combining of the knowledge and skills of the individuals. See Håkansson - Snhota 1997, 14.

641 Core knowhow may also be called skill. See Ståhle - Grönroos 2000, 31.

642 Both experiences and life-long learning are rather essential assets when the market becomes more dynamic. The more intensive the market is, the more importance the core knowhow has. This applies especially to branches that change continuously and there it is essential to get masses of information at a high rate. The amount of knowledge and the speed with which it is received constructs the key position in competition. See Paija 1998, 33.

643 This means that enterprises are always faced with rapid change in their core businesses. Basically innovativeness and development are based on combining different elements and making these elements cooperate and affect each other. See Ståhle - Grönroos 2000, 82 - 85. Recurrence, on the other hand, requires continuous innovativeness. See Keil 2000, 6.

644 This is a consequence of ideas, information, and technologies becoming part of products. A good example is the rising era of *smart products*. Smart cards are replacing credit cards, debit cards, and the access cards to the office. One card is sufficient for all these functions as well as being a drivers license, personal health card and so on, and all the information is managed by a single microprocessor embedded in the plastic card. Another example is smart clothes. Clothing manufacturers are placing chips in clothes that contain information on where and when the item was made, who manufactured it, when it was imported, when it arrived in the store, and when it was placed on the rack. The item may have a memory that can provide useful information to everyone in the value network. See Tapscott 1996, 44.

645 See Ståhle - Grönroos 2000, 82 - 85.

knowledge capital and the core knowhow associated with it. An enterprise always needs to preserve its fundamental knowhow in order to maintain its functionality.

3.4.3 Creativity as capital

Information constitutes the kernel of the capital of an enterprise, in which role it is generally defined as knowhow. Knowhow includes some estimation of the *usefulness, merit, and significance* of the information and knowledge utilized in a business. Therefore, information as capital is no longer a purely technical or instrumental concept but includes some assessment of basic purposes and fundamental values.[646] The benefit to be had from information in this sense is thus solidly grounded in knowhow. In this sense it is described as innovativeness.[647] This is precisely where the creativity of the capital of an enterprise lies; it is mainly knowhow that builds up this innovative force. Operating on the strength of information resources constitutes both the core of a functional enterprise and an essential tool for improving its competitiveness.[648]

Intellectual capital is closely bound to *innovativeness and knowhow*.[649] Accordingly, one efficient way to operate is to facilitate and increase the economy that is based on exploiting information.[650] Intellectual capital is also closely bound to creativity as the core of a successful enterprise. Namely innovativeness may be converted into successful output only by concentrating on the resources of an organization as a whole. It is impossible to develop the innovative capacity of an organization without considering the organization as a unified entity. Indeed an organization often operates as a system, where

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646 The most extensive part of knowhow and knowing is called wisdom. Wisdom is a whole made up of knowing, understanding, and skill. Generally it includes, in addition to intentions and values, the ability to estimate and build views of larger elements and the significance of knowing. See Holma - Lappalainen - Pilkevaara 1997, 9.

647 The knowhow of an enterprise reflects, beside the knowledge of its personnel, the knowledge of the other companies and organizations to which it is connected through its business relationships. Thereby, much of the knowledge derived from information put to use in an enterprise becomes available from its relationships to others outside the enterprise. See Håkansson - Snhota 1997, 14.

648 Knowhow may also become an essential factor in reaching a monopolistic position. This is especially the case if there is no appropriate knowhow available anywhere else. See Virtanen 2001, 20. The focus of studies of information is already moving towards an examination of knowledge. See Vicari - Troilo 2000, 64 - 65.

649 Along with the emergence of the digital economy, information and communication technology has begun to play a major role. This is also considered to build up the so called *new infrastructure*. The new infrastructure mainly consists of hardware and software applications, telecommunications, and data storage structures. See Weill - Broadbent 1998, 6.

650 Together with the importance of knowledge and knowhow the importance of quality has risen. See Lampola et al. 2001, 19.

the sum of its characteristics is essentially more than the sum of its component parts.[651] Basically this means that an enterprise needs to use and communicate its most essential skills to form relationships and to create contacts. This completeness is created by combining the various parts together and letting them or making them influence each other. On the other hand, the strength of information flows reveals the *basic dynamics* of a company.[652] Dynamics produce creativity and creativity produces dynamics. Dynamics thus constitute one of the most important factors of a competitive business.[653]

Here, *creative capital* acts as the core of the functionality of an enterprise.[654] Economic functionality is then founded on buying goods and services in different markets and processing these goods and services in manufacturing processes.[655] Creativity thus has a great influence on the overall cultural environment as an operational framework.[656] One efficient way to operate is to enable and increase an information-based economy. Through this development the digital economy affects the relationships between information and finance.[657] Capital remains a critical asset, as ownership and access to money enable investments in new products. The intellectual nature of capital

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651 The resources of organizations are always more than only the resources of a single individual or individuals. Accordingly, the organization's ability to compete and renew itself is not the same as the corresponding abilities of the individuals in the organization. See Ståhle - Grönroos 2000, 82 - 83.

652 Definitive here are the efficiency with which information flows between individuals, or how well the connections and contacts are utilized. These factors together rather clearly determine the organization's capacity for continuous self-renewal. See Ståhle - Grönroos 2000, 84.

653 In this sense the intellectual capital of an enterprise as knowledge is an active concept. It includes the processing of data into information and further into knowledge. Knowledge is an active concept including both information and its effect, which means that information has been converted into knowledge. See Ståhle - Grönroos 1999, 49.

654 On the other hand, openness and further creativity have been considered the core of new ways of utilizing creative works. This is the essence of open content projects, such as *Creative Commons*. See Välimäki - Hietanen 2005, 334 - 335. See also Creative Commons http://creativecommons.org/

655 Capital funding is a tool to govern the mutual financial relationships in society. The market thus delivers finances from the surplus sector to the deficit one. This guarantees that finances are effectively used for the purposes where they are needed. Governance in the finance market is bound to delivering information. Sufficient information thus secures the proper function of the market and guarantees effective price formation. See Rudanko 1995, 18 - 19.

656 For example, the way in which information flows are controlled affects how culture develops. See Lessig 2004, 120 - 121.

657 In the early days, financing was a scarce commodity and those who had access to it had an immense competitive advantage. Today monetary capital is easy to get, but finding intellectual capital is hard. A good example of this is biotechnology and the amount of money being put into research in the field. Another popular and well-financed area is the start-up organizations on the Internet. See Czerniawska - Potter 1998, 28.

has, however, made financing more insecure.[658] This is most often due to a lack of sufficient collateral securities. The problems here mostly stem from the invisibility of capital that is not necessarily found on the balance sheet. Often the most important part of capital is intellectual capital, however.[659]

3.4.4 Communication and intellectual capital

Intellectual capital is based on the utilization of information. In this way capital too becomes based on information, with this information-based capital further constituting the overall functionality of capital in its intellectual sense.[660] In business this functionality takes on some additional significance in terms of the capital of enterprises. Business capital may be viewed from two different aspects, both of which are based on communication. First, *information flows and creativity* in these flows constitute capital with exploitation of these information flows based on governing them. Second, capital may be examined as *finance*, with money one of the essential elements of capital. Money operates in the background of all types of capital, whether it is in the form of physical or intellectual asset.

Capital as finance is based on the fact that in order to be functional an enterprise needs money. In this sense money as part of the capital of an enterprise is founded on communication and, further, different forms of communication. Financial capital is thus generally constituted of communicational relationships. Communication further requires that finance is obtained from different sources. Traditionally, in the Industrial Age, enterprises financed investments through current liabilities. In other words, the financial basis was founded on the ability of an enterprise to *form credit relationships*. This in turn was rather dependent on an ability to minimize risks through sufficient collateral

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658 Typical examples are biotechnology, electronics, and information technology. See Lauriala 2001, 45. The role of the private enterprise as a force of economic growth is thus based on the belief that it is particularly innovation in high tech, information, and biotechnology areas where the crucial growth has occurred. See Berger - Udell 1998, 613 - 614.

659 For example, enterprise's employees constitute a very important asset. See Lauriala 2001, 45.

660 Intellectual capital comprises *human capital* and *structural capital*. Human capital is here defined as thinking capital (i.e., anything that thinks) whereas structural capital consists of customer and organizational capital. See Roos et al. 1997, 29 - 31. Business processes may also be referred to as *business intelligence*, which includes customer intelligence, competitor intelligence, market intelligence, technological intelligence, product intelligence, and environmental intelligence as its constructive elements. See Pirttimäki - Hannula 2002, 9 - 10.

securities. The credit relationship as a communicative pattern relies crucially on collateral security.[661]

This connection to collateral securities fixes communication to a single two-party relationship. This is the only form that a two-party credit relationship can take, in other words multi-party relations are impossible in this kind of communicative pattern. The twofold credit relationship is the prototype of risk governance in the traditional financial landscape. However, the financial background is changing. Two principal reasons may be cited. The first is the *excessive statics* and frozenness of the credit relationship, which renders the governance structure too rigid for enterprises operating in the digital economy. The other is the *incapability* of young enterprises to post sufficient collateral securities to get their business started.[662] This is exactly where the intellectuality of capital enters the picture, although this especially concerns companies or cooperative projects that are mainly based on innovations and intellectual capital as one of their core assets. With the changing capital context of enterprises, their financial background has become more uncertain. Finance is now often called *venture capital*, which is mostly based on substantial opportunities to make profits but also involves a grave risk of losing profits.[663]

Venture capital is a more communicative form of capital than that based on collateral securities. Its communicativeness derives directly from its character as a *functional network*.[664] However, this functionality, as well as networking, causes variety and uncertainty in relationships. The traditional pattern of constructing credit relationships and governing the risk of credit loss is far too static. Attempts are made to avoid a static situation by somehow constructing a more flexible design for governance. A flexible governance structure needs to be communicative when a network of relationships becomes the core of the financial foundation of an enterprise. The traditional twofold pattern of a credit relationship is thus not enough for governing the more complicated networks.

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661 On the other hand, then, the essential need of collateral security excludes many enterprises. This corresponds especially the small enterprises being only starting up their business activities and do not have a lot of chances to receive credit because of lacking securities. Particularly this equalizes the enterprises that are operating at the branch of information and communication technology of Life Sciences. These companies are often also called technology companies. See Lauriala 2004, 14.

662 This naturally increases the risk in financing. See Lauriala 2004, 16 - 17.

663 Basically, venture capital is based on the expectations of investors of materialized risky profit becoming much higher than in other investments. See Lauriala 2004, 21.

664 The functionality of this kind of network is based on different interdependencies of business relationships and their effect on a relationship as a mutually connected relation. See Håkansson - Snhota 1997, 17.

3.5 Venture capital

3.5.1 Money as ideas

In the digital economy, the connection between money and intellectual values becomes especially important. This connection is basically carried out through innovativeness. In the digital economy, innovativeness is based on ideas and their free circulation. Innovation is often founded on technological development. Innovativeness thus consists of both *technological novelty* and its *economic benefits*. Accordingly, all the decisions and choices concerning innovativeness need to be linked to considerations of technological feasibility and the needs of the market. It is this combination of technology and market that makes it reasonable to examine innovativeness in terms of an evolutionary model.[665] Here the focus is a description of the development path from the initial business idea to its *economic exit* or realization. This demonstrates at the same time the realization of the value of the company. Evolution is based on a value creation process, which is considered the main process since it should be the ultimate focus of any venture.[666] This connection is then complemented by *money* as a third factor.[667]

The *marketing function of money* is the main condition for its capitalization. On the other hand, the market is the principal prerequisite for the capitalization of money. This is basically due to the profitability of the market. Without any market there would be no profit to be had on money; money would remain only a valueless curiosity. It is thus the market that makes money beneficial. On the other hand, mere exchange is not enough to make money profitable. The function of money as capital requires that money also be involved in the production process in a one way or another.[668] Thus both *exchange* and *production* are closely bound together. Together they constitute the usefulness and

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665 Process is generally considered the core of development. This applies to the software business, for example, where different developing models are described through their change. Development is thus described as a process of change or a progression of change events that unfold during an entity's existence. See Warsta 2002, 65 - 66.

666 The three other core processes are the technology and product development process, the business development process and the network and the market development process. All of these three have distinctive measurable milestones, of which some are fully or partially dependent on each other. Milestone achievement in any of the core processes has a direct or indirect effect on the main process and the value development in it. For example, before completing the first version of a business plan it is almost impossible to get seed funding, which is, in turn, one of the milestones of the value creation process. See Rönkkö 2001, 84 - 85.

667 See Virtanen 1996, 50.

668 See Tolonen, H. 1992, 249.

profitability of money as capital. This is mainly realized through money in its juridified form.

The character of money has been modified somewhat with the digitization of the economy. This is basically due to a gradual change in the character of the means of production, from physical towards *human*. In the traditional economy, labor was the basis of the exchange system and, at the same time, the basis of the monetary system overall. As such, labor was considered a commodity, as it was exchangeable.[669] Labor is a no longer commodity, at least not in the sense of the traditional economy based on the labor of craft workers. The meaning and nature of labor has changed in the digital economy mainly due to the crucial roles of creativity and innovativeness.[670] For example, in software companies there exists almost no labor in the traditional sense but, instead, the knowledge and creative genius of the product strategists, developers, and marketers constitute the key assets of these companies. The productive basis of an enterprise has thus shifted towards intellectuality.

Intellectuality as the core of the means of production likewise changes the status of labor. Labor is thus not the focus anymore; it is creativity that sets the rules today. It is a company's ability to attract, retain, and continually increase the capabilities of knowledge workers and provide an environment for innovation and creativity that counts in business today.[671] This is likewise the basis of economic growth in the digital economy. The altered meaning of labor also affects the *mutual balance of labor* and what labor actually consists of. Labor is no longer only mechanical work or simply doing something, as it used to be in the Industrial Age. At that time it was essential to be able to produce as much and as fast as possible.[672] Rapid and massive production was the crucial factor. The balance has, however, moved slightly towards the actual context of the labor, with innovativeness now the most essential asset of an enterprise. Along with this, money has also taken on a special value, as it is defined through ideas.

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669 Labor as the foundation of money reveals two essential qualitative functions that money performs in capitalist society: money as a symbol of the development of a commodity and money as the social coordinator of control over labor and surplus extraction. By recognizing the significance of these qualitative social functions of money, it becomes much clearer why the particular object expressing money must express both the content and form of value. See Kennedy 1999, 200.

670 This is clearly seen in the mutual relationship of labor and money in the digital economy. Labor may still be an absolute value, but in the mutual relationship of labor and money it is money that is more important. See Himanen 2001, 52 - 53.

671 See Tapscott 1996, 47.

672 It goes back to the time when there was a need for intellectual property rights and when they had to be strictly definable. Intellectual property rights were granted as privileges to certain traders or manufacturers. In this way, the system created new industrial branches. See Bruun 1983, 154 - 155.

Money is founded on a *material basis* in its role as a means of exchange and a means of production. This dualistic foundation of money is the basis of its value.[673] On the one hand, money is materialized and as such creates a market and operates in it. Money is thus the basis of exchange and as such rather independent. Money also operates as an independent factor of production. The exchange society requires that money have a certain exchange value. For money to be a factor of production, it must be made marketable. For this reason money has been introduced on the market and been given a certain value in a functional society. This then operates as the basis of capitalization of money as well.[674] Society has introduced a tool for exchange that has certain qualities that are practical in exchange and add value in production. As an exchangeable instrument, money thus preserves its value. It does not get spoiled and therefore may be collected and preserved for later use.[675] On the other hand, money has several unequal components by its nature.[676] Two characteristics of money, i.e., its being a factor of production and an instrument of exchange, together mean that money may be used for increasing capital and collecting wealth more than one might naturally accumulate.[677]

3.5.2 Ideas as blurred capital

Money is introduced as ideas in the digital economy. Emerging *information markets* connect money and intellectuality closely together. The connection is carried out along the axis of *informatization* and *commodification*. Information has been commodified, and,

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673 Money thus offers a twofold means of control. *Peter Kennedy* describes the controlling function of money as follows: Money operates as the form and the content of value: first, control within the production process and second, control from the market place to production. In the first case, money must express the content of value if it is to co-ordinate and control the private labor of agents in the process of production. See Kennedy 1999, 201.

674 The introduction of money and its value have both been carried out by common consent. See Tolonen, H. 1992, 257.

675 In contrast, the products of nature are spoiled rapidly and it is possible to collect only a limited amount of them. See Locke 1988, 293 - 294.

676 There are three conditions that are also considered to be the limits and restrictions of natural ownership. The *spoilage limit* defines the amount of assets (one cannot have more than one can consume) and the *sufficiency limit* is fixed to the sufficiency of assets (there has to be enough left for all). The third limiting restriction is called the *labor limit* and it deals with appropriating assets (no one is allowed to appropriate more than is possible through his or her own labor). See Tolonen, H. 1992, 257 - 258.

677 These circumstances are together called the invention of money. The invention of money makes it possible to collect more than one's consumption would be and to exchange commodities with others. See Tolonen, H. 1992, 257 - 258.

correspondingly, commodities have been informatized. In other words, some tangible products have become more intellectual. For example, music nowadays tends to be only music and is no longer delivered in the form of tangible records. On the other hand, some traditionally intangible products have been commodified. Information is presently sold in the form of commodities, for example as usage metering. Commodification does not, however, necessarily mean that those intangibles have been made more tangible and thereby more like real products. Rather, they have in effect been made more *usable in the information market*.

Intellectual capital and the digital economy have several other interests in common. One of these is their essential intellectuality, where abstract objects are considered a significant form of capital.[678] Intellectual capital is the most equalizing asset of the enterprises of the digital economy, which implies that the products are not purely tangible anymore. Rather, the most important products have become more like *ideas and possibilities* to do something or act in certain way.[679] As such capital is no longer identical to concrete goods but rather a lever that enterprises use to obtain control over concrete goods.[680] This makes it also rather complicated to define products or their real functionality, which in turn affects the ways of governing rights that are associated with those products. One consideration related to intellectuality is the difficulty of determining when a product has come into being, e.g., when there actually exists *a ready and completed invention*. The complexity is due to the traditional legal thinking, according to which it is rather essential to be able to define the borderline between a real invention and a mere potential idea.[681] The time limit between a fully matured exclusive intellectual property right and the knowhow forming a part of intellectual property is elastic. Time is here the definitive factor.[682]

Refinement of goods is not, however, an essential, or even natural consequence of the intellectuality of capital. Rather there has to be some investment by a business organization in order to get potential innovations to become real intellectual property for the enterprise. Refinement is a part of the life cycle of intellectual property, which

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678 Intellectual property both constitutes the existence of this type of capital and determines its ownership. See Drahos 1996, 156.

679 See Vähämäki 2003, 82.

680 See Drahos 1996, 156.

681 In intellectual property rights, only the potential to become an exclusive right is valuable. This property is called early-stage intellectual property. Basically, the context of this property includes a promise of the future exclusive right. In order to be early-stage intellectual property, however, the promise needs at least theoretically, to include the possibility of becoming an excludable right. See Koulu 2003, 12 - 13.

682 Several innovations that are part of intellectual capital may be refined into exclusive intellectual property rights. For example, a trade secret may give birth to a patentable invention, or a copyright of a design. Similarly, the value of an enterprise may be converted into a trademark. See Koulu 2003, 12.

includes the early development of intellectual property as the first step, the excludable intellectual property right as the second one, and the commercialized product as the final one. This is illustrated in calculating the value of intellectual capital when granting credit or using such capital of it as collateral security.[683] However, one must still deal with the traditional requirement of having a feature to which the credit relationship or the collateral security can be attached. It is commercialization as the completion of the life cycle of an invention that gives it its marketable characteristic. Accordingly, it is rather essential for inventions to be able to access the market. Market acceptance actually creates the innovation. In other words, an invention is converted into an innovation through the market. If not marketed, or accepted by the market, an invention remains no more than simply a good invention. However, despite this, the whole life cycle as a continuous process needs to be governed as part of the intellectual property of an enterprise.

However, it is actually the *intellectuality and unpredictability* of the digital economy that makes functionality the essence of the entirety of operations. Intellectual capital in the digital economy is founded particularly on expectations, not necessarily ready products. This is precisely the implication of functionality as the very core of intellectuality. The digital economy is likewise more oriented towards the future and future events, future prospects. Therefore, the main feature of the intellectual capital is *uncertainty*. This is parallel to invisibility and intangibility in being a kind of incompleteness. The new economy thus begins where the product in its traditional sense ends, or when the outlines of the product begin to blur.[684]

3.5.3 Capital as venture

3.5.3.1 Viewpoints on intellectuality as capital

Money constitutes the essence of capital. This holds true even despite the intellectual character of capital, although intellectual assets are generally described as assets of an enterprise.[685] For example, brand, technology, customer loyalty, human capital, and the commitment of employees belong to an enterprise's intellectual capital, with money operating beyond all these assets as their essence. Thereby, capital should also be examined as relationships that are conveyed through money. In this sense *money is a*

683 See Koulu 2003, 12 -13.

684 See Vähämäki 2003, 82.

685 See Barth et al. 2003, 153.

competence that makes subjects capable of acting and participating in societal discourse.[686] This closely resembles the concept of *personality* in the Habermasian sense, which operates as a way to participate in the societal life. [687] Likewise, money may also be described as a toll that puts a subject in a position to take part in the processes of understanding society and thus to assert his or her own identity.[688] In the digital economy the mediating task of money is often carried out *mutually with ideas and opportunities* to introduce them. Therefore, precisely in the digital economy money and ideas are bound together very closely.[689]

The role of money is here manifested as a *possibility to enter the market*. Market entrance is essential for properly operating business enterprises. It is especially significant for small start-up enterprises which have not yet been able to reach a stable and firm market position.[690] The other salient group here consists of intellectual enterprises, i.e., enterprises that are mainly founded on intellectual property. The ability to enter the market is important for several reasons. One is to be able to *convert inventions into innovations*. This is basically carried out through the market and market acceptance of inventions. In fact, it is somewhat risky for an enterprise to stay out of the market. It is generally only the market that refines inventions into successful innovations and leads to success. Further, another very essential reason for an enterprise to aim at market entrance is to *make the enterprise known* among consumers. In business life, this is relatively important and, in addition to creating a reputation for a product or for an enterprise, affects the value of the enterprise itself. Therefore, it is rather significant for an enterprise to be able to become a market actor. For example, this is the basis for formulating a trademark for an enterprise and creating some market value for it.

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686 Capital is *the lifeblood of a growing business*. The creativity of entrepreneurs typically shown in starting and building their businesses often disappears when it comes to the business planning and capital formation process. Most entrepreneurs start their search for finance without really understanding the financial process. See Sherman 2005, 3.

687 Personality also creates a competence that makes a subject capable of speaking. See Habermas 1989, 138.

688 See Habermas 1989, 138.

689 This in fact strengthens Habermas 'theory of communicative action, for it is possible to draw an analogy between the significance of ideas in the digital economy and the term "culture" in Habermas 'theory. In the theory of communicative action, the term "culture" is used for the stock of knowledge from which the participants in communication supply themselves with interpretations as they come to an understanding about something in the world. See Habermas 1989, 138.

690 This is the status of the enterprises that are financed mostly by venture capitalists. Typically the enterprise is small - it has only one or few employees - and the financing is needed for starting up business operations and sustainable research and development. Investments are typically made in enterprises entering the marketing stage, or enterprises that are beginning their internationalization development. See Lauriala 2004, 25.

Access to the market requires some *monetary investments*, however. These usually take the form of current liabilities, which typically require acceptable collateral security, often some tangible or real property. This might often pose difficulties for early-stage enterprises given that they do not necessarily have enough assets for posting securities.[691] In this respect another class of problematic actors is knowledge-based enterprises, where the fundamental capital consists of intangibles and intellectual assets.[692] Thus, aiming at access to the market is not totally without risk for early-stage enterprises given that success in the market and the persistence of collateral security are highly dependent on market acceptance. On the other hand, a lack of acceptable securities may at the same time cause problems where rapid market entrance is concerned.[693] Uncertain market acceptance is a risk for an enterprise. In the case of current liabilities, the risk lies in the responsibility of the operating enterprise itself, and itself only. Current liabilities result in an obligation to pay interest and this might, in the worst case, cause bankruptcy when it is the responsible enterprise only that is liable for the interest payments.

At the same time, the risk of failure concerns this enterprise only. This is why the investments based on current liabilities are rather onerous for new enterprises that are founded mostly on intellectual capital. This is mainly due to the intellectual character of capital, whose core is flexible and which *keeps on converting* continuously. It is also rather hard to define the capital value, which would be essential for defining the value of the collateral security. Besides using current liabilities, financing would be received from marketing and selling the products or services. However, this requires that there be some ready products, which is exactly what early-stage enterprises lack. Most of their value lies in the *potential business ideas* and thereby there is almost nothing to sell.[694] These enterprises still need to access the market in order to receive some *market value* and *market visibility*. At the same time, the inventions being marketed are tested and refined to become marketable innovations. In the early-stage enterprise, there is, however, still need

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691 In this sense the status of small and mid-size enterprises has also been a special concern at the political level, for example in the European Union, where small and mid-size hi-tech companies have been given special attention. See *COM (2000) 330 final*. Communication: Draft Action Plan Prepared by the European Commission for the European Council in Feira 19/20 June 2000: e-Europe 2002: An Information Society for All.

692 It is typically complicated to value these intellectual assets. See Tuula 2002, 32.

693 Informational opacity may thus constitute the major reason why small firms cannot issue publicly traded securities. Public equity and debt underwriting are both characterized by significant costs, with many of these costs being essentially fixed and creating economies of scale in issue size. Both the issue size and asset size of an enterprise are further strongly related to each other. These economies of scale in issue size may be difficult for small and mid-sized businesses to overcome. See Berger - Udell 1998, 628.

694 Besides, intellectual property is complicated to evaluate. Intellectual properties are in this sense "fuzzy", as they result in uncertainty, lack of trust and an inability to extract values among business actors. See Petrusson 2004, 6.

for investment finance. Market governance is operable here only when there exists some financial variation. The variation needs to be based on a capability to bond with *potentially profitable* assets, i.e., with assets that are not yet presently profitable. Venture capital thus includes a modern form of this financial variation.

3.5.3.2 Venture capital as an investment

Venture capital is a *modern form of finance* that is mainly designed for the increasingly innovative environment of the digital economy.[695] Venture capital thus provides equity capital for enterprises that are not (yet) quoted on the stock exchange.[696] Venture capital usually consists of a company's own capital resources or complex-worth investments and is often managed by professional investors.[697] In this respect, venture capital comes close to innovativeness and thereby is often focused on small or medium-sized enterprises as the major financing instrument. On the other hand, venture capital may be considered an instrument for creating social order.[698] Venture capital can be described as a social institution offering different operative options.[699]

The background of introducing and utilizing venture capital is hence straightforward. The fundamental explanation is found in the emergence of the digital economy.

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695 For example, *Mark Suchmann* analyzes the institutionalization of venture capital financing practices in California's Silicon Valley during the period 1975 - 1990. According to Suchmann, the primary obstacle to commercial development was the difficulty of obtaining funding for innovative ventures from traditional institutional investors and other corporate entities. On the other hand, this failure of the capital markets created an opportunity for wealthy and well-connected individuals to provide initial infusions of venture capital. See Suchmann 1995a, 48.

696 Private markets that finance small businesses are in this sense different from the public ones that fund large businesses. Private equity and debt markets thus offer highly structured and complex financial contracts to small businesses, these relationships often being acutely informationally opaque. This contrasts with public stock and bond markets, which fund relatively informationally transparent large businesses under contracts that are more often relatively generic. See Berger - Udell 1998, 614.

697 See Lauriala 2004, 21. It is often thought that it is precisely small companies that form the most significant underpinning for the technological development and innovations. See Virtanen 1996, 44 - 45.

698 A social order is considered to be a structure that is further built up by the people living in a society, who characteristically operate as creators of symbolic social orders. The social order and its legitimacy are founded on common societal comprehensibility rather than any normative regulative structure. See Suchmann 1995b, 6 - 7.

699 The class of social institutions in the economy generally includes all the established operation models together with regulations providing proper activity. On the basis of these social institutions economic operativeness is set on certain organized patterns. See Houtsonen 2000, 238. The forms of social institutions may also be described as social control. See Ellickson 1991, 130 - 131.

The digital economy and technological development have together *changed trade and commerce*, which have become more and more intangible.[700] In this economic framework the capability of an enterprise to survive no longer necessarily or crucially depends on tangible investments. Further, the financial resources of an enterprises may consist entirely of intellectual property given that it is no longer a necessity to possess tangibles as core assets.[701] This development has been extremely rapid and powerful, especially in certain industrial branches that have become less and less bound to tangible capital. A good example here is enterprises that design computer software: these enterprises are characteristically based on the entrepreneurial potential in their innovative employees, and thus solely on the innovative force of the enterprise.[702]

During their start-up stage, further development and expansion periods, enterprises are often faced with the problem of a lack of incoming cash.[703] Other difficulties are long product development time and slow market penetration, which may extend the negative cash flow period. Furthermore, new intellectual capital enterprises do not even necessarily have any tangible collateral securities, but instead have intellectual property to offer as security.[704] This is exactly the phase where venture capital might be beneficial. Here the idea of venture capital is to provide some investment capital for an enterprise that has a good business idea but no capital for carrying it out.[705]

In this respect traditional enterprises and intellectual ones clearly differ from each other. The main difference is found in their *divergent business revenue models*.[706] Even the very basis of these enterprises is constituted differently. Thus, where the traditional enterprise is first founded and thereafter assessed through different business

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700 The enterprises of the new digital economy are generally described as *service-based* or knowledge-based enterprises. The greatest difference, when compared to a traditional product-based enterprise, is that those enterprises are generally founded on intangibility. The intangible services or activities are further produced as a process where both the producer and consumer are integrated. Even production and consumption are combined. See Tuula 2002, 32.

701 These intellectual properties are not, however, valueless; their value may be considerable. See Tuominen 2001, 22.

702 See Tepora 2004, 182.

703 Finance is naturally one of the main elements of an enterprise. The business development process also includes operations development, organization building, financial planning, and business model development. See Rönkkö 2001, 88.

704 These intellectual collateral securities include industrial rights, like patent or trademark, or copyright that may have a significant financial value. The overall value of an enterprise may sometimes even consist completely of intellectual property. See Tepora 2004, 182.

705 As a system, venture capital is ancient. A famous example is *Christopher Columbus* whose expedition was financed by the Queen of Spain. See Lauriala 2004, 21.

706 We may also say that the value-added structures have changed towards the value-generating ones. This is carried out by modifying the value chain to become a value network. See Tapscott 1996, 87.

opportunities, the foundation of an intellectual enterprise is quite the opposite. It is centrally based on different business opportunities that derive from rethinking the value chain.[707] The value chain is hence becoming more like a *value network* instead of a traditional linear value chain.[708] On the other hand, the business development process includes some functions that in one way or another *build or stabilize the position* of a company. These functions are operations development, organization building, financial planning, and business and model development, which all operate together to strengthen the enterprise and its business. The establishing process includes both the planning and execution of a company's internal functions.[709] On the other hand, the business development process begins with the emergence of a business idea. That is why the process starts with a business planning phase, with later development focused more on execution and organizational development.[710]

This is where venture capital financing would reasonably be introduced. Venture capital can be used for developing new products and technologies, for expanding working capital, for making acquisitions, or for strengthening a company's balance sheet.[711] Therefore, the investments of venture capital may basically be made in growth companies at all stages of their development.[712] Innovation is, however, a communicative and a continuous process.[713] It is not enough to invest in research and development only:

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707 See Pöyhönen 2002, 581. Computers operate mutually and interrelated computing is blurring lines among organizations. This further enables new kinds of business relationships. Along with this, business transactions become "bit streams" on a global network. See Tapscott 1996, 86- 87.

708 The network effect of value chains is based on forming business relationships. A relationship is a mutually oriented interaction between two reciprocally committed parties when these parties have some mutual orientation and commitment over time. A relationship is thus a place where some kind of interaction takes place and something is produced. See Håkansson - Snhota 1997, 25 - 27.

709 Only the technology- and product development-related functions are excluded. See Rönkkö 2001, 88.

710 See Rönkkö 2001, 88 - 89.

711 Venture capital is also described as *"intelligent" capital* because of its flexibility. Intelligent capital is responsible, motivated, growth-focused, active and often includes experience of entrepreneurship. See Valtonen - Bouix 1997, 13.

712 The nature of venture capital, as well as the nature of the venture capitalist, may often be described by the stage of development in which the investment is made. Financing needs differ depending on the development. Among these are: *seed venture* (before the actual business operation have even begun), *start-up venture* (for research and development and marketing), *expansion venture* (growth and expansion), *mezzanine venture* (preparing stocks to be officially quoted), and *management buy-out* or *management buy-in* (enterprise being bought from the previous owner). See Virtanen 1996, 21 - 22.

713 The process of venture capital often starts with the provision of seed financing where the fundamental aim is to set up a business plan. The simultaneous character of the financing decision and the acquisition of information about the investment project is characteristic of ventures and more generally for the financing of innovation. See Bergemann - Hege

innovation as an investment needs to be taken into consideration as an *undivided whole*.[714] Here, venture capital financing can be justified in terms of two advantages. First, *the profit* to be made is expected to be significantly higher than for ordinary investments. In other words, one of the main reasons for venture capitalists to make venture investments is to get as much profit as possible.[715] Second, diversifying the *risk* may lead to some potential advantages. The advantages seem to be considerable for an enterprise that is based on intellectual capital. These two advantages have generally been considered the greatest advantages of venture capital.[716]

The financing company characteristically *participates actively* in the business operations of the financed enterprise. Unlike in the case of passive investment activities, the role of venture capitalist is more like that of an actively involved minority shareholder. The most significant difference is that the venture capitalist, through his or her active professional collaboration and ownership, also strives to increase the value and assets of the enterprise in which he or she has invested.[717] The missing collateral security in the form of tangibles is replaced by *power over intangibles*. Participation thus slightly resembles a controlling force and it further includes, among other things, identification and negotiation concerning the business operations of the financed enterprise, building the structural basis for the investment, and monitoring the enterprise after the investment.[718] This makes venture capital investment rather different from ordinary investment activities. In traditional financial arrangements, it is only significant to decide when to sell or buy, whereas venture capital finance is *more functional in character*. The venture capitalist and the enterprise and entrepreneurs are accordingly bound reciprocally for a significantly longer period.

The other characteristic of venture capital is that it is linked to a *definite duration*. In the case of venture capital, investments are not made for an undefined time period;

1998, 704.

714 The innovation as a whole may contain both physical and intellectual structural parts. See Virtanen 1996, 53.

715 See Virtanen 1996, 22.

716 The annual profit is considered to be about 30 - 70 %. Risk management is carried out by creating a portfolio that is used to control the investment risks among many enterprises. See Lauriala 2004, 21. The other main theory concerning risk management is the theory of expected advantage. It is founded on the investors 'assessment of the risks and profits involved in different alternatives. See Virtanen 1996, 31 - 32.

717 This is carried out, for example, by participating in the progress of the enterprise. The professional role of the venture capitalist may be described as a consortium of knowhow of finance, technology, marketing, and management where the only aim is to increase the value of the enterprise invested in. See Virtanen 1996, 21.

718 See Berger - Udell 1998, 614.

rather, the duration is always decided beforehand.[719] This is bound to the profitability of the investment, which is expected to give some profit during the specified time period.[720] The third essential characteristic of venture capital is the *restricted liquidity* of private equities. The venture capitalist usually invests in unquotable equities, and these will not be marketed through the stock exchange.[721] Here, venture capital binds the investor closely to the operations of the enterprise, he or she is not able to act as an outsider.

With the flexibility of venture capital, *money becomes blurred*. This is basically due to the character of venture capital as an *operational network*. This network consists of several actors whose interests need to be linked in a communicative way. In part, the structure of venture capital as a network is realized *through intellectual capital*, which is the core of monetary assets in enterprises in the digital economy. It is also realized partly *through risks* as an essential part of the system of venture capital. In these cases, governing risks constitutes the core of network operations. As illustrated before, this characteristic of money as venture capital is a result of the tensions between the governance architectures and the non-material character of capital. Money has thus become characteristically blurred, which makes it complicated to include in the governance architecture as a fixed entity. Accordingly, in venture capital the overlapping elements of blurred money and its governance need to be considered together.

3.5.3.3 Venture capital as risk governance

Venture capital operates as a *unifying construction*. It creates a certain unity through money. In other words, money and the interests embedded in it become conventional through venture capital.[722] Here money becomes a common factor in the operative frame of the consortium of investors and may take on two functions. It can be either a *connective factor*

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719 See Lauriala 2004, 23.

720 The investments are made for the future whereby the assessment of the enterprise invested in is not done by looking back at its history, but at its future potential for growth. This applies also to the value estimation of intellectual property rights overall. The value estimation is bound to the present day, but the future value is rather extensively dependent on the general development in the world. For example, the value may decrease significantly because of a more developed invention by the competitor. See Tuominen 2001, 89.

721 See Lauriala 2004, 23.

722 All capital-formation strategies actually revolve around balancing four critical factors: risk, reward, control, and capital. Venture investors want to mitigate their *risk*, which may be done, for example, through a strong management team. On the other hand, the *reward* is presumed to be different for each type of venture investor. Further, *control* is generally dependent on risk management, whereby higher-risk deals are likely to come with higher degrees of control. In this respect, control and *capital* are thus closely connected to each other. See Sherman 2005, 4 - 5.

or a *distinguishing one*. The connection created by money and venture capital projects is not, however, totally free of risk. On the contrary, venture capital includes many risks, these being characteristically either positive or negative. *Positive risks* refer to income or operational opportunities. A realized positive risk thus generally implies a profit that may often be many times greater than that on customary investments. *Negative risks* consist of losses or misfortune in business. Both classes of risks are, at least partly, based on the character of venture capital and its structural design.

Venture capital is thus characteristically founded on a *risky basis*.[723] The risks are associated with the very foundations of venture capital as a financing system; that is, they are fundamentally based on networking and information as the essential elements of the overall venture capital process. At the same time as these essential elements constitute the core of the cooperating process, they bring some grave risks to the core of venture capital. These risks are very much bound to information and cooperation. Risks associated with information are bound to the significance of information as the foundational prerequisite of cooperative relationships.[724] The entrepreneur controls the allocation of funds, with the investment effort unobservable to the investor. Control over funds implies that the entrepreneur also controls the flow of information about the project.[725] On the other hand, venture capital is always a cooperative relationship in which there exists a continuous need to govern the risks. Here, the riskiness of venture capital basically lies in insufficient capabilities of receiving information. This is characteristically due to the resources of the parties involved in the venture capital process.[726]

Venture capital includes risks based on the *informational status* of parties. These informational risks are usually bound to the character of venture capital as a functional relationship, with the functionality generally based on continuous cooperation among the parties.[727] In these relationships, the information generally tends to remain asymmetric. In other words, one party usually possesses more information than the other one,

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723 Venture capital is mainly utilized as a means of financing by projects where learning and innovation constitute the most important part. Due to their innovative nature, venture projects carry a substantial risk of failure. See Bergemann - Hege 1998, 704.

724 In a collective and cooperative environment the duty to deliver information may be defined and governed through a special set of regulations. An illustrative example is the stock market, whose operations are regulated through special legislation. See Rudanko 1998, 38.

725 See Bergemann - Hege 1998, 704 - 705.

726 Information asymmetry is actually rather usual. Depending on the viewpoint it is a possible, general, or even typical element of a decision process. See Lauriala 2001, 66.

727 Further, a good example of cooperation as an operative framework closely resembling venture capital as a cooperative relationship is the stock market again. It is exactly the operative framework and the functional internal arrangement of the stock market that constitutes the contractual relationships and affects them. See Rudanko 1998, 36 - 37.

information thus remaining incomplete from the viewpoint of the other cooperating party. The problem of asymmetric information is often called a *moral hazard*.[728] A moral hazard is thus basically linked to information asymmetry that appears especially in cooperative relationships when some individual acts are not open and it is thus impossible to make any agreements concerning those acts.[729] For example, small business finance is often even characteristically defined through informational opacity, with information frequently remaining asymmetric.[730] This is due to the non-public status of small enterprises; they are not generally listed on the stock market, for example. On the other hand, it is precisely information asymmetry that may easily be considered the prototype of modern exchange. Exchange thus tends to be carried out in an asymmetric informational environment.[731] Accordingly, other means e.g. operative surveillance and incentives are found to govern the risks that are associated with information:.[732]

The lack of sufficient cooperative information also causes another problem, one known as *reverse choice*. The problem of reverse choice is connected with choosing and deciding about an enterprise to be invested in, which often carried out even before there exists any cooperative relationship.[733] In cases of reverse choice, it is more likely that efforts are made to keep information secret. Here, information asymmetry is best reduced by operating openly. Operative openness needs to be *rather active* than passive operativeness, with access to the relevant information opened without any further supporting acts. For example, the costs of reverse choice are lowered by openly providing truthful information to all the communicating parties. Access to information ought to be opened already in negotiations in order to make the early activity one of the

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728 See Lauriala 2001, 58.

729 Conditions of asymmetric information often arise between the venture capitalist and the entrepreneur. Information asymmetry may arise at various stages in the development of a firm. It is common that the foreclosure option embedded in a debt contract may actually create an incentive for the entrepreneur to behave opportunistically and take the available project payoffs. See Trester 1998, 677.

730 Unlike large firms, small firms do not enter into contracts that are publicly visible or widely reported in the press. Contracts with their employees, their suppliers, and their customers are generally kept private. Berger - Udell 1998, 616.

731 The asymmetry of information is highly probable in the hi-tech sector. Hi-tech is the most common area of venture capital financing. See Lauriala 2001, 66 - 67.

732 For example, finance investments are structured in layers, with the enterprise getting more and more incentive to develop and grow economically. The other way to govern risk is to build up supervising systems. See Lauriala 2001, 58.

733 Information asymmetry in reverse choice cases is essentially equal to other information asymmetric cases; one party has more information than the other but is not willing to reveal it. This naturally lowers the advantage of the other party and often that party might not even have entered the contract knowing all the facts. See Lauriala 2001, 60.

implementations of active openness. The openness of the venture capital process is often closely linked to the reputation of the investors.[734]

The other typical risk category of venture capital is linked to networking and is called *principal-agent theory*.[735] The theory considers the controlling investor as the principal, with the venture capital contract being a commission agreement. In this agreement, the agent is authorized to act for the principal, who, nevertheless, makes his own decisions.[736] The traditional view is that an investor only invests in assets and thereby makes it possible for an enterprise to manufacture and market its products. The principal-agent relationship in venture capital is generally considered an open cooperative project in which the governance of risks is closely linked to governing the open network relationship itself. Risk governance in principal-agent theory is carried out by guaranteeing some advantage to the agent. By these means both the agent and the principal gain some benefit from the agreement. On the other hand, there also needs to be a system whereby the principal may monitor the agent. Governance mechanisms connect the information risks closely to network risks. In both cases, the governance structure is based on the same prerequisites, e.g., moral hazard and reverse choice.[737]

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734 A good reputation is considered a guarantee of trustworthiness and it might often be bound to the name of the investing company. Brands and certificates are good indicators of the reputation of a financing investor. See Lauriala 2001, 60. Thus one instrument to make financial operations more effective and thus more concentrated is legal standardization and harmonization. See Radin 2002, 104.

735 *Neil A. Doherty* describes a principal - agent problem as follows: Principal-agent problem arises when one party, the principal, employs another, the agent, to perform a task on the principal's behalf. Unless the principal can monitor all actions of the agent, the agent may be tempted to act in his or her own interest. A good example is the relationship between the shareholders and managers of a firm. The managers are there to act in the interest of shareholders, which implies maximizing the value of the shareholders 'investment. However, the manager might be tempted to work with less vigor, consume perquisites, choose projects that minimize the risk of job loss, and engage in relationships that maximize the manager's marketability for a new job. See Doherty, 63 - 64.

736 On the other hand, the executives of all enterprises may be considered the principal and the investors agents. See Lauriala 2001, 55.

737 On the other hand, the financing arrangements of venture capital do not perfectly accord with the principal - agent theory. The agreement is made between the investor, on the one hand, and the executives and the shareholders of the enterprise, on the other. The agent does not meet the normal problems of the investing principal because the only duty of the principal is to provide liquid assets for the enterprise. The opportunistic behavior of the investor does not affect this. Thus a venture capital project is not a pure principal - agent relationship but a more complicated network of relationships. It also often contains duties for both parties to the relationship. See Lauriala 2001, 55 - 56.

3.6 Summary: the dictates of money, the functionality of venture

Money is generally utilized as a means of societal communication. This means that money becomes one of the most essential links between the economy and society. In this relationship money does not, however, operate as a fundamental necessity but rather as a channeling instrument. In societal communication, money also serves as a converter of human needs, i.e. those needs are often expressed through money. This in turn means that individual human needs are converted into more general, abstract needs. In communication money is generally the core of capital, and capital the link between money and innovativeness. Increasing innovativeness as one of the core aspects of the digital economy always requires some capital. Money as a tool of governance is clearly founded on the correspondence between economic and social relationships. In these societal functions, money operates as a factor that constitutes the basis of the relationship between commodities in the economy as expressed in economic circulation. Money hence has dual task in that it operates as a tool to organize economic relationships while at the same time being used as tool of exchange. In this sense, money constitutes a particular mechanism of exchange that transforms use values into exchange values. This is exactly how money communicates human needs in societal cooperation, how it is constituted significantly by social relations. It cannot be fully understood outside them.

Money is often described as capital. It is possible to define capital overall as money although even the most fundamental capital of an enterprise includes several different elements and kinds of capital. In other words, there also exist some crucial types of capital that go far beyond money. The interconnected constellation of capital is communicative, which has to do with the communicative character of capital. The essence of all classes of capital is ultimately money, however. Money operates as a medium for certain societal structures, which are eventually founded on money. In sum, all of the fundamental structures underlying capital are communicative. Yet, capital still consists of money, with property or capital being utilized as an instrument for constituting the social relations that underlie capital. In society law provides a framework for the relations that are embodied in money. One of the most fundamental elements of money is information. Information is also one of the intellectual manifestations of money. In the digital economy, money is thus converted into information or, rather, into information products, which actually makes information one of the main forms of capital in that economy. The capitalizing function of information is a manifestation of the competitiveness of business innovations. Further, information constitutes the core of the capital of an enterprise, where it is generally termed knowhow.

In this respect, intellectual capital is closely bound to innovativeness and knowhow, at the same time it becomes closely bound to creativity as the core of a successful enterprise. This is where communication and money are connected. The strength of information flows here reveals the basic dynamics of a company, with dynamics thus constituting one of the most important elements of a competitive business. In this context, creative capital operates as the core of the functionality of an enterprise. In other words, capital becomes based on information, and information-based capital constitutes the overall functionality of capital in its intellectual sense. In this light, capital ought likewise to be examined as relationships that are transmitted through money. Money actually constitutes a competence that makes subjects capable of acting and participating in society as a whole. In the digital economy, the mediating task of money is often carried out in concert with ideas and possibilities to introduce these on the market. The role of money is thereby manifested as a possibility to enter the market. The ability to enter the market is important for several reasons, e.g., to be able to convert inventions into innovations or to make the enterprise known among consumers. Access to the market requires monetary investments, however, venture capital being one of the most useful in the innovative market environment. Venture capital is mainly designed for the growing innovative environment of the digital economy. As such, venture capital comes close to innovativeness and is often directed towards small or medium-size enterprises as their major financing instrument. On the other hand, venture capital may be considered an instrument of creating social order in that it is characteristically founded on networking.

The reasons for introducing and utilizing venture capital are straightforward. The fundamental explanation is found in the emergence of the digital economy and its intellectuality, and its continuous blurred character on the capital front. The most serious development has occurred in business revenue models as the traditional value chain has become rather more like a value network. Further, the business development process is more likely to be included in some functions that in one way or another build or stabilize the position of a company. This establishing process includes several functional elements and this is where venture capital financing can be reasonably introduced. Venture capital is thus used for developing new products and technologies, for expanding working capital, for making acquisitions, or for strengthening a company's balance sheet. Therefore, venture capital investments may basically be made in growth companies at all stages of their development. In this sense, innovation is a communicative and continuous process and as an investment needs to be taken into consideration as an undivided whole.

Venture capital financing can be justified in terms of two advantages. First, profits are expected to become significantly higher than for ordinary investments and second, diversifying risk may lead to some potential advantages. Venture capital still operates as a unifying construction and it provides some unity through money. Money thus becomes

a common factor in the operative framework of any consortium of investors and as such it may have two features: it may be a connecting factor or a differentiating one. Venture capital is thus characteristically founded on risk, with risks involved directly bound to information and cooperation as the main elements of such. The risks associated with information are bound to the significance of information as an essential prerequisite of cooperative relationships. The entrepreneur controls the allocation of funds, with the investment effort unobservable to the investor. This control over funds means that the entrepreneur also controls the flow of information about a project. Venture capital is always a cooperative relationship where there exists a continuous need to govern risks. The riskiness of venture capital basically lies in insufficient capabilities to receive information. This is characteristically due to the resources of the parties involved in the venture capital process.

CHAPTER THREE. FROM INVENTION TO INNOVATION.

1 THE CONSORTIUM OF INVENTION AND INNOVATION

1.1 Foundations of the governance architecture

Innovativeness is communication. Innovativeness ought to be based on the circulation of information.[1] The circulation of information in fact constitutes a rather crucial basis of information as the core of inventiveness. It is rather significant to provide the innovation platform with the facilities for an innovation as communication. The circulation of information ought to be carried out as effectively as possible in order to create the maximal amount of innovativeness. To this end the circulation ought to be kept *free and unrestricted*. This is also why information ought to be received, accessed and used as freely as possible. Communication that is carried out on the basis of the free circulation of information supports the diffusion of knowledge.[2]

Such communication may, however, cause some distortions inside the innovation structure. Namely, *inventiveness alone* is a mere *static snapshot* of the whole process of communication, or the overall innovating process. The other half of the process, and a rather significant aspect, is the sphere of innovativeness that is characteristically dynamic.[3] Accordingly, inventiveness and innovativeness ought to be treated as a whole.[4] This entity, a consortium, constitutes the fundamental basis of the *rights governance architecture*. In this sense innovation as a renewal or an improvement is a larger concept than mere invention.[5]

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1 In this sense innovativeness is significantly a *human quality*. A human being and the human world are defined through the capability of human beings to innovate. Innovativeness is based on inventions described as *discovering*, i.e., finding something for the first time, and in this way it complements the divine ability to create: *creatio ex nihilo*. On the other hand, the content of innovativeness has been developing in the course of time from innovativeness in the sense of discovery towards innovativeness in the sense of productive invention. See Pöyhönen 1997a, 360 - 361.

2 See Suarez-Villa 2001, 9.

3 The innovation infrastructure ought to be built on two different aspects. One is static, or physical, the other dynamic. See Suarez-Villa 2001, 9.

4 Innovativeness may be here defined by reflecting it through inventiveness. In this respect, innovativeness is closely related to *paradigmatic change* which characteristically includes previous awareness of anomaly, the gradual and simultaneous emergence of both observational and conceptual recognition, and the consequent change of paradigm categories and procedures often accompanied by resistance. See Kuhn 1970, 62.

5 Innovations are often based on what are known as *hypercycles*, where artefacts, human beings, ideas, and organizations together constitute unpredictably dynamic develop. In these hypercycles it is impossible to differentiate or describe any single act of actor alone. See Pantzar 2000, 113.

This is due to the need for an innovation to become accepted in the market. Despite this, an invention must to be creative and original in a way that distinguishes it from all previously existing inventions.[6] Therefore, good ideas or conceptions as such are not inventions, even though both are based on clear innovation.[7] An innovation differs from both an invention and an imitation and is slightly more communicative than an invention as such.[8] Innovations are mostly created by combining the knowledge and skills of several different people.[9]

Innovativeness is founded on *human imagination*, which is the main source of value in the innovative economy. Innovation also requires ideas. Ideas are then exploited when information - in a business mainly knowledge and knowhow - is gathered and linked together. This is carried out among human beings and by means of mutual communication.[10] The human contribution sets the foundation of innovativeness on a twofold basis. The creative function of innovation lies in the relationship between tacit knowledge as a human resource and explicit knowledge.[11] The most significant prerequisite here is to *secure the communication* between these two diverse forms of knowledge. This communication constitutes the key to discovering any fresh and novel knowledge.

1.1.1 The communicativeness of the invention - innovation bond

The combination of inventiveness and innovativeness is the core of the overall architectural structure of innovativeness.[12] This link is close, but at the same varying. The variation is founded on the character of the overall process of communication as the kernel of the architectural design. The divergence between the process of inventiveness and innovativeness

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6 The prerequisites for an invention have been defined at the level of patentability: an invention has to be creative (renovation) and it has to be clearly distinguished from existing ones. See the *Finnish Patent Act* 2§. According to the prerequisites for patenting it also has to be possible to industrially manufacture the invention. Bruun 2001, 65.

7 See Ståhle - Grönroos 1999, 44 - 45.

8 As a core element of creativity, imitation can also be called diffusion. See Männistö 2002, 22.

9 Innovations do not have to be bound to the products or services of an enterprise; they may also be reforms in organizational structure, processes, or strategy. See Ståhle - Grönroos 1999, 46.

10 Only a fraction of all ideas mature into innovations. This is why there is a need for a critical mass of ideas. See Ståhle - Grönroos 2000, 63.

11 Knowledge is typically an individual character and cannot be transferred from one person to another by degree. The individuality of knowledge makes it different form all other organizational means. Creativity is likewise basically individual. It can only to a very limited degree be ordered and coordinated by a superior in rank. Thus, the application of knowledge is basically an individual act. See Etzioni 1964, 76.

12 This is the interconnection of static and dynamic infrastructure. See Suarez-Villa 2001, 9.

is accordingly a *continuous process*. This process, together with additional architectural constructions, is precisely the factor that establishes a clear distinction between invention and innovation. It keeps both areas as classes of their own as the core of additional functionality. Both of these aspects have different functions to perform. Innovation, for its part, is the more dynamic, or the more active party of this duplex. Dynamic functions are intangible and are founded on generating new ideas.[13] This is clearly and directly derived from the fact that innovation originates in communication and cooperation.[14]

Innovativeness is carried out best in an environment where there do not exist any restrictions on the supply of information. Free circulation of information is the most effective generator of innovativeness; a non-restricted environment supports its smooth progress. Innovativeness also requires *real access* to information. There exist certain elements of access that are the most essential in defining the circumstances of unrestrictedness. These elements together then explain the architectural structure as a whole and, at the same time, define the content of the overall innovation architecture. First, innovativeness ought to be *functional*. Innovativeness is fundamentally based on continuous transformation.[15] It requires effectively operating networks, which are the core of communicative innovativeness. The significance of functional networks lies in the essential role of communicativeness as the core of innovativeness. Innovation is not realized in a void but requires an encouraging environment.[16] This kind of environment requires connectivity to networks as well as access to resources and services for its support. Connectivity has a close relationship to *universal access*.[17]

Innovativeness is, secondly, closely linked to the *informational context*. This is precisely the context that foundationally constructs the internal structure of communication. Overall connectivity is rather meaningless without any reasonable and indispensable context: contextual qualifications make information utterly crucial for certain innovations. Additionally, it is the context that requires communication of information. Therefore, access ought to be ensured to both the communicating network and the information contained

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13 Dynamic functions also rely further on subverting established ideas or recombining different strands of knowledge. See Suarez-Villa 2001, 9 - 10.

14 The dynamics of the innovative infrastructure, and thus the dynamics of the architecture need to provide opportunities to experiment, establish contact, interact and diffuse knowledge. See Suarez-Villa 2001, 10.

15 A good example of continuous transformation as the core of innovativeness is the networks of researchers that collaborate on projects. They must generate new ideas to accomplish their objectives. See Suarez-Villa 2001, 10.

16 This may even be described as a *knowledge-sensitive* infrastructure. See Suarez-Villa 2001, 10.

17 Information infrastructures may be considered in terms of *universal access*. Information is considered so fundamental for innovativeness that innovativeness may easily be equated with information. See Borgman 2001, 56.

by the network.[18] Mere access to information and its context is meaningless without usability. This is why the third core aspect of innovativeness is largely based on various *elements of usability*. Usability has a close connection to cross-fertilization and the mutual communication of ideas as the core of the reproduction of knowledge.[19] One of these is the *computer network* that constitutes the very foundation of the innovation architecture. Namely, in order to be considered accessible, or even worth accessing, a network ought to be *usable by every citizen*. These designs are not primarily constructed for technical specialists but the general public. Thus, the universal usability of a network functions as the core of innovativeness and, conversely, without a usable network there would hardly be any innovativeness.

The remaining two aspects of usability are linked more or less to users and their personal abilities. First of all, usability is linked to the *practical skills* of the users. Usability is constructed of a set of certain skills that the users bring with them the system. In this sense, usability may be described as user-oriented. Access is further improved by people's abilities to use technology and by information being available. Second, usability is linked directly to the *context itself*. This refers to the practicality of the context and its additional creative potential. In order to be considered accessible, information should be retrievable in a form that enables the user to read, view, or otherwise employ it constructively.[20]

1.1.2 The financial grounds

What may be called the consortium of invention and innovation is essentially a process, with the essence of this process being realized as a development from invention towards innovation. Venture capital is one of the things that *reflects this process*. The need for financial support is precisely due to the flexibility of intellectual capital and the blurred character of the union of invention and innovation. Financial support is also needed because of the increasing significance of continuous innovativeness as the core of intellectual capital in the enterprise. Venture capital is likewise a process.[21] Both of these processes, the one from inventiveness towards innovativeness and that of venture capital, may still be connected. Both of these elements cooperate interconnectedly and have a mutual coherence. Venture

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18 See Borgman 2001, 56.

19 The exchange of information underlies the interaction and communication of ideas. See Suarez-Villa 2001, 10.

20 See Borgman 2001, 56 - 57.

21 Innovation is a communicative and a continuous process, however. It is carried out uninterruptedly. It is not enough to invest only in research and development; instead, innovation as investment needs to be taken into consideration as a whole. The venture capital process is closely bound to the innovative process; it generally starts with the provision of seed financing where the fundamental aim is to set up a business plan. See Bergemann - Hege 1998, 704.

capital is basically considered as the *overall activity* of building up new businesses inside the established organizational structure.[22]

Invention and innovation are, on the other hand, characteristically different. The difference resembles closely the distinction between statics and dynamics as different phases of functionality.[23] This then has a close connection to the financial grounds of innovativeness. On the other hand, inventiveness and innovativeness fundamentally share a similar core. They are both based on the *capability to use and take advantage* of different resources. These are either existing ones, in which case they are typically part of the capital of an enterprise, or they are external ones. The capability to exploit those resources and the financial means to do so constitute one of the most essential elements in innovativeness. On the other hand, the fundamentally static character of inventiveness as a process is more or less linear and is thus often referred to as the *linear innovation model*. In this model the principal feature is the superiority of technology, which in fact even strengthens the internal statics of the process.

In the linear innovation model the most fundamental presupposition is that technology creates the market.[24] A patent is one illustration of the technology-oriented composition of the market.[25] Patenting converts tacit knowledge into explicit, whereupon this knowledge becomes a commodity. At the same time, technological intelligence is naturally brought to the market through a patent and traded on the market. In the traditional view, the evolution of a new technology-based company is considered as comprising separate, consecutive stages. First, the technology is developed, which is followed by the setting up of the organization. Technology is thus internalized, but before starting any internalization the organization has to reach a sufficient scale of operations on the market. Finally, the value of the company is assessed, usually at the point when preparation for realization begins.[26]

Technological development has become increasingly rapid, with the pace of development having direct influence on inventiveness and its financing. Rapid competition

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22 A new business may involve a new market, new technology, products, or services. External corporate venturing is a tool for providing corporations with mechanisms by which they can broaden their search space for opportunities and rapidly seize emerging business opportunities. See Keil 2000, 9.

23 Traditionally, efficiency in both production and mass marketing was regarded as sufficient for wealth creation. The shortening product life cycle and developing times emphasize being technologically competitive. One of the most important implications of these changes is the way knowledge producers and users secure and control the ideas, technologies, knowhow and expertise on which their competitiveness depends. See Webster - Packer 1996, 1.

24 As a matter of fact, innovativeness is mostly market driven, as research and development also gets their orientation from the market. See Virtanen 1996, 49 - 50.

25 This is considered one of the focuses of technocapitalism. See Suarez-Villa 2001, 7.

26 The linear nature of the traditional model, according to *Perttu Rönkkö*, is based on the following phases: technology development >organization and business development > international roll-out >value realization. The time span of this chain of inventions is 10 - 15 years. See Rönkkö 2001, 83 - 84.

requires dynamics in inventiveness. In the digital economy the time-to-market of a new product has shortened and business has grown considerably. Inventiveness also needs to be accelerated and, as a consequence, the traditional pattern of development is challenged. The step-by-step model is no longer stable for high-tech firms, nor for the overall digital economy. New companies have to move fast and develop all business processes simultaneously in order to outrun their competition.[27] The linear innovation model requires that introducing inventions produces societal wealth and growth in such a way that it is not possible for only one single organization to take advantage of it.[28] Above all, this model places the focus on innovation, which reinforces the statics of linearity.[29]

In this context, venture capital is basically considered as a *process of developing* new business opportunities and ultimately as a process of the overall renewal of an enterprise.[30] The process includes recognizing, understanding, and exploiting new opportunities.[31] These building blocks together then further constitute the core elements of both inventiveness and innovativeness. These elements of the process overall are versatile, whereupon the symbiosis needs to be balanced in order to be able to maintain coherence. On the other hand none of these elements alone is sufficient to create a completely effective operational frame for an enterprise.

1.1.3 The statics of inventiveness

Inventiveness as a linear process describes an invention as a static creation.[32] Similarly, the statics of inventiveness are due to the *core of the concept of invention* itself. The concept requires that the component features of an invention ought to be defined and correspondingly the rest excluded. For instance, a patent includes a certain description of the technical application of the patented invention, with this scope then protected by the patent. Those prerequisites,

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27 See Rönkkö 2001, 84.

28 See Virtanen 1996, 49 - 50.

29 This applies to the traditional line in software development. The linear, sequential model is one of the first defined and most widely used traditional paradigms for software engineering. This development model is also called the *classic life cycle* or *waterfall model*. It specifies a systematic and sequential approach to software development and sets out the order of the consecutive stages while establishing the transition criteria for progressing from one stage to the next. See Warsta 2001, 36.

30 Enterprises are typically considered *knowledge systems in action*. See Pöyhönen 2004, 37 - 38.

31 See Keil 2000, 131. In order to keep on developing, enterprises are focusing on research and development, information processing, branding and other intellectual processes. This is generally called the *new entrepreneurial agenda*. See Petrusson 2004, 3.

32 Inventiveness is therefore generally bind to the dominating paradigm. Paradigm is used as a criterion for choosing problems assumed to have solutions. Generally these exclusively are problems that the community will admit as scientific ones or encourage its members to undertake them. Other problems are often rejected. See Kuhn 1970, 37.

however, link the core of inventiveness explicitly and linearly to the content itself.[33] In other words, the easier the kernel of the content is to interpret, the easier it is to define the distinction between included and excluded. In the case of a patent it is essential to ensure *stable access to an invention* in order to build up an architecture that supports inventions.[34] The distinction is, however, rather decisive for the concept of invention and it needs to be maintained. At the same time, however, this causes *inventiveness to remain static*. A name is an illustrative example, because names often operate as stabilizing elements. A name, even when considered as invention, is rather impossible to protect as a pure proper name. This is mainly due to the completely non-proprietary character of a name; a name simply has no reference point in a static system such as this.

Statics are not always founded merely on a conceptual definition. It is often purely the *content of an invention* that makes the distinction between invention and innovation complicated. An illustrative example of this is an idea and its protection. An invention always contains an idea and as an invention an idea has to be incorporated in some technological creation, application, or process. However, even when embedded in an invention, an idea is still slightly more dynamic than this invention. Ideas are essentially the core of innovativeness and are characteristically dynamic. Thereby, the major problem of the statics of invention is caused by there being a dynamic idea at the core of the proprietary character of a static invention. This is precisely due to the significance of information as the essence of invention. In sum, many problems in the digital economy are attributable to ideas and their fundamental character in inventions.

On the other hand, information as a flow of ideas constitutes the fundamental core of the *digital invention*. In any event, information is rather complicated to define strictly and it is accordingly equally difficult to force into a certain pattern. The static pattern of inventiveness may here even jeopardize the possibilities for sufficiently strong protection. Information overall seems to be complicated to either define or stabilize. In this respect, information closely resembles a name if one considers the content of inventiveness or the possibilities to establish traditional ownership of a name. The problem has two main causes. There is the *lack of both* a *real protection object* and a *sufficient amount of subjectivity*. To the extent that information is not defined as knowledge - actually only someone's subjective experience in the sense of having good reason to believe that information contains true statements - information seems to be very difficult indeed to force into the pattern of invention. The rather considerable divergence here in fact questions the *crucial role of a subjective right* as one

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[33] A patent is actually functional and needs to be examined in terms of a certain situation, its structural elements and its functional elements. See Godenhjelm 1950, 230 - 231.

[34] The physical infrastructure is a necessary prerequisite of the overall infrastructure and its functionality. The dynamic functions do not occur without the static ones; the static infrastructure has to be in place in order for the dynamic functions to occur. See Suarez-Villa 2001, 10.

element of invention. The fact that all rights must have a subject is generally rather definitive for establishing ownership.[35]

A subjective right is firmly based on certain prerequisites. It is possible to constitute only when three basic requirements have been fulfilled: at the minimum, there ought to be a *clearly defined object*, somebody who *possesses the right*, and a *legal relationship* between these two.[36] A digital invention does not, however, necessarily include any of these elements. This is exactly why the digital environment does not directly rely on the construction of a subjective right. It is, instead, more fruitful to see an invention as a relationship between persons.[37] However, in the age of traditional intellectual property rights, an invention was often frozen in such a way that it was easy to fit into the pattern of subjective right. A name, for example, is fundamentally a part of an essentially ownerless resource. A name may belong to anyone, and people often have completely identical names. However, a name is converted into property, for example, when it is forced into the form of a trademark. A trademark is then utilized in the market to include a certain invention, the invention is actually a *part of the trademark and subsumed under it*.

The statics of an invention are crucial when defining *who possesses it.* Possession is decisive for ownership. In order to come into someone's possession, an invention needs to be stabilized and defined. Stabilization defines the fundamental relationship between possessor and invention, i.e., *who possesses what*. Basically, the statics of this relationship may be readily compared to some elements of the traditional credit relationship. It is essential for the creation of a credit relationship that there exists willingness by both parties to become bound to the relationship. This commitment, however, at the same time *compromises the elasticity* of the relationship. It is precisely this commitment that stabilizes and freezes the whole relationship. An invention is similarly fixed through the possessor's commitment to the invention. Stabilization thus involves assets as defined by the traditional legal system.

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35 A subjective right, such as ownership, is based on a large number of legal facts and legal consequences, which are connected by the concept of ownership. More precisely, ownership contains the legal facts which are bound together with the legal consequences in such way that a particular legal fact is bound to a particular legal consequence or that a particular simple legal fact requires that it can be bound together with a set of legal consequences. Further, we can say that the concept of ownership is built up of a *cumulative set of legal consequences*. Legal facts alone do not constitute a cumulative whole. They are merely facts, which can also be described as forming a *disjunctive whole*. These simple legal facts are then connected to a set of legal consequences by the concept of ownership. See Ross 1951, 476 - 477.

36 The concept of subjective right is defined in the tradition of *analytical jurisprudence*, which concerns itself with the study of subjective right. The three basic axioms of analytical jurisprudence are: 1) subjective right stands for *being in legal relationships*, 2) legal relationships can prevail *only between persons* and 3) a subjective right does not prevail only inter partes but also *ultra partes*. See Niemi 1999, 291a.

37 When a subjective right as a concrete entity can be abandoned there is no longer any need to keep to the conception of the relationship between the right holder and the object either. Here, the examination and distinctions can be made with regard to the position of subject in different relations, in particular that of subject of interest, of proceedings and of disposition. See Ross 1974, 183.

These assets are usually best capitalized, as they are set under a strict and well-protected position, i.e., customary ownership. Intangibles such as intellectual property rights are instead associated with some other, privileged positions. These privileges are not, however, completely similar to ownership; rather, an invention has some excessively stabilizing qualities.

Stabilization through defining something as an invention does not yet mean that the asset *ceases to develop*.[38] Invention is based on creativity and originality in a way that distinguishes it from the *existing level of technology*. A fascinating idea or a worthy conception are not yet inventions.[39] The level of inventiveness is still the minimum prerequisite for any new invention. This is why an invention may have only one description, and, further, this description cannot be altered without inventing something new. This circumstance, along with continuous development, is the main problem with business method patents. Business methods are highly innovative but are nevertheless forced to conform to the definition of an invention. This kind of stabilization prevents the further innovative use of patented business methods, whereby the traditional protection of inventions may well be seen as freezing up the whole system.

As a paradigmatic example of an invention in the digital age, the business method patent needs to be examined from another viewpoint. This viewpoint is the *definition of an invention*. Namely, an invention has to fulfil certain minimum prerequisites to become an invention at all. These prerequisites are, however, all linked directly to the invention itself. At a minimum, an invention ought to be *new and original*. Novelty and originality together give the invention a certain level of inventiveness. This level then defines the privileged inventor, i.e., the *possessor of the invention*. The possessor is the one to be entitled to use the invention freely and, on the other hand, he or she is entitled to exclude others. Further, he or she is the only one with *free access to the invention*. By the virtue of possession, the possessor is privileged to decide about the use of the invention. It is then indeed the *combination of both of these elements* - the privilege of the inventor and his or her right to use - that further constructs the very kernel of the statics of an invention. Basically, this circumstance corresponds precisely to access with the right to forbid others access. It is defined as *excluded access*. In other words, a business method patent opens excluded access to the inventor, with access understood as the right to use the information included in the invention. A trademark and consequently the rest of the traditional intellectual property rights open similar access

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38 The innovation process overall today is not fixed to the superiority of technological knowhow. A competitive edge can only seldom be reached through technology alone; rather, competitive enterprises need secondary operations such as an effective supply network, the ability to produce effectively, and additional technology supporting business operations. See Virtanen 1996, 44.

39 These both include, however, a clear amount of innovation underlying. See Ståhle - Grönroos 1999, 44 - 45.

to their possessors. For example, names may be examined as excludable entities when a trademark as a legally protected privilege creates this status for a name.

The opposite perspective on the statics of inventiveness is manifested in the ability to get inventions protected. Protectability completes ownership in its static sense, and is one primary manifestation of statics. Ownership is a legally protected right to use granted to the right-holder; without any legal protection there would be no ownership. Factual inventiveness may be ensured only through legally protected positions. This protection also strengthens the privileged position in that the right is contextually completed through protection. In this sense, protection is clearly manifested in the *right to forbid someone to do something*. This is the reason why protection reinforces statics rather than making them more elastic.

1.2 Towards a more dynamic view

1.2.1 Dynamization

These definitive elements of an invention *attest to its static status*. The connection to strictly defined form corresponds to the technical development, with the statics defining the respective level of development. A clear and exception-free link to statics, however, makes the development level of novel technologies absolutely defined. Despite its strict abstraction and frozenness, a business idea patent, for example, illustrates clearly the forcing of a dynamic invention - an innovation nevertheless - into the shape of patent. More abstractly, patenting business methods manifests exactly the dominance of human being over nature in the sense of a business method being merely a creation of a human being. This dominating position is granted precisely through patenting an invention, with inventiveness defined directly through the patent. In this way, it is easy to link technological development and inventiveness. Inventions in general reflect technological development and in this respect drive technological determinism. Invention is an *accurate reflector* of the present level of technological development. This is still one of the most essential tasks of invention. Therefore, the statics of inventions make the utilization of existing resources rather appropriate, particularly when aiming at incremental change.[40]

The dynamic view is best described by changing the perspective: it is no longer the invention in its static sense that is the focus, but rather the *connection between the invention and*

[40] There are, however, some risks involved. This applies especially to development in the long run when the enterprise needs to be able to improve. Focusing on existing inventions stabilizes the operation but may lead to some frustrated situations. Mainly these are due to an excessive focus on competencies while changes in the markets and technologies render the knowledge and competencies of the enterprise obsolete. See Keil 2000, 131.

the environment in which the enterprise operates.[41] The background lies in the statics, with the utilization of inventions traditionally considered static. The static view nevertheless binds inventiveness tightly to a *proprietary horizon*. Thereby, statics, in having a legally protected privilege as their core element, constitute the essence of ownership. Ownership contains a right to use and a right to forbid others to use, which corresponds exactly to ownership in its static sense. Despite the traditional statics, however, inventiveness may be seen in more dynamic terms. The approach is modified slightly by drawing it away from static development towards a more dynamic view.

The change in balance makes the viewpoint functional. In other words, viewpoint itself is revised by making it more functional and dynamizing it. Here, the dynamics strives for frequent change in order to reproduce new and revised knowledge.[42] At the same time, the environment is taken into consideration when the whole inventive pattern is dynamized and functionalized. This is why this perspective can reasonably be considered a communicative one. The view makes communication as the essential focus of the overall pattern. The change is best illustrated through examples. For instance, it reveals the different cooperating elements of a name. A name may be examined equally as an active communicative position and as a significant connector. Likewise, the fundamental idea behind an invention or an innovation may be taken into consideration by considering it as a source of creativity and as a business position. Similarly, capital is extended to describe a network of relationships instead of only one single credit relationship. All these illustrations are results of dynamization.

Dynamics has at least one radical consequence, namely the *change in the balance of right and power*. In other words, the right to use loses its traditional definitive function as the core element of right as a privilege. This is a direct consequence of dynamization, right to use remaining too static when describing the function itself. Instead, dynamization ought fundamentally to be based on power as the ability to change the legal positions of the parties involved in operations. At the same time, it is the empowered position that makes the whole function dynamic. When the right to use is formalized by excluding all the irrelevant factors, the power to change legal relations becomes based on the ability to include the relevant factors and parties who work actively in operations. In other words, dynamics as an operational position *do not directly exclude* anyone. Instead, they characterize the operational positions of the parties concerned and concentrate on governing these positions interrelatedly. An illustrative example is the business mortgage, where the mortgage is

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41 This also applies to the competitive ability of an enterprise, whose competitive edge depends, in addition to rapid technological development, on sufficient financing and effective networking. See Lauriala 2001, 46.

42 See Suarez-Villa 2001, 10.

precisely linked to the completeness of the business property.[43] The whole business and its tangible assets are included in the business mortgage and the business operations are carried out normally, despite the mortgage.[44] Thus, it is the mutual relationships of the owner and the creditor and the complete business property that are to be governed. In this sense all the operators need to be aware of the mortgage and its influence on the overall business.[45]

None of these operations can be examined totally detached from the framework; they remain rather *closely related to the frame*. This is a direct implementation of the includability of the dynamic aspect. In this respect the framework actually becomes a part of operations.[46] This is actually a two-way action in which the structure constrains actions but at the same time human action serves to establish structure. The background as well thus partly defines the interconnected relation of operational parties, which is represented as interaction among them.[47] At the same time, those relations are reflected towards the operational frame. These circumstances are further modified through networking and communicating with others, which again affects the ability of an enterprise to enter the market.[48] Communication and networking have the greatest impact in the changing balance from statics towards dynamics as the core of operations. Communication and networking move the balance from the right to use towards the power to alter legal relations.

In actual fact, the change from statics towards dynamics *changes the dependency* between existing knowledge and the statics of it.[49] The most fundamental change occurs in the internal

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43 See Ojanen - Sutinen 1991, 41.

44 It is precisely the normal and traditional utilization of assets that is definitive when classifying business property. Principally, a business mortgage embraces all the tangible property possessed by the enterprise. See Ojanen - Sutinen 1991, 43.

45 The awareness of all the parties is considered one of the fundamental elements of a business mortgage. This would be stated, for example, in the securities posted as collateral. See Wallin 1982, 30 - 31.

46 This may also be described as a part of *structuration theory*, which is based on the interplay between human action and social structures. The two key elements of structuration theory are the manner in which the two levels of actions and structure are captured through the duality of structure, and the identification of modalities as the vehicle which link the two levels. See Hanseth 1996, 77.

47 The overall dualistic structure of communication may be considered in terms of *actor-networks theory*, which denies a systemic distinction between the technical and the non-technical. In other words, technology receives exactly the same status as human actors. The very essence that keeps the social order in place is a heterogenous network of human and non-human actors. See Hanseth 1996, 81.

48 Networking in this sense is often also described as *clustering*, with a cluster defined as a network of organizations in which competitive advantage grows from dynamic interaction between actors. Networking and clustering are thus rather dynamic processes. As network structures, cluster relations cross several sectoral boundaries, making a networking cluster a very competitive unit. See Paija 2001, 11.

49 One illustrative example of this is organizational renewal, continuous renewal being considered a competitive advantage for an enterprise. The key element for achieving continual renewal is flexible knowledge integration. See Pöyhönen 2004, 52.

balance of excluded and included. The excludability of existing knowledge is made more relative and thereby more suitable for common ownership. Further, the abandonment of the strictly excluded statics of ownership even *facilitates networking*. By these means operations have been made more rapid and dynamization has made it possible to enter new markets or adapt new technologies in an accelerated way.[50] In this task, acceleration requires some complementary capabilities, however. It is even one of the fundamental implications of networking to be able to increase these capabilities.[51] Introducing new business opportunities often requires resources that are not in the possession of an enterprise beforehand.[52] Those resources mainly consist of existing inventions. However, building up these capabilities internally is rather slow and costly. This is when venture capital financing comes in, together with networking. This is also why dynamic and effective cooperation facilitates development.

The financial background also affects the operational balance. Financing an enterprise through venture capital changes the picture from the viewpoint of operational frames. Cooperation is constructed on alliances or some other connections between the existing invention resource of the enterprise and its environment.[53] The principal focus here is the *pace of change*, which is also one of the main factors of the changing status of operativeness from statics towards dynamics. The pace of change emphasizes the rapidness of economic operations, which often makes the competitive edge highly dependent on the ability to gain control over critical assets or players in the changing market.[54] The first in the market often achieves the leading position. This is also the basic foundation of dynamics and it is generally based on networking and clustering. The essential critical assets may, however, not be those in the possession of the enterprise and for this reason there is a crucial need to network and build up alliances. In this way, the empowered position as the core of dynamics substantially affects the *structure of the market*. This structure and the relative positioning of market operators are both critical manifestations of the dynamized inventiveness. The market may be supported by creating circumstances or technologies in such a way that an enterprise

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50 For example, external corporate venturing provides two options entering a business area more rapidly and increasing commitment within the existing relationship. These two options differ in the role that external relationships play over time. See Keil 2000, 157.

51 See Keil 2000, 155.

52 See Keil 2000, 162 - 163.

53 This kind of intense interaction is necessary for several reasons. The resources and capabilities of both organizations have to be adapted to each other and to the new business. Adaptation may make it necessary to form a common cognitive framework that allows the enterprises to understand each other's capabilities. A common cognitive framework may also be necessary to understand the opportunities and constraints of the new capabilities. Intense interaction is necessary to be able to act sufficiently rapidly in the new business. See Keil 2000, 163.

54 Acquisition may often be used as a means to gain control over providers of critical resources and capabilities for the business. See Keil 2000, 165 - 166.

may further leverage its existing resources.[55] This is basically carried out by standardizing either the environment or the equipment.

1.2.2 Innovativeness

Innovativeness is communication and is best carried out in a unified frame. Unification as a part of dynamization is often realized through *standardization*.[56] Standardization is an illustrative example of dynamization and its new challenges to the legal environment. Namely, in the development of markets and congruent technologies, the standards and dominant designs play a critical role.[57] An illustrative example here is found in the *Universal Business Language* (*UBL*), a universal language that is created for common and standardized business communication and document transmission.[58] On the other hand, standardization eases the problem of incompatibility that has emerged among different competing technologies.[59] The privileged status of invention easily promotes and facilitates incompatibility.[60] Accordingly, standardization, especially technical, is usually considered a means to achieve uniform physical and design specifications.[61] Standardization operates

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55 See Keil 2000, 155.

56 Standardization actually sustains innovativeness given that standardization is often confronted with the privatized information. Private rights are described as patented ones when a public good is created through a standard. Patents are associated with the commodification of technical knowledge and standardization with decommodification of it. See Iversen 2001, 67.

57 Especially businesses that operate on information and communication networks often require products to comply with technology standards to be able to work together. See Keil 2000, 169. One of the fundamental aims of standardization is to *increase simplicity*. Moreover, standardization operates for increasing economic efficiency, for promoting technological safety, for removing technical obstacles in trade and for ensuring the interests of end-users. See *Committee Report KM 1993:19*, 4 - 6.

58 Universal Business Language in considered an agreement on a common set of business-to-business document standards. Universal Business Language is based on ebXML (*Electronic Business using Extensible Markup Language*) and the combination of UBL/ebXML is supposed to provide industry with boundary-less and barrier-free information needed to catalyze economic growth and foster inter-industry global trade. See www.oasis-open.org

59 Standardization increases and supports, for example, virtual enterprises in that they operate by networking. Virtual enterprises coordinate much of their business through the marketplace, where free agents come together to buy and sell one another's goods and services. See Chesbrough - Teece 1998, 27 - 28. In this way, standardization operates as the basis of the societal functionality in general. On standardization generally, see www.iso.org

60 Here an example is an expanding network. Especially in the information and communication industry standardization is one vital prerequisite for technological progress. See Shurmer 1996, 50.

61 For example, plugs have two prongs that are spaced a certain distance apart and they are all the same. Accordingly, they fit into sockets with holes that are sized and spaced properly and all the sockets are the same, too. This is one result of standardization. Another illustrative

as an instrument to enable things or operations to be shared among many actors. Operations are in this way *collectivitized*.[62] On the other hand, standardization supports both the *network effect* and *interoperability* and in this way increases the dynamics of operations.

Standardization is a dynamic process. The *dynamizing function of standards* derives from two different lines of development.[63] Standardization is carried out either through a formal standardization process or through the market.[64] In each cases the standards are approached in slightly different ways.[65] The market process is derived straight form the proprietary character of standards, these standards often being constituted by first establishing a superior proprietary technology. This technology is then further developed into an industrial standard by utilizing a dominant position in the market.[66] Market dominance, through an increasing number of users, gives an enterprise a powerful position over the other market operators. Compatible products become important especially for the network effect.[67] On the other

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example is the size and format of disk drives and compact disks. See Radin 2002, 103.

62 A good example of collectivized operations is the TCP/IP protocol, which relies on computers operating collectively. Another illustrative example is the metric system. See Radin 2002, 103. A network environment and network operations must be standardized in order to guarantee the most effective communication. The best known standardizing organization in the network environment is *World Wide Web Consortium* (W3C). See http://www.w3.org/

63 A standard may be defined rather broadly as any set of technical specifications that either provide or are intended to provide a common design of a product or process. Even ordinary consumers use a wide variety of standardized products, such as telephone services, computer-modem communication protocols, or automobile ignition and transmission systems. See Lemley 2002, 1896. On the other hand, the dynamics of standardization are manifested in its cooperative character. The standardization process brings together commercial, academic and regulatory actors, representing a wide range of interested actors. See Iversen 2001, 69.

64 This might be restricted by establishing a standard through a formal or de facto standardization process such that the standard is at least partly non-proprietary. Further, standards may be set by using an external party in the standardization process. All these approaches require, however, that a standard-setting enterprise must predict which of several competing technologies will emerge as the dominant standard or else face the risk of being locked out of the market. In this process, standards are set exclusively by an external party, which makes the standards totally non-proprietary. See Keil 2000, 169.

65 Standardization also has its disadvantages, which emerge in innovativeness and competition policies. One single standard keeps the competition within the group of standard users and does not consider technologically better solutions if they are not compatible with the standard. It is also possible that the chosen standard is not the technologically best one. The larger the number of standard users is and/or the wider the communication network, the more expensive a change in the standard will be. See Koski - Rouvinen - Ylä-Anttila 2002, 81.

66 A case in point is Microsoft with its *Windows* operating system. See Keil 2000, 169.

67 For example, a computer becomes more valuable the larger its installed basis is, since a greater range of compatible software is available. See Shurmer 1996, 50. Computer operating systems are an illustrative example also in the sense of increasing value in two different ways. On the one hand, the value of a computer operating system is dependent on how many users it has. On the other hand, it has more intrinsic value regardless of the number of users, but gains value as more and more consumers adopt it. This is due to the significance of information in these industries. The network effect simply ensures that the consumers benefit from standardization also because they can exchange information with the others who use

hand, the market-based standard setting may cause a certain *lock-in effect*, which means that the market becomes locked in and concentrated on only one product.[68]

Dynamics also affect the *variety of different enterprises*. The focus is mainly on networking, which is supported, at least partly, through standardization.[69] The presence of the network effect, on the other hand, implies that once a standard is established it may be difficult to replace. This is often referred to as a lock-in effect.[70] The stability of a dominating standard with a strong lock-in effect is manifested in the character of standards in general. Therefore, the dominant actor in the standardization market gets an excellent opportunity to control the overall competition in the technological development and, at the same time, affect its direction.[71] On the other hand, innovativeness is closely and solidly linked to communication and cooperation. Innovation is not described only as moving from idea towards invention, with invention then remaining the final phase of the development chain.[72] This view is necessarily rather linear and for this reason static.

Innovation is a dynamic process and may not be described as a development consisting merely of discrete phases.[73] In fact, the innovation process is increasingly described as a *communicational process* where the different cooperating parties are closely interconnected. Innovations are often carried out in human networks, which do not involve linear patterns.[74] Innovativeness is expressly oriented towards the *degree of change*. This change in turn is connected to the search space, which is enlarged through two main mechanisms. An enterprise may monitor the behavior of a group of firms and try to develop itself through

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the same standard. See Lemley 2002, 1896.

68 See Shurmer 1996, 50. The emergence of technical standards on the market is actually rather advantageous. A good technical standard is created through market emergence when the best product wins out in the competitive market. See Radin 2002, 112.

69 Standardization also has considerable consumer benefits in several markets, known as *network markets*. Typical of network markets is that the value of a product to a particular consumer is a function of how many consumers use the same or a compatible product. A good example is a telephone network, in which the value of a product is driven entirely by the number of other people on the same network. See Lemley 2002, 1896.

70 The lock-in effect is often described as an assertion of a certain technology in such a way that it is impossible or at least difficult to change or reverse. See Lemola 2000, 164.

71 See Shurmer 1996, 51.

72 This is precisely the viewpoint of the linear innovation model. See Virtanen 1996, 55.

73 During these development phases, knowhow is refined and commercialized, and the parties merely operate together as independent participants. See Chesbrough - Teece 1998, 29 - 30.

74 A human network is generally described as types of interconnections or links between agents, with these connections described as a legitimate network and a shadow network. A legitimate network consists of links that are established formally and intentionally and further are founded on well-understood, implicit principles that are widely accepted by the members of the organization. A shadow network, on the other hand, is established spontaneously and informally by individual agents among themselves during the course of interacting. See Stacey 1996, 23 - 26.

its monitoring and discoveries.[75] On the other hand, a group of enterprises may create cognitive frameworks by imitating and learning from other individual organizations.[76] This illustrates significantly the communicativeness of innovations.

The search space of an enterprise is then ultimately used for *effective problem solution*. The amount of information has a direct impact on the possible solutions to be found. The more information there is, the more likely inventions are to emerge. In this way, developing new cognitive frameworks requires an enterprise to access and process information coming from its environment.[77] Innovativeness may well be described as a process. The innovation process consists of three different but overlapping phases, i.e., research, invention and innovation.[78] In this triplet the research phase is aimed at discovering new facts and principles in nature and the society. In this context physical laws actually frame the domain of discoveries. A discovery is then refined to become an invention, with the invention phase carrying out further development. The inventive phase already includes a novel product or method that has some potential for organizing operations in a totally new way.[79]

The invention phase is sometimes the end of this development chain. This is due to the *difference between invention and innovation*. Innovation requires additional effect. On the other hand, not all inventions ever become innovations. To become an innovation an invention must be refined to become a commercial application. If the commercial application is successfully created, the process is continued towards an innovation as the third phase of the development process. In other words, a technological invention does not become an innovation until it has been successfully commercialized.[80] The close relation between innovativeness and its framing environment thus constitutes the internal structure of

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75 This may further be examined through a layered construction consisting of two overlapping layers. The substance layer describes activities carried out to create and make use of research and development resources internally and together with external parties. See Seppänen 2000, 63. The dynamic layer makes explicit how and why the concepts of the substance layer vary. See Seppänen 2000, 67.

76 Organizations or enterprises are generally classified by the ways in which they innovate. There exists a distinction between autonomous and systemic innovation, with this distinction being even fundamental to the choice of organizational design. When innovation is autonomous, the organization may be a decentralized, virtual one. On the other hand, when innovation is systemic, the members of a virtual organization are dependent on and have no control over one another. See Chesbrough - Teece 1998, 29.

77 See Keil 2000, 141. It is thus significant to be able to control the mutual cooperation of relationships and networks. One of the main relationship management tasks is the control of resource exchange and sharing between the participating actors. See Seppänen 2000, 68.

78 See Virtanen 1996, 43. This is also called the classic innovation chain. See Korpelainen - Lampikoski 1998, 138.

79 The invention stage may include the manufacture of the prototype. The end of the invention stage may also be called product development. See Virtanen 1996, 43.

80 Briefly, the innovation process may also be described as a process where an idea or a discovery is refined towards a commercially exploitable innovation. See Virtanen 1996, 43.

innovativeness. The fundamental issue here is that innovativeness is based on continuous communication.[81] Functional communication further involves gaining access to relevant information that needs to be recognized and interpreted. This interpretation generally occurs through free access to information and knowledge.[82] Therefore, access to information as such is important, but it is equally important that the information obtained is high in quality. The quality of information thus plays an important role in innovativeness. Equally important qualifications are the breadth and the depth of information.[83]

The innovation process is often described using traditional instruments. However, in order to be able to reveal the essential dynamics of the innovation process, there is a crucial need for dynamic examination tools. A suitable dynamic approach to development from static inventiveness towards dynamic innovativeness may be found by examining the *use of totally new resources*. The emergence of new resources and research on them is one factor changing the balance clearly from a static towards a more dynamic operativeness. Basically, innovativeness seems to go hand in hand with dramatic change and is closely linked to new and explorative development.[84] Therefore, a close connection to new resources and an ability to reveal changing foundations is characteristic of innovativeness in particular. This is mainly due to the ability of innovations to reveal totally new viewpoints on old inventions.[85]

Basically innovativeness is described as doing something in *a totally new way* in a branch of the economy or inside a societal system. Innovation often refers to new products, processes, or systems being introduced on a large scale.[86] A focus on innovativeness may

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81 This is the other main theory in describing innovativeness and is parallel to the classic innovation chain. See Korpelainen - Lampikoski 1998, 138 - 139.

82 The free flow of information and the ability to engage in cultural practices is often significant for innovativeness. A good example is the professional and organizational integration of software developers in the open source software movement, where the cultural practices and norms shaping communities of practice constitute the essence of software development. These communities are generally referred as *hackerdom*. Hackers in this sense are computer enthusiasts for whom computer programming is an expression of identity. See Himanen 2001, 19 - 20.

83 See Keil 2000, 143 - 144.

84 Innovativeness is often explained as a step in technological development or as an increase in the efficiency of some operation. See Virtanen 1996, 42.

85 One of the risks of exploration is that often produces more distant, uncertain, and often negative results. See Keil 2000, 132.

86 The difference between innovation and research and development depends here only on the viewpoint. Innovation describes something totally new, or something that has now been done in a completely new way, and it is a broader concept than research and development. Innovation and marketing connected with renovations in operativeness, strategic designing and decision making. See Virtanen 1996, 42 - 43.

imply that resources are not available to be taken advantage of directly.[87] Innovativeness is based on certain foundational prerequisites. Innovativeness is primarily based on the ability to bring together different elements reasonably. Further, this is done in order to create something new. Innovations are mainly created by bringing together things that have not been brought together before, for example, forming some new associations.[88] As a consequence of this, enterprises often face difficulties in recognizing technologies or business models that have the potential to replace their existing technologies.[89] Therefore, enterprises often prefer their existing knowledge and capabilities in defining the principal means of achieving a competitive edge.

1.2.3 The dynamics of invention plus innovation

Invention and innovation together form a firm entity. They thus need to be examined together and in parallel. Actually, as an entity the bond between inventiveness and innovativeness constitutes a perfect illustration of the *core of ideas in business*. Ideas are founded on a consistent adaptation of inventiveness and innovativeness together. The different elements of this combination are further enhanced through additional supportive features needed for completing the bond. On the other hand, the basic distinction between invention and innovation lies in *how they are related to coexisting units*. These coexisting and communicating units are related to the external environment of the enterprise or to the enterprise itself.[90]

The most fundamental resources of an enterprise are generally communicative. Therefore, there still exists a crucial need for communication between the internal view of the enterprise and its external environmental frame.[91] Inventions are relatively fixed to existing resources and the knowledge embedded in an enterprise. The basic approach for introducing these resources overall is simply to take advantage of them as completely as

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87 In these cases, without exploitation activity, the enterprise might not be able to realize returns from the knowledge generated. See Keil 2000, 132.

88 Innovations are sometimes *autonomous*. An autonomous innovation can be pursued independently from other innovations. In contrast, some innovations are fundamentally *systemic*, meaning that their benefits can be realized only in conjunction with related, complementary innovations. See Chesbrough - Teece 1998, 28 - 29.

89 One reason for this, according to *Thomas Keil*, is that these technologies or business models often require radically different capabilities and knowledge than those that the organization possesses. See Keil 2000, 146.

90 See Seppänen 2000, 67 - 68.

91 This may be carried out through what is known as a *SWOT analysis*, which considers strengths and weaknesses as internal competencies and opportunities and threats as external factors. See Lahti 1988, 26 - 27.

possible, with such use directly affecting the communication architecture itself.[92] The communication architecture becomes both *solidly fixed and frozen*. The architecture needs to be structured on diverse points of departure. This is the viewpoint of dynamized innovations. Unlike inventiveness, innovativeness is based on *continuous utilization of resources*. Thus, innovativeness is even by definition a dynamic and a functional whole.[93] This is precisely where the reasonable use of external resources is required. In any event, utilization in this form requires at the same time *unbroken communication*. In order to capitalize resources maximally communication cannot be dispersed or fragmented in any way. This is what may easily happen if it is forced into a stabilized form. The fundamental dynamics of innovativeness requires continuousness.

Inventiveness and innovativeness ought to be carried out in balance. A workable architecture can only be constituted on a sustainable balance.[94] A balanced bond between inventiveness and innovativeness is further based on two broad functions, which may both be supported through venture capital. On the one hand, venture capital allows enterprises to search a *broader space of opportunities*. Mainly it facilitates access to information that can be used to challenge existing cognitive frameworks and to acquire critical knowledge for the changed environment. Stable access is essential for the physical infrastructure, where it supports inventiveness. On the other hand, venture capital facilitates the *rapid exploitation of emerging opportunities*. This illustrates the dynamics of an innovative architecture.[95] This means that external venture capital allows an enterprise to leverage its internal resources and competencies with the help of external ventures.[96]

The balanced cooperation of invention and innovation is emphasized in a dual development. One line is the increased *pace of change*.[97] Development is increasingly effective and in this rapid process even business needs to be modified now that, for example, time-to-

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92 Organizational architecture is also considered a part of business strategy. See Ahlfors 2005, 69.

93 Such dynamics are actually not based on any balance or equilibrium on the continuous transformation that a dynamic infrastructure supports. See Suarez-Villa 2001, 10.

94 Systemically the constitutive structure may be built up as a single new comprehensive idea for a system, or it may be constructed on tensions. A tense system is more likely to produce only signs that provide some orientation in the application phase of norms. See Pöyhönen 1999, 54.

95 A dynamic infrastructure is focused on robust continuous change and development. See Suarez-Villa 2001, 10.

96 This characterizes the information and communication technology sector in particular. The need for a broadened search space derives mainly from the dramatic change that characterizes the ICT sector. The need for rapid exploitation, on the other hand, derives from the rapid pace of change seen in that sector. See Keil 2000, 132 - 133.

97 One important element in this change is the use of external corporate venturing for complementing internal resources, knowledge and capabilities. The need for speed and the rapid pace of change constitute characteristics of high velocity environments like the ICT sector. See Keil 2000, 134.

market has become extremely important.[98] The pace of development requires that enterprises be able to use all possible resources. This knowledge, however, rarely comprises the full set of capabilities necessary for creating and developing some completely new business area. In this frame, venture capital is generally thought of as a mechanism to introduce knowledge and capabilities that the enterprise may not be able to utilize otherwise.[99] Further, the pace of change is bound to the *ability to enter the market* rapidly and effectively enough. Rapid development requires, however, that the knowledge already exists in the enterprise. Therefore, it is more favorable to possess resources in a usable rather than an "immature" form.

The other line of the dual transformation is the *character of technological and market change*. This applies in particular to information and communication technology, where the overall change in the domains of demand, competition, technology, and regulation is fast and extensive.[100] This kind of change is often described as *digital convergence*. Digital convergence may be broken down into two classes: *substitutes* and *complements*.[101] Both of these classes of convergence closely affect the dynamization of inventiveness and innovativeness. Two products converge in substitutes when users consider either product interchangeable with the other. On the other hand, products converge in complements when the products work better together than separately or when they work better together now than they worked formerly.[102]

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98 Since the time-to-market of new products has shortened the traditional development line is challenged. As a result, traditional step-by-step development model is no longer stable and new companies have to be fast moving and develop all business processes simultaneously in order to outrun the competition. Traditionally, the evolution of a technology-based new company is seen in terms of separate, consecutive stages. First, the technology is developed, which is followed by the setting up of the organization. Before starting internalization, the organization has to reach a sufficient scale. Finally, the value of the company is estimated, usually at the point when preparation for realization begins. See Rönkkö 2001, 83 - 84.

99 Often knowledge and capability are the results of research and development activities, and some enterprises may possess more knowhow than they use in their existing business. This is a problem of large enterprises in particular. On the scale of exploration - exploitation external corporate venturing may be utilized to shift the balance towards exploitation. Through the leverage of internal knowledge and capabilities to the external ventures, a corporation may be able to avoid under-exploiting its existing knowledge and capacities. See Keil 2000, 134.

100 The development is carried out in several areas: automatization, informatization, communication via networks, integration and convergence, and penetration. See Seipel 2005, 20. All these areas illustrate the speed of development.

101 Convergence can be defined as the unification of formerly distinct functions. For example, the process of digital convergence means that a computer begins to incorporate functionality previously provided by a mobile phone or vice versa. As a term, digital convergence simply implies that this phenomenon is happening through the digitization of technology. See Keil 2000, 134 - 135.

102 One of the implications of digital convergence is that the incumbents 'existing markets are transformed and even some completely new markets come into being. See Keil 2000, 135.

1.3 Basic elements of the innovation architecture in the digital network

1.3.1 Designing the framework

Innovativeness is closely linked to individual creativity. Moreover, innovativeness is also strictly bound to articulating this creativity.[103] Some forms of communication should be included in order to bind these elements together. This communication is created through transmitting connective designs or structures. In the digital economy, there actually already exists the fundamental basis for this kind of design. Namely, innovativeness in the digital economy is mainly carried out though open networks, which further are based on a certain design structure. This structure may also be called an *architecture* and it has a certain basic internal structure.[104]

This architectural design is traditionally often described as the *infrastructure*, which nevertheless slightly differs from the architectural structure of networks.[105] The traditional infrastructure and the network architecture have, however, several links.[106] The architecture constitutes the basis of all the overall preconditions that societal cooperation considers to be necessities.[107] As such, the architecture forms the *basis of communication* and societal cooperation in general.[108] This makes the architecture rather essential for functionality.

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103 See Webster - Packer 1996, 11.

104 This architecture is at least partly founded on technology and its impact on the framework where it is used. The impact of technology depends on a combination of design, use, and the environment where it is deployed. See Shapiro 1999, 14.

105 As a term, infrastructure is closely connected to the clear divergence between European and American views on the recent development in the status of information in societal life. In Europe we speak about the *information society*. See *COM (1994) 347 final*: Europe's Way to the Information Society: An Action Plan. In the USA the information strategy is based on the *information infrastructure* described in the *National Information Infrastructure: Agenda for Action* (*NII*). See Steinbock 1998. 18. The different policy emphasis is the greatest difference between the American Information Infrastructure and the European Information Society. See Samuelson 1996, 24 - 25.

106 For example, the traditional floor plan may well be compared to the architecture of cyberspace. In this architecture, the different positions and forms of access to different needs are considered the most fundamental elements. The *infobahn* may serve as an equalization mechanism, i.e., as a device for providing enhanced access to people isolated in one way or another. See Mitchell 1995, 103.

107 As a societal construction, an architecture may likewise be examined as a communicative design of societal actors. In this sense, society is a functional or a *living entity* where all the actors have a certain position and task. See Simmel 1999, 64 - 65.

108 This societal framework constructed precisely for societal cooperation is called an *infrastructure*. Infrastructure is Latin and means "built beneath". See Kajser 1994, 15. A right to communicate is to be included in the infrastructure as such in the form of a *principle of general public service*. See *Government Proposal HE 241/2001 vp.*, 5.

Indeed, such an architecture would seem to be an essential prerequisite for universal functionality, i.e., the basic frame for functionality itself.[109]

The network architecture itself may be defined in several different ways. The most traditional explanation is to describe the architecture in terms of traditional infrastructure. As such an architecture ought to have at least *some technological components*.[110] Technology is thus the core of the basic architectural structure, which consists of technical channels, physical structures, or networks.[111] These structures often play the most crucial part in delivering commodities.[112] On the other hand, both the technical and the non-technical parts of the system are equally necessary; the technology acquires exactly the same status as the human actors. In this way the very core keeping the social order in place in the overall architecture consists of a heterogenous network of human and non-human actors.[113] Further, the architecture includes an *operational framework* that comprises the basic structure of the whole society.[114] These aspects complement each other. The architecture is based on certain institutions, with these together forming a certain *social-technical system*.[115] This system then

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109 This may be even considered a cooperative process of communicative action in the Habermasian sense. The cooperative process is linked to interpretation and in it participants relate simultaneously to something in the objective world (as the totality of entities about which true statements are possible), the social world (as the totality of legitimately regulated interpersonal relations), and the subjective world (as the totality of experiences to which a speaker has a privileged access and which he or she can express before a public). See Habermas 1989, 120.

110 This is often also called the physical or static infrastructure. See Suarez-Villa 2001, 10.

111 Here delivery structures may be general, or dedicated for delivering only one certain commodity. Roads and railways differ from water pipes and power distribution networks because of their generality. Distribution channels that are built for delivering goods generally often serve diverse purposes. Specific distribution channels are then built for delivering only one certain commodity. See Tennenhouse - Lampson - Gillett - Klein 1995, Virtual Infrastructure http://www.tns.lcs.mit.edu/publications/VI/abstract.html

112 Traditionally an infrastructure has been understood as a technical structure that makes it possible to deliver goods and commodities. Thereby, it is mostly constructed of technical channels or passages, for example water pipes or power distribution networks. See Westman 1998, 33.

113 See Hanseth 1996, 81. The societal actors have a certain reference system that they utilize as an interpretative framework. This system is constituted of three worlds: objective, normative, and subjective elements. See Habermas 1989, 120.

114 The operational frame may also be called the dynamic infrastructure, which ensures the change and functionality of the overall infrastructure. The infrastructure as a complete architecture is a combination of static and dynamic aspects. See Suarez-Villa 2001, 10.

115 The architecture of a system always defines its broad outlines. It may define some precise mechanisms as well.
See Webopedia http://www.webopedia.com/TERM/a/architecture.html

makes up the very core of the architecture. The institutions constitute for their part the essence of modern societal functionality.[116]

An architecture corresponds to a certain *functional design* and the term "architecture" can refer to either hardware or software, or even to a combination of both.[117] In fact, the architecture is even more fundamental when it includes, through both hardware and software, the overall data management systems and the whole network architecture.[118] The network architecture is then structured on certain basic elements. The constitution and the functionality of an architectural design depends highly on values and the choices that have been made for preserving those values.[119] For example, the operative framework needs to be secure; according to the Supreme Court of Finland in cases *KKO:1992:3* (S90/1270) and *KKO:1994:80* (S93/1240), it is principally the system operator who is responsible for system security, in these cases the security of payment transactions.[120]

> *KKO:1992:3.* A had sent an amount of money to the bank account of B in bank C as an urgent payment order. The name of the payee was correct but the bank account number was incorrect. The computer system used for payment traffic in bank C did not accommodate the risk of mistake, whereby the account of an incorrect recipient was credited because of the mistake by the bank. The error in A's order did not relieve the bank of its liability. The bank was ordered to pay damages to A.
>
> *KKO:1994:80.* A's intention was to remit a payment to B, for which purpose A used an automatic system for payment traffic maintained by a bank. The name of the payee was correct but the bank account number was incorrect. The computer system used for payment

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116 The social-technical system includes both a technological frame *(hardware*), and an institutional frame (*software*). See Kajser 1994, 63.

117 Software and hardware are the most typical basic elements of information and communication technology. PCs, modems, servers, and routers are typical pieces of hardware and they make up a crucial part of the information infrastructure. On the other hand, browsers, operating systems, and word processing programs are software, i.e., computer programs. See Hart - Chaitoo 1999, 913. Infrastructure today is also undergoing convergence, with services and contents being made interoperable. See *SOU 1999:55*, 35 - 36.

118 One of the most essential tasks of the software architecture is to organize the fundamental elements of the software. This may include the mutual communication of the different parts of the software, as well as the internal processes and the communication between these processes, ways to get information, or other ways to arrange and construct the software. See Koskimies - Mikkonen 2005, 18 - 19. It is precisely the construction of this architecture that the technological development affects and where the media convergence is to be carried out. See *NOU 1999:26*, 23.

119 The operational infrastructure of the network society is generally referred to as the *information infrastructure* or knowledge infrastructure (*tietoinfrastruktuuri*). The information infrastructure includes information resources and their internal organization. See Pöysti 2002, 36 - 37.

120 However, presently in Finland, the law on payment transactions (*Tilisiirtolaki*) sets the liability to the party who gives the payment order.

> traffic lacked a complete check-system, whereby the account with the given account number but the wrong recipient was credited. According to the principles of contract relations, a bank as a institution maintaining payment traffic was responsible to the payee for carrying out the order. A's order with a mistake did not relieve the bank of its liability and the bank was ordered to pay damages to B.

These values of the infrastructure illustrate the aims that are set to become the basic structural building blocks of the overall architecture.[121] The network architecture is thus made up of certain hardware and software components and, further, their planned interaction or mutual cooperation. Accordingly, the architectural tools are either structural or substantial. Hardware components are the structural ones and they are characteristically physical. As such they constitute the technical part of the architecture, which is often created for delivering commodities.[122] The most important architectural elements of the physical structure are made up of technical choices, such as communication protocols or equipment compatibility.

Network architecture is also described functionally, with this architecture being constituted of certain *societal institutions*.[123] These institutions are crucial for the whole society and are basically built up of certain forms of ownership, organizational constructions, and legal relationships.[124] Thus, the functional elements of an architecture may be legal ones, which are aimed at preserving substantial values.[125] Legal architectural elements are closely linked to legal concepts and legal principles as guiding forces. In this way, physical and legal

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121 Values like liberty will not come from the absence of a state or from the absence of state regulation. Quite the contrary, liberty comes from a state of some kind preserving and regulating values. See Lessig 1999, 5.

122 Such traditional delivery channels are often constructed *vertically*, with producer, channel, and consumer differentiated clearly as units in their own right. See Tennenhouse - Lampson - Gillett - Klein 1995, Virtual Infrastructure http://www.tns.lcs.mit.edu/publications/VI/abstract.html

123 The social institutions that form pert of the architecture may also be described as overlapping surfaces. On the bottom there is the deepest level, which is the area of the subjective consciousness. The next level is that of views of certain diverse groups that function as a collective public. The top surface is the concrete one and it is defined as the level of individual subjects. See Hänninen 1981, 158 - 159.

124 This structural pattern may sometimes also be described as a social infrastructure or *infostructure*; it is basically founded on data and the rights included by it. Data as a part of the infostructure is defined through its ownership and is often also seen as an item of the public infrastructure, such as roads, power, or utilities. See Cho 1998, 36.

125 See Lessig 1999, 5. In this sense, law and justice are defined as a process. Jurisprudence and legal practice are both founded on the continuous use of sources of law but at the same time they themselves operate as such sources. They both operate as actors and practices in the legal processes. See Tolonen, H. 2003, 5.

elements together construct the architecture.[126] As systemic elements, both affect the functionality and effectiveness of the overall network architecture, with the legal order at the same time actually employed as a managerial tool. As such it is used for architectural management and governance and, crucially, as a tool for affecting the development of the architecture.[127] The most definitive point in the functional architecture is the societal significance of a certain functionality.[128] This functionality is considered important especially when it constitutes an essential part of the architecture.

The architectural structure is always employed for carrying out certain societal tasks, or it is at least a minimum prerequisite for the capability to realize a certain societal role.[129] The functional architecture is often described as infrastructure; it may sooner be described as an *infrasystem* that includes, beside technical and physical structures, all the essential functional prerequisites. The infrasystem includes the technical structure, but it also includes services, actors and the commodities to be delivered.[130] The architecture as a functional structure is constituted of societal institutions. As elements of the architectural structure, these institutions constitute, for their part, a network that is actually rather similar to the technical elements of the architecture. These institutions may be examined as an *interactive whole* constituted by the interplay of technology and society.[131]

This kind of interactive functionality has an important influence on the development of the constitutive elements themselves as well as on the framework where they are to be employed.[132] At the functional level, the main purpose of the architectural structure is to provide a basis for distributing societal resources, where the interactivity actually constitutes the core of functionality. At the same time, the architecture establishes the foundation and the main prerequisites for the societal operations overall. On these grounds, the architecture

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126 See Lessig 1999, 5.

127 See Westman 1998, 33.

128 This may often also be referred to as the legal culture where the legal practices and legal norms are used in continuous interplay. Legal norms have a direct influence in society and on the other hand also preserve legal traditions and values. Culture defines the societal framework and at the same time sets the limits of societal operations. See Paasilehto 2003, 34.

129 The infrastructure is often considered to distribute societal resources. See Kajser 1994, 15.

130 The infrasystem may be defined only as one societal system, such as power distribution networks. Infrastructure is then defined as the totality of these various systems. See Kajser 1994, 15 - 16.

131 Convergence and infrastructure are closely connected to each other. The traditional infrastructure is modernized through technological development and completely new ones are created. For example, the www environment is often considered a modern communication infrastructure. See *NOU 1999:26*, 26 - 27.

132 See Kajser 1994, 65. An illustrative example is money in its modern form and its development as exchange instrument. Economic systems overall are generally the core of functional architectural structures. See Tolonen 1992, 1 - 22.

is often conceived of *the societal division of labor*, inasmuch as it defines those who are responsible for maintaining a certain architectural structure.[133]

1.3.2 Combining the variety of interests

The architecture is founded on communication. The architecture as a system of rights governance should be based on two different but still overlapping prerequisites: the *core functions* of the digital economy and its operational framework, seen as the *reflective surface* beyond the overall functionality.[134] These two phases overlap and thus need to be applied together. The fundamental focus, in order to construct the essential baseline of the entire architecture, is to ensure the cooperation between these two levels. In other words, the function and the foundation need to be brought together.

The foundation consists crucially of certain interests that maintain the statics of the system. The characteristic statics of the traditional intellectual property rights are basically due to their *reliance on exclusivity*. Creating a strong exclusive position requires the content of the exclusivity needs to be defined relatively strictly. A strict definition of the context is crucial to be able to define the exclusive position as a privilege to utilize the rights. Exclusivity, however, as the *sole definitive feature* of the system of intellectual property rights now seems to be breaking down. The most obvious breakdown will occur in the area of disjunctive and exclusive categories for industrial and artistic property. The most gravely threatened schemes are the ones of patent and copyright, with the danger arising from the unpredictable behavior of several commercially valuable cutting-edge intellectual creations.[135] One good example of these new creations is *databases*, which are now protected on a *sui generis* basis.[136] A database is actually not a stable or static creation but contains several

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133 According to this definition, the technological elements of architecture would be functional as well. Their main task is to carry out certain tasks. This applies especially when we consider an architecture as a traditional infrastructure. According to this, regulation may be seen in terms of two effects, *external* and *internal*. See Westman 1998, 32 - 33.

134 As such these elements may even be considered as constituting a horizon for the cooperative process of interaction in the Habermasian sense. See Habermas 1989, 120.

135 The systems of patent and copyright are simply too vague both alone to handle such innovations. The classic line of demarcation has become increasingly blurred. See Reichman 1994, 2500.

136 An interesting view on databases and the protection of them is the World Wide Web. An HTTP server actually acts as a traditional database that allows those with proper permission to access, edit, or move Web files. See Major 1998, 84. It is even unclear what is actually protected in databases. The possibilities include at least the information that a database contains, its context, or its structure. See Seipel 1990, 33 - 34.

mutually operating elements.[137] A database is thus characteristically a functional invention and as such a rather paradigmatic illustration of development today. The scope of interests is no longer confined to pure exclusivity.

The scope of interests is becoming more blurred: what was a clear line of demarcation of protectable creations has become more like a penetrable one. This makes it possible for an *intermediate zone of marginal inventions* to exist.[138] This is best illustrated through some clear differences vis-à-vis the traditional system. First, the *filed category of legal hybrids* is becoming wider inasmuch as this area has remarkably lower resistance to variances than the traditional strict system. Accordingly, new innovations may more easily be produced under the vague label of legal hybrids.[139] Second, new innovations are *not necessarily inventions* in the traditional sense. Namely, several fail the non-obviousness test and are likewise not capable of delivering the kind of cutting-edge inventions, this being the traditional justification of legal monopolies. Business method patents are examples of innovations that embrace both the traditional line of demarcation and the non-obviousness of new inventions. Lastly, several legal hybrids are *not definable through the artistic prerequisites of copyright*. Such innovations are more likely to be introduced for economic use in the market. A good example is the source code of a computer program, which closely resembles a literary work when represented in two-dimensional form. If embodied in three-dimensional products, the hybrid regime extends protection to the market, where applications are more likely to be industrial than cultural.[140]

Pure exclusivity still has advantages and needs to be maintained at the level of interests. The main advantage is that exclusive rights are usually defined against all external parties, i.e., *ultra partes*. The protection is absolute and very strong. Here lies a dilemma as well, however. The main problem of exclusivity as an absolutely protected position, and along with this the privileging of this position, is that it freezes up all the functionality at the core of this privileged position. In other words, the privileged position of a right-holder is fundamentally constituted of *total exclusivity*. The privilege *by itself* is entirely too static to be capable of encompassing the rights governance architecture as a whole. Nevertheless, this kind of statics in intellectual property rights is still rather useful. Namely, it makes it possible to design the scope of protected and privileged use, which is very much needed for *consolidating* the functional architectural design. The rights governance architecture thus should still be *solidly anchored* to something. This is why privilege as the core of statics is

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137 These elements are arranged s layers that contain at least sources, producers, distribution, and end-users. Each of these layers is moreover a complex structure. See Seipel 1990, 16 - 17.

138 This kind of vague line of demarcation is totally untenable from the viewpoint of the traditional system of intellectual property rights. See Reichman 1994, 2501.

139 Legal hybrids refer here to unified forms of several traditional intellectual property rights, for example databases. See Reichman 1994, 2502.

140 See Reichman 1994, 2502 - 2503.

one of the most essential elements when building up the rights governance architecture. In this task it is not even close to sufficient, however.

On the other hand, dynamics constitutes the kernel of the digital economy. Dynamics has, however, been changing and varying slightly both *in definition* and *in content*. The starting point in constituting the architecture of rights governance lies in the traditional view of dynamics, according to which the core lies in the ability to transfer rights and to become legally protected when carrying out those transactions. The main focus is on *balancing exchangeability* and its smooth operation. This actually has made the interests of the market the most central focus. On the other hand, this is precisely where *functional dynamics* differ from traditional dynamics. Development in the world of business is actually mainly due to the new business models that make it possible to shift the focus away from the customary view. Therefore, it is not necessarily exchange in its traditional sense that constitutes the core of dynamics anymore. Rather, dynamics are based on *pure functionality*; in accordance with the dynamic aspect of the rights governance architecture, dynamics are founded precisely on this functionality. In other words, the power to affect legal relations is *not necessarily anymore only the power to transfer rights* but also, and even more fundamentally, *the power to participate in the relevant operation*. Dynamics thus bring a relational approach into the picture.

The rights governance architecture is needed for *combining privilege and power* - statics and dynamics. Neither privilege nor power alone is adequate for constructing the whole. In order to achieve the complete picture there is a need to complement static content with dynamic functionality. This complementation further requires that both static privilege and dynamic power are *employed in parallel* and harmoniously. On the other hand, the functional combination of rights is best defined by concentrating on different actors that are then further connected to either the privileged or the empowered position. These elements are generally called the personal aspect of legal protection. An illustrative example of combined privilege and power is found in the area of commons. The sphere of commons is actually viewed from two different angles. On the one hand, the core of the static element of commons consists of the privileged position and it is essentially devoted to rights to be governed as static elements. For example, digitized content and its use is privileged when the right to use is reserved to the right-holders themselves only. They are able to *control the access* of others. Further, they are able to shape the behavioral patterns of all third parties and may decide on the price of the content. This is the core of the static aspect of commons.

Continuing with the area of commons as an example, the dynamic element, for its part, is based on the power to *change the legal status* of someone. Traditionally this is carried out by granting a right to transfer rights. However, the definition of dynamics in the modernized governance architecture of the digital economy, and likewise in the area of commons, is formulated in terms of relationship that concern only certain parties. It is *relational* in the sense that it is focused on only one party or actor at a time. The dynamics of the modernized architecture of rights governance may not, however, be built on the

transferral of rights. Here, commons is an extremely good example, the reason for a novel interpretation of dynamics being obvious. In the case of commons, the rights are actually *property of the community* and there exist no external parties. Therefore, the dynamics and their focus shift from being exchange-oriented towards being more *function-oriented*. The dynamics of commons are still relational and concern only the particular parties involved in operations.

1.3.3 Decentralizing the innovation structure

Innovativeness as a communicative function constitutes an *innovation network*. The architecture of the innovation network comprises several different elements. The network is generally constituted of *social cooperation*, and social cooperation is based on the socially transforming logic of innovation, in which social movements constitute the kernel.[141] In this sense, the core of social cooperativeness is found in the creativity of action based on mutuality and sharing. The creativity of action further constitutes the foundation of creative communities, which promote social transformation and social innovation.[142] All of these structural elements have a direct and concurrent effect on innovativeness. This is mainly carried out through the capability to control the overall architectural structure. On the other hand, the one who controls the architecture is often able to control the general behavior of all the others. This is basically achieved through the choices that are made when building the foundations of the architecture.

A decentralized network is directly focused on a *lack of control*.[143] Decentralization has one great advantage, which is associated directly with information being delivered through the network. In a decentralized and freely operating environment, information is put into practice without any controlling provider. In other words, there is no network server that could interfere with the use of the network itself or with those who operate on a computer network.[144] This may have disadvantages, one of which is connected to network

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141 Modern innovation networks thus have to include technological knowhow but at the same time there is always a need for knowing those branches where the sophisticated new technology is to be used. The needs of the end-user are actually rather definitive for the success of an innovation. See Tervo 2004, 126.

142 Social transformation and along with it social innovativeness aim at greater participation and democratization. See Holtgrewe - Werle 2001, 44.

143 Decentralization influences the communication system in at least two ways. First, decentralized systems usually produce different information than concentrated systems and often the views that they reflect are the ones of their owners. Second, concentrated commercial systems are often bound to the prevailing distribution of power in society and this distribution model is often translated into the distribution of power to express ideas and participate public discourse. See Benkler 2002, 296 - 297.

144 An illustrative example of this is a *peer-to-peer network*, which is based on a distributed structure. In other words, there does not exists any single central service provider; rather, all the networking computers operate equally as clients and service providers in the network. See

security. In order to ensure and increase the security of operations, the threats to it have to be eliminated as effectively as possible. For example, the *Supreme Court of Finland* in case *KKO:2003:36* (R2001/678) considered even an attempt to hack into the information infrastructure of an enterprise a punishable offence.

> *KKO:2003:36.* A used a computer program for scanning all the Internet addresses connected to a cooperative association by an open network in order to find open service providers for transmission. The scanning was thwarted by a firewall in the information system of the cooperative association. A's hacking was deemed punishable even as an attempt.

On the other hand, decentralization truly improves and supports universal societal communication and at the same time the improved possibilities for communication generally increase the rate of innovativeness.[145] One sustainable tool for providing a network architecture that is as neutral as possible is to strive to maintain the *end-to-end principle*. This requires that all intelligence be located at the edge of the network.[146] The decentralization of the network architecture has some further consequences. The most significant implication of decentralization is that the applications on computers are placed at the *edge of the network*.[147]

This will naturally directly affect the overall structure of the network.[148] Using the end-to-end principle closely resembles operating on a peer-to-peer network as a decentralized network where the neutrality of the network architecture is reflected precisely in the *universal communicativity* of the network architecture.[149] This has a direct effect on the structure of

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Kallioniemi 2001, 497.

145 The increase in the rate of innovativeness is not the only consequence of better possibilities to communicate. Equally important is the increased efficiency of the market. Each of these consequences contributes in its own way to increasing welfare. See Benkler 2002, 296.

146 The Internet is characteristically based on the end-to-end principle, given that it is based on the TCP/IP -protocol (*Transmission Control Protocol/Internet Protocol*). This protocol allows everyone to connect to the Internet. See Lessig 2002a, 148.

147 For example, in order to use the Internet for telephone calls one only needs to develop the relevant application and get the users to adopt it. The application can be written and sent to the person on the other end of the network. When both have installed the application, it is ready for use. See Lessig 2002a, 37.

148 At the moment there exists a great difference in upstream and the downstream speeds that causes an imbalance. This imbalance has been corrected in present use but it is a threat for the expected decentralized use of cyberspace. For example, in the prevailing broadcasting environment it is hard for p2p structures to evolve because of the need of equal broadband width. Future broadband technologies will be faster downstream than upstream, which means that most of the broadband technologies will broadcast more quickly than they receive. See Lessig 2002a, 158 - 159.

149 Neutrality actually only enables sending data across the network without regulating its content. In other words, the network architecture only regulates how the data is to be divided and how the resulting packets are to be shipped. The content and its use are unnecessary elements for structural applications. See Lessig 2002a, 149.

a network and especially the *degree of centralization*. The degree of centralization is best manifested at the operational level. Namely, the traditional network, especially open networks, are based on centralized power. This is where the emergence of equally constructed peer-to-peer technologies has its effect. Peer-to-peer communication is carried out *among computers* and it is based on a sharing of computer resources and services by direct exchange between computer systems. It is thus characteristically decentralized and in fact could not be created in a centralized manner. The decentralized character of a peer-to-peer architecture makes it possible to eliminate the need for centralized services and thus to exploit the network resources effectively.[150] As a decentralized communication architecture, peer-to-peer technologies further presume the computers are equal and that they may operate in rather similar ways and at similar speeds.[151] Therefore, peer-to-peer technologies do not require central management or control, the control in their case being rather *diffused*.[152]

The power of neutrality comes directly from the network's inability to control the context or any of the operations of the actors. This power is reinforced through the *simplicity of the network*. This combination of neutrality and simplicity in the network architecture further implies that the network cannot discriminate against content and applications. This increases innovativeness in making it possible for all innovations and creations to emerge in the network.[153] In the digital economy it is significant to promote this kind of innovativeness, for innovativeness is best carried out in circumstances where there is *no decisive power*. For this reason, the communication network architecture ought to be kept completely decentralized.

1.3.4 Innovating in ownership

As a crucial component of the rights governance architecture decentralization has various consequences. These in turn have a great influence on choosing the architectural design of the network on the axis of *owned versus free*. Decentralization in producing information may indeed affect innovativeness in two fundamental ways. On the one hand, concentration in the production of information may affect the *quality* of information. More specifically, centralized systems tend to produce different information than decentralized systems; decentralized information is more versatile and more flexible, especially in the utilization

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150 Peer-to-peer architecture takes advantage of existing desktop computing power and network connectivity. See Elkin-Koren 2002, 88.

151 This was so traditionally, when broadband speeds were low and computers sent and received data at equal rates. See Lessig 2002a, 158 - 159.

152 Peer-to-peer technologies may actually be considered business methods and as such they are rather challenging for the existing business methods in the content market. The most famous of these to date is *Napster*. See Elkin-Koren 2002, 88 - 89.

153 See Lessig 2002a, 156.

of innovativeness. On the other hand, concentrated commercial systems are generally based on controlling the *power to express*. These institutions often translate the distribution of economic power in society into a comparable distribution of power to express ideas and engage in public discourse.[154] Thereby, even the controlling power is divided, and neutralized, in a decentralized architecture. This constitutes an enormous advantage for any decentralized system.

Both the quality of information and the concentration of power need to be reconsidered in the emerging digital economy. The digital economy offers substantial opportunities for concentrating the controlling power in the hands of right-holders in favor of free and high-quality information. This development may even be used against consumers to the advantage of the owners of the network.[155] In this sense, the existing communication network has some disadvantages at the level of design. First, consumers live in a *closed system* that may be based on discrimination of contents. This means that consumers actually have no *real possibility* to choose or even to know what information is actually used as the basis of their decisions.[156] When it occurs as a continuous developing line of innovativeness, this kind of concentration truly affects the quality of information. On the other hand, the construction of the network environment is supposed to be based on the free flow of information, one illustrative example of which is the ownerless status of Web pages. According to the *Copyright Council of Finland* in case *TN 2002:17* a Web page may be protected as a database.[157]

Secondly, the business models mostly utilized in the digital framework are based on *owning customers* rather than offering information or guaranteeing any access to them.[158] This kind of system cannot, however, afford any increasing number of options to its "owned customers". In other words, the number of those options needs to be restricted and their content has to be diminished. This again necessarily affects the quality of information and the structure of control. Thirdly, and especially when speaking about innovation, the controlled platform may *lower the willingness to innovate*. Innovativeness is essentially based on a free and creative, or creative and free, environment. This *freedom cum creativity* will be destroyed if the environment falls under the control of a private owner who gets the power

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154 See Benkler 2002, 297.

155 The traditional character of the Internet as the common open network is based on its freedom, openness and ungovernability. In addition, Internet is impossible to censor or commercialize, and it is decentralized. See Vaidhyanathan 2001, 181.

156 See Lessig 2002a, 160.

157 In *TN 2002:17* Web pages did not, however, reach the level of protectability required for database protection. See *TN 2002:17*, 10 - 11.

158 Customer satisfaction has even been considered one element of a business strategy. See Ahlfors 2005, 105.

to direct the innovativeness.[159] On the other hand, lack of any centralized owner makes it possible to emphasize either the view of the end-user or the view of the equipment-embedded framework. Not being dedicated to one optimized application opens up the network to innovation.[160]

1.3.5 Neutralizing the collaborative relations

An innovative network may be *decentralized* and *ownerless* and this ought to constitute the core of the rights governance architecture. Openness implies further a third characteristic - the *neutrality* of the network. Neutrality prevents discrimination on the network, as it is one of the basic functions of the architecture. This freedom from discrimination derives from the inability of a neutral network to make any choices. This further implies that the network cannot discriminate against some information while favoring other. As such the network cannot discriminate against any new innovator's designs.[161]

Neutralization of collaborating rights may be carried out by endeavoring to construct a *unifying system* at the level of intellectual property rights. The incoherence of the present system is a threat to the balance of power that is based on interconnected rights. For example, a legally protected name (a trademark) and the right to communicate on an open network as a position (a domain name) collide and come to constitute a powerful combination of rights. The power is further manifested through granting exclusive rights, which is actually an attempt to *overpower the competition*.[162] Moreover, granting exclusive rights in a systemically unstable situation may lead to distortions in the overall communicative structure. Here, an illustrative example is again the business method patent, where patents as exclusive rights have been granted even for traditional and old inventions that have now only been employed in a new way on a digital network.[163]

A showpiece of the power of neutralized rights in innovativeness is the model of disruptive technologies, which causes what is known as *innovator's dilemma*.[164] In this dilemma,

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159 See Lessig 2002a, 160.

160 In practice, it is precisely the Internet protocol that physically routes information on the network. It does not process or deliver certain kinds of data better than others. This freedom of communication enables the network to adapt applications not originally foreseen by its designers. See Lessig 2002a, 37.

161 See Lessig 2002a, 37.

162 See Reichman 1994, 2504.

163 Many recent business method patents are basically consist of an old method that is only implemented in a new way in cyberspace. See Chandra 2002, 546.

164 One explanation for how power neutralized by collaborative rights are the basis of innovativeness is the innovators dilemma. It may answer the question why open resources are more valuable than closed ones. The dilemma describes a perfectly understandable series of decisions that lead well-managed companies to miss the opportunities in disruptive

the leading companies within a particular market will outperform others in perfecting the technology that defines the existing market.[165] Instead of identifying and developing disruptive technologies, the development is highly concentrated on superior products to continue existing product lines. This is why *concentrated control will not produce disruptive technologies*.[166] In order to prevent such concentration, it is reasonable to attempt to create some collaboration of rights. On the other hand, innovator's dilemma also reveals some connections to the decentralization of the network architecture. Decentralization may cause some disruption in the traditional course of development. This is often referred as *creative destruction*, where worse or less effective innovations are simply superseded by better ones.[167] Thus, the basic question in innovator's dilemma, as in versatile innovativeness overall, is one of the opportunities offered to competitors. The distortion here, however, is mainly due to the traditional close dependency of enterprises on their own core capabilities.[168] This makes it hard to adapt totally different technologies or business models in the existing, traditional organization process.[169]

1.4 Summary

In this section, the main purpose was to compare and contrast the elements and prerequisites of both inventions and innovations. This is basically done in order to reveal the confusion behind the changed prerequisites of both contract law and property law, as well as the

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technological change. See Lessig 2002a, 89.

165 Companies often have difficulties recognizing technologies or business models that have the potential to replace their existing technologies. Not only do companies lack the knowledge and capabilities for these technologies or business models, but their existing capabilities and knowledge function as a filter effectively prohibiting them from recognizing the value of technologies or business models. See Keil 2000, 146.

166 Innovations are actually created by newcomers rather than by traditional players. Innovativeness is clearly based on emerging new social operation models and rules created by innovating newcomers. It is closely linked to the social structure. See Houtsonen 2000, 244.

167 This is actually the essence of the creative destruction identified and referred to by *Joseph A. Schumpeter*. See Schumpeter 1965, 84 - 85. This kind of development is driven by a robust development process in which the operating parties actively create new applications. See Tervo 2004, 106.

168 It is in fact unexpected situations that offer some of the most innovative opportunities. The other potential factors are incompatibilities, process needs, changes in a certain niche or market, demography, observational change, and new discoveries. These factors are often flexible and overlapping. See Korpelainen - Lampikoski 1998, 139.

169 If a company is focused on continuing processes, if it ignores new markets, and if it misses the disruptive technologies that in fact produce radical new industries, then there is a good reason to keep at least some critical resources for innovation open and within the commons. A neutral platform and the e2e principle are essential tools for guaranteeing this. See Lessig 2002a, 90 - 91.

development of the field of intellectual property. This confusion is due to the significance of the digital economy and also the importance of intellectual property in it. The main concepts and legal institutions basically still apply but their use is confusing. A good example of this is the use of contracts when speaking about intellectual property. Attempts have been made to bring the essential dynamics into the system by constructing contractual arrangements in intellectual property and this has then been considered dynamics.

However, the property view requires more than changing only the balance of statics. This essentially also corresponds to the difference between invention and innovation. An invention is static and as such it may easily be understood as property, or an object that can be owned. In these cases we speak often about patents or other intellectual property rights. An innovation is somehow more complicated. The most significant difference is that an innovation is more than a sole object. It is more likely to be described as a *fluent course of ideas*. As such it can seldom be patented. Another problem here is that an innovation is seldom stagnated. Therefore, the protective forms focused on the strict prerequisites of intellectual property rights do not necessarily always fit in the real life of the present day. Problems brought up by the interconnected examination of invention and innovation may roughly be classified into three categories. These may be approached through decentralization, the ownerless nature of a communication network, and neutrality. All these elements create a part of the flow of innovativeness. On the other hand, all these problems question the stability of the traditional system of intellectual property law. The bases seem to remain but their interplay is somehow differently balanced. This is why there is a need for a new interpretation.

The traditional schema of property law is based theoretically on the Hohfeldian conceptual frame and its applications. The Hohfeldian frame is employed here also as the core of the rights governance architecture. The foundations of the theory are explained through the traditional use of the theory but the changes in the structure of the economy continuously affect the application of the theory. The fundamental legal relationships are still rather stable; it is only their mutual cooperation that is unstable. This changing balance is the focal issue examined here.

2 HOHFELDIAN FUNDAMENTAL LEGAL CONCEPTS AND THE CONCEPTUAL FRAME

2.1 The core and the significance of the conceptual frame

The interplay of inventiveness and innovativeness is a transitional process. The explanation for the transition from invention towards innovation needs to be drawn from a classificatory and descriptive schema. The descriptive schema here is the Hohfeldian conceptual frame, which was originally introduced to bringing out the alteration in the dynamics of legal relationships.[170] The focus was originally on the change of ownership.[171] In the present examination the central focus is on a *different way to see dynamics* in the digital economy and especially in the area of intellectual property. This is also where the principal difference vis-à-vis the traditional application of the Hohfeldian schema is found. Basically, as it is here argued, the dynamics of intellectuality differ markedly from the dynamics of the traditional, object-oriented "static age".

The starting point of the theoretical examination is a clear definition of a legal relationship. These relationships are relations *between persons* and they may be based solely on the communication between them.[172] This is also where the significance of a legal relationship lies, even when the existence of a legal relationship as a basic concept of a legal position is questioned. The basis is constituted by the traditional legal relationships, which are seen as founded on the categories of rights and duties. In particular this means that all legal relations are reduced to "rights" and "duties".[173] As such the whole structure of the field of legal relationships tends to remain rather simple and stable. The legal relations are, however, of the *sui generis* type, which clearly restricts the formal categorization. If any categorization is needed it may well be realized, according to the Hohfeldian frame, by classifying the correlative and oppositional conceptual pairs. In order to construct a more varied and flexible view of legal relations, these correlative and oppositional pairs may then

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170 Hohfeld has used his concepts also for describing and examining the relation of common law and equity. The Hohfeldian conceptual frame is fundamentally structured on the basis of common law in United States. See Hohfeld 1913, 553. W. N. Hohfeld's writings consist entirely of articles in legal periodicals whereof the most significant are the three articles: the two upon *Fundamental Legal Conceptions as Applied in Judicial Reasoning* and the one upon *The Relations between Equity and Law*. The previous two articles are included by the printing referred in this study. See Hohfeld 1964, 4.

171 See Zitting 1951: Omistajanvaihdoksesta silmällä pitäen erityisesti lainhuudatuksen vaikutuksia.

172 Subjective rights are each only a set of different legal relationships. Basically this means that a right in rem is not a right against a thing. See Niemi 1996, 34 - 35.

173 This may often hinder the examination of the most complex legal interests. See Hohfeld 1964, 35.

be used when examining the focal legal fields.[174] Further, it is the single legal relationship that constitutes the starting point for resolving the positions based on rights and duties.[175] This implies that one conceptual pair in the Hohfeldian conceptual frame always represents only a single type of legal relation. As such the conceptual pairs remain rather formal and open. On the other hand, because of the formality and openness of the pairs each legal relationship requires more accurate definition, this clarification being carried out by defining the conceptual pairs in terms of their mutual interconnection. The conceptual pairs correlating with or opposite to each other are accordingly specifications of each other. This is used as a means to make visible the different included, and often also hidden, elements and legal relations.[176]

The very foundation of the Hohfeldian conceptual frame, and the clear starting point for the examination, is the *distinction between right and duty*.[177] This fundamental distinction then provides the basis of the conceptual frame, which is divided into the positions of the entitled and the obliged. Further, both the level of rights and the level of duties are divided into four distinct elements such that each legal element at the level of rights corresponds to each legal element at the level of duties. A right as a complete concept thus fundamentally consists of four elements that manifest the different overlapping aspects of the right. These elements are right, privilege, power, and immunity. The correlating elements at the level of duty are duty, no-right, liability, and disability.[178]

The Hohfeldian conceptual frame is based on the classification of rights. In this categorization a right remains the major concept and as such it is essentially definitive of the whole category of rights. Along with rights this category includes privileges, powers, and immunities. A right is thus not referred in its proper sense; rather, the use of the term "right" is relatively broad and, in the Hohfeldian frame, it may be replaced by a more accurate term. This is clearly carried out through examining the correlative of "right", which is "duty".[179] The interrelation of right and duty may be illustrated through an example. If X has a right with respect to Y that he or she shall not copy the music created by X, the

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174 See Hohfeld 1964, 36.

175 This distinctive task of the Hohfeldian analysis was clearly and illustratively employed in examining change of ownership. The essential ambition was to break down ownership, which until then was understood only as an extensive subjective right. The Hohfeldian conceptual analysis was used to examine ownership as legal relationships and as rights and duties of the parties. See Zitting 1951, 47 - 51.

176 See Hohfeld, 1964, 35 - 36.

177 On the other hand, it is equally significant to differentiate personal legal relationships in order to operate on more precise terms. See Helin 1988, 415 - 418.

178 See Hohfeld, 1964, 36.

179 According to W. N. Hohfeld: "A duty or a legal obligation is that which one ought or ought not to do. Duty 'and 'right 'are correlative terms. When a right is invaded, a duty is violated." See Hohfeld 1964, 38.

correlative is that Y is under a duty toward X not to copy.[180] Similarly, if X has a patent granted for his or her invention and he or she has a right against Y that Y shall not exploit X ŝ patented invention, the right is correlated by Y ŝ duty toward X not to exploit that invention. In this way the interrelation of right and duty constitutes the most significant foundation of all legal relationships.

Further, the conceptual pairs correlate with each other according to a certain formalism. The jural correlatives are right - duty, privilege - no-right, power - liability, and immunity - disability. These relations are called *jural correlatives.* In this schema the correlative relationships refer to conceptual pairs that, on the one hand, particularize the rights of the entitled party and, on the other, the duties of the obliged party. In the overall descriptive schema of legal relationships these correlating pairs are employed as explanatory concepts. All legal relationships may be classified by using these conceptual pairs. These legal correlative pairs construct the foundation of all legal relationships. Further, all the rights and duties may be broken down further and defined as personal relationships by using these correlative pairs. On these grounds, the conceptual pairs of the Hohfeldian frame may additionally be constructed as opposite pairs. These are defined as *jural opposites* which are right - no-right, privilege - duty, power - disability, and immunity - liability.[181] In the following diagram the correlative relations are indicated by a solid line and the opposite relations by a dashed line.

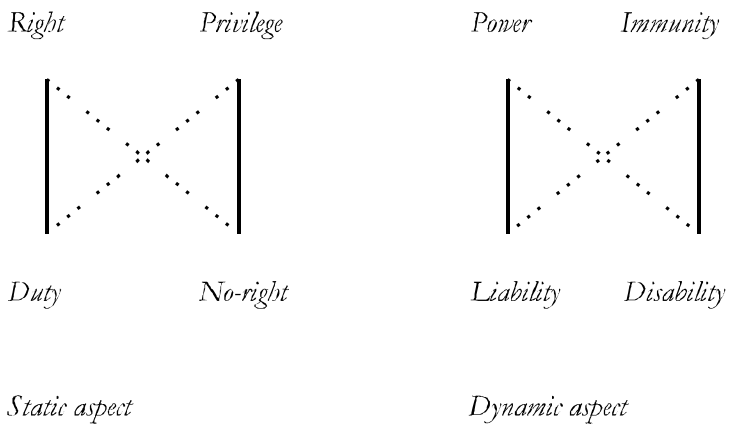

Figure 2. The Hohfeldian conceptual frame

180 In light of this example, there might be a need to seek a synonym for the term "right" in its broad meaning; following Hohfeld, this term would be "claim". See Hohfeld 1964, 38.

181 See Hohfeld 1964, 36 - 38.

The Hohfeldian conceptual frame has a clear practical significance in that it may be used for examining legal relations in either their static or dynamic sense. Further examinations of the Hohfeldian conceptual frame reveal the salient meaning of the distinction between the static and dynamic aspects. These examinations may consist of classifying the very foundations of the conceptual pairs in order to reveal the elementary difference between statics and dynamics. The examination is begun by classifying the conceptual pairs as behavioral norms and competence norms.[182] This is actually also the foundation for the difference between statics and dynamics in the Hohfeldian analysis. The interrelationship of the two different kinds of norms derives from the traditional character of the subjective right. On the one hand, there is the class of *factual use-rights*, which are expressed in the form of regulative norms. The objective of the regulation is a certain behavior.[183] In the law of intellectual property this is often associated with using intellectual property for one's own good. Thereby, for example, the privilege to exploit one's own literary work is based on a regulative norm. In Finland this is carried out in *Copyright Act 2 §*. Regulation, then, concerns the owner's behavior, which is parallel to the behavior of the external parties.[184]

The norm categories of the Hohfeldian conceptual frame also include certain competence norms. These norms are based on granting legal power, i.e., competence, to the right-holder. Legal power concerns competence, which is described as the *power or ability to dispose of property*. In such cases it is precisely this ability that is expressed by competence norms.[185] The disposal concerns the transference of rights and is carried out on the basis of someone's competence. Legal disposal is, for example, licensing a right to a copyrighted computer program or selling a well-known trademark. This classification explains also the division of static and dynamic aspects within the conceptual frame itself. This division is carried out by examining both sides of the Hohfeldian conceptual frame as separate components. Namely, both aspects include two parallel pairs. The correlating pairs of the static aspect are right - duty and privilege - no-right. These two conceptual pairs are further defined as behavioral norms.

Clearly, according to their very description, behavioral norms are contextually defined. In other words, these conceptual pairs are closely linked to the content of the legal relationship. By using this particular conceptual duplex it is further possible to examine the content of the right-holder's right. This right is contextually defined, on the one hand,

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182 More on these norms, see Aarnio 1982, 76 - 77.

183 See Niemi 1996, 19.

184 The content of copyright is simple and consists roughly of two elements. The core of these elements is the variety of rights associated with a certain work. The most important of these rights are the right to manufacture and the right to distribute. See Govaere 1996, 14. These rights have also been described as exploitation rights. See more Bruun 2001, 42 - 44.

185 This two-leveled nature of norms related to subjective rights is the very basis of the division between static and dynamic rights in the Hohfeldian conceptual frame. See Niemi 1996, 19.

as the right-holder's freedom to behave as he or she wishes and, on the other hand, as his or her right to forbid external parties to behave in a certain way. At the level of duty, external parties have a no-right to interfere in the right-holder's use and accordingly they have a duty to tolerate certain behavior.[186] For example, the copyright-holder (-owner) has a privilege to produce copies of his or her work while correspondingly having the right to forbid another person to do so. The external parties have accordingly a no-right to interfere in copying, and they have a duty to let the copyright-holder produce those copies.

The dynamic aspect of the Hohfeldian conceptual frame is constructed internally in an entirely similar manner, with two correlating conceptual pairs. These are power - liability and immunity - disability and may further be defined as competence norms. The content of the dynamic aspect consists of the power of the right-holder to decide about the transference of the right and control over it, or use it to his or her own advantage. The empowered position then correlates with the liability of the other party. Due to his or her liability, that party has to tolerate the behavior of the other party. An illustrative example of power as competence is found in the area of names and especially domain names. A domain name is a name and as such it carries only a right to use. On the other hand, a domain name gives its holder the competence to get connected to the network. Thereby, a domain name always contains some *internal power*.

Additionally, in the dynamic aspect the content of dynamics is made complete by immunity, which basically implies integrity. Immunity correlates with disability of the other party.[187] This immunity/disability position is best illustrated in the position of the disabled party and the field of compulsory license. Compulsory license corresponds to the legal permission that is ensured by a court of law. It is granted to a person other than the patent-holder and its purpose is to make the patented invention available to society. Compulsory license puts the right-holder in a disabled position, which means that he or she is not immune anymore. On the contrary, when one has a patent, one's position is actually one of immunity.

2.2 Static and dynamic legal relations

2.2.1 The static aspect

The Hohfeldian conceptual frame is fundamentally composed of basic concepts of the static aspect. Those basic concepts are *right and privilege* and they are generally described with their correlating counterparts, *duty and no-right*. The totality of the static aspect is then constituted of these correlating pairs. The definition may be augmented by describing the opposite pairs, which are right - no-right and privilege - duty. Further, the static aspect is constituted of

186 See Niemi 1996, 19.

187 See Niemi 1996, 33 - 34.

both rights and duties, the rights being those of the right-holder and the duties those of the external parties. The static aspect thus includes two different kinds of elements. The right-holder is entitled to certain behavior and at the same time has a right to forbid external parties to behave in a certain way.[188] When speaking about inventions and the information included in them, the right-holder has a *privilege to access* information and a *privilege to utilize* information. Additionally, he or she has the right to *forbid the external parties to access* information.[189] The essential focus here is that the right holder has an *exclusive right* to behave in a certain way. This means that he or she has both a privilege and right to behave in this way.[190]

The static aspect may be described by defining the *correlating relation of right and duty*. A duty, in other words a legal obligation, concerns what the obliged must do, is forced to do, or must not do. On the other hand, a right is violated when the correlating duty is not obeyed.[191] If someone (X) has a right against someone else (Y) to the effect that Y shall not exploit X's patent, the correlating concept is that Y is under a duty toward X to refrain from exploiting the patent. Likewise, if an enterprise owns a trademark, and has a right against someone (Y) that Y will not use a similar mark in the same market area, then Y has a duty to avoid using this mark. This example may be applied directly to defining the borderline between the public domain and the enclosed domain, where the communication of information describes an expectation about how the particular use of information is to be legally organized. The core difference between the public domain and the enclosed domain is that anyone is privileged to use information in ways that are in the public domain.[192]

The static aspect is completed by another correlative relation, which is privilege - no-right. This may also be described through examples, the previous one applying here in a slightly varied form. Whereas X has a right or claim that Y should not exploit X's patent, X, on the other hand, has the privilege of exploiting this patent. In terms of opposing concepts, X has no duty to not to exploit it.[193] Thereby, the inner substance of privilege is found in the counterparts of both right and privilege. A duty is a correlative in the legal relation where the counterpart is a right. This is also where the further difference between

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188 The owner thus has a freedom to behave as he or she wishes. In this respect the freedom to use is a sort of *normative void*. The personal relations may easily be examined and resolved through the concept of freedom of use, whereas the content of ownership may not be determined through this concept. See Zitting 1984, 648.

189 Petrusson defines these three elements of utilization as the individual control over information. See Petrusson 1999, 136.

190 See Niemi 1996, 19 - 21.

191 See Hohfeld 1964, 37 - 38.

192 See Benkler 1999, 363.

193 See Hohfeld 1964, 39. The Hohfeldian example is modified to fit in intellectual property rights.

a right and a privilege can be found.[194] This difference is significant indeed. Namely, the correlative of X's right that Y shall not exploit X's patent is Y's duty not to exploit. Further, the correlative of X's privilege to exploit it is clearly Y's no-right that X shall not exploit it. This example implies two different classes of relations. Accordingly, the different manifestations of privilege, on the one hand, and right, on the other, are clearly illustrated. The group of primary relations is then actually a party's *respective privilege* against the third parties in relation to exploiting the patent. The secondary ones are a party's *respective rights* against the third parties that they should not interfere in the act of exploiting the patent. This is to say that the third parties have a duty not to interfere the right-holder's exploitation.[195]

This applies, for example, to keeping trade secrets. A trade secret constitutes to its holder a privileged position to access secret information, with the correlating no-right of a third party stating that he or she is not allowed to access that secret information. A trade secret is protected through a right-holder's right to forbid the external parties to behave by inappropriate measures when the external party has a correlating duty not to behave like this. (See, in Finland: Laki sopimattomasta menettelystä elinkeinotoiminnassa 4 §.) Right and duty as correlatives constitute in this manner the core of the static aspect, which is principally constructed of correlating conceptual relations. The analysis may be completed through the opposite relations. The position of the opposite relations is slightly different when compared to the correlative ones. Opposite relations namely define plainly the position of either the entitled or the obliged. They do not illustrate any mutual interaction between the parties to a legal relationship. Therefore they may be used only in examining the legal positions of either the entitled party or the obliged one.

The significance of the opposite relations is that they make it possible to examine legal relationships and their internal importance. In other words, they define the legal relationships only and focus on those. At the same time, the relationships indirectly also define the legal position of any third party. In this analysis of opposite concepts, a right is opposed to a no-right whereas a privilege is opposed to a duty. The position of the obliged may be defined accordingly. A duty is opposed to a privilege and when the right-holder has a duty to act in a certain way he or she has no privilege. Accordingly, a no-right is opposed to a duty.[196]

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194 The interrelation of right (as claim) and privilege is clearly illustrated in the following example cited by Hohfeld: "The eating of shrimp salad is an interest of mine, and, if I can pay for it, the law will protect that interest, and it is a right of mine to eat shrimp salad which I have paid for, although I know that shrimp salad always gives me cholic." See Hohfeld 1964, 41.

195 See Hohfeld 1964, 39 - 41.

196 See Hohfeld 1964, 38 - 39.

2.2.2 The dynamic aspect

Real legal relations are not fixed only to static relationships. Equally significant is the ability to *change legal positions*, which is defined as the dynamics of legal relations. This ability to change legal relationships is based on legal power, which is further defined as the core of the dynamic aspect of Hohfeldian conceptual frame.[197] This core is constituted of power and liability as correlative counterparts. In this schema, legal power is associated with the rights of the entitled person and at the conceptual level it clearly corresponds to the concepts of right and privilege in the static aspect. Power is a concept on the level of rights and at the level of obligations it correlates with liability. At the same time, it operates as the opposite of legal disability.[198] The power - liability relationship can be seen to constitute the kernel of the dynamic aspect in the Hohfeldian conceptual frame.

This kernel may be described by defining the opposing relations for the dynamic aspect. This clearly corresponds to the defining process of the opposing concepts of the static aspect. Opposing relations particularize the legal positions of either the entitled or the obliged. Power implies that the right-holder is not under disability. On the contrary, he or she has the power to cause a change in the legal relationships. On the other hand, the liability of the obliged party is opposed to immunity and that party is then under liability. In other words, he or she lacks immunity against the power of the entitled.[199] The oppositional relationships thus may clearly be used as additional definitions when describing the contextual relationships of the dynamic aspect. Further, as the content of the dynamic aspect this relation of power and liability denotes the controlling power that the parties to the legal relationship have. It also implies the legal liability in this controlling power.[200] Thereby, the inner purpose of further using the legal power is to effect a change in a legal

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197 Legal relationships may be changed for two reasons. On the one hand, this may occur because of a fact or a list of facts that cannot be included in the intention of a human being. On the other hand, the change may be caused by facts that are included in human intention. When intention has a definitive significance in changing the legal relationships, the person in question is considered to have legal power. The legal power is, further, focused in affecting certain changes in legal relations. See Hohfeld 1964, 50 - 51.

198 This means that legal power has to be distinguished from mental or physical power. See Hohfeld 1964, 50.

199 See Niemi 1996, 39 - 42.

200 Operative facts are these that are essential for creating or establishing the legal relationship. The fundamental concern is to distinguish legal power and physical power from each other. Operative facts are, for example, the abandonment of an object, or acceptance of an offer. In order to examine the scope of power and liability it is important to distinguish clearly the operative facts and the legal facts. Operative facts play an important role in creating the legal relations, whereby the physical facts operate always on the background. See Hohfeld 1964, 58.

relationship. The change is carried out by disposing over the set of rights. As a consequence of this act those legal rights are transferred from one person to another.

Transference of rights also affects the power itself, however. Therefore, through the use of competence, the acquirer of a right receives an analogous legal position and power to dispose.[201] This is best illustrated through examples. The owner has the legal power to extinguish his or her own legal interest by abandoning the object. When abandoned, the object has no owner and no one has any power positions over it. This also apples to the other positions defined through the Hohfeldian conceptual schema, i.e., right, privilege, and immunity. Indeed, abandonment implies a power position over the abandoned object: the power to acquire title to the object by appropriating it.[202]

In the field of intellectual property rights a compelling example of acquiring a power position by appropriating may be found in *geographic information*. Geographic information gives consumers information about the origins of goods. In this respect, geographic information is a part of the public domain and as such is ownerless; it cannot be transferred freely in order to preserve the accuracy of this connection.[203] This ownerless status may, however, be questioned by appropriating pieces of this kind of information. This actually applies to all public domain information that is free to be appropriated.[204] Another illustrative example of the creation of a power position is found in *open source software*, where the creation of an empowered position is even slightly stronger and may even be described as *active empowering*. Active empowering is carried out through creating software and correspondingly receiving copyright to it.[205] Copyright is then further transferred to the use of the whole community, the so-called *open source community*, where everyone is free to copy and modify a computer program on the basis of transferred copyright. Copyright is then called *copyleft*.[206]

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201 See Hohfeld 1964, 50 - 51. See also Scheinin 1988, 28.

202 See Hohfeld 1964, 51.

203 Geographic information refers to information that describes the origin of a group of producers as it is utilized in commerce. Therefore, geographic information differs from a trademark, which is used for indicating and distinguishing the commercial origin of one company's products from those of another. See Levin 2005, 11. Geographic information may also refer to information or data that makes reference to locations on the Earth. See Cho 1998, 5.

204 A map, though consisting completely of public domain information, may be protected through copyright. Copyright would be granted because of the originality of the map and the information included on it is free as such. See *Copyright Council of Finland TN 1999:5*, 15 - 16.

205 Open source software utilized like this grants a great business advantage. Open source software may be employed by enterprises in order to win the approval of financial markets and maintain large market capitalizations even though those enterprises did not develop the software on which their work is based. See McGrowan 2001, 242.

206 Copyleft (*all rights reversed*) is a license that is fundamentally based on copyright law. Copyleft uses copyright law, but turns it on its head to serve what is in fact the opposite of its usual purpose. Instead of being a means of privatizing software, it becomes a means of keeping software free. The central idea of copyleft is that everyone is given permission to run the

Nevertheless, the empowered position is granted to the whole community. As a communal right it becomes slightly stronger than it is normally.

The character of legal power ought to be examined even further to be able to reveal its character in more detail. This is best carried out in the field of contracts. A mails a letter to B and offers to license his or her patented invention to B. The letter is duly received. These operative facts, i.e., mailing the letter and receiving it, create power as regards B and a correlative liability as regards A. Further, B, by dropping a letter of acceptance in the mail box, has the power to impose a potential or inchoate contractual obligation on A and himself. This series of acts establishes further the power - liability relationship between A and B.[207] This recalls the situation with *shrink-wrap contracts* and the structural similarity between shrink-wrap and click-wrap operations is clear. By clicking the button of acceptance, surfers on the network actually place themselves under the power of the service provider. The problem is of course that they may have done this even without knowing it. Nevertheless, the power - liability relationship is established in a wholly corresponding manner in the network environment.

The Hohfeldian conceptual frame is completed through the fourth and last correlative pair, which is immunity and disability. Immunity is the correlative of disability and the opposite of liability. Indeed, this fourth correlative pair completes the dynamic aspect of analysis. The character of the correlating duplex is, again, best revealed by examining the mutual relationship of the two parallel concepts of the dynamic aspect: power and immunity. This mutual relationship resembles closely the one of right and privilege in the static aspect of the analysis. There a right is one's affirmative claim against another, and a privilege is one's freedom from the right of claim by another. The right is a presupposition of certain behavior, with the privilege accordingly freedom from this. Likewise, here in the dynamic aspect, power equalizes control in the legal relationship and immunity is freedom from this control.[208]

A ready illustration of this is found in the area of licenses. Licensor X has the power to license his or her patented invention to Y or to any other ordinary party. In this relationship X possesses an empowered position. Further, the empowered position is strengthened through the immunity of the owner, i.e., X as licensor. Immunity applies to both the licensee and third parties. On the other hand, the licensee is under disability until the license is transferred to him or her, and cannot dispose over the licensed invention that is to be transferred. Disability applies until the license agreement is completed.[209] A similar situation occurs in copyright when a composer as copyright-holder has the power to

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program, copy it, modify it, and distribute modified versions. Permission is not, however, given for adding any of the programmers 'own restrictions. See Bobko 2001, 80.

207 See Hohfeld 1964, 55.

208 According to this, disability might also be called "no-power". See Hohfeld 1964, 60.

209 See Hohfeld 1964, 60.

manufacture and distribute copies of his or her composition. To really be entitled to this, the copyright-holder is immune against any infringement by the external parties. Copyright is, again, even strengthened through the copyright-holder's immunity. The immunity is further strengthened through the disability to copy of, for example, those who are listening to the particular music, or composition.

2.3 Some applications of the Hohfeldian conceptual frame

2.3.1 Analyzing the transference of ownership

In Finnish jurisprudence, the application of the Hohfeldian conceptual frame has become even classic. This status was introduced by *Simo Zitting* in his doctoral thesis in the 1950s in which he examines the transference of ownership by concentrating on legal relationships. The Hohfeldian conceptual frame plays a central role in the thesis and the overall transference of ownership and divergence of legal relationships was analyzed using the frame. This short section is mainly based on Zitting's thesis. Zitting's work is considered as a part of analytical jurisprudence and its derivation, analytical civil law.[210] The central aim of analytical jurisprudence is to remove all of the unnecessary and disadvantageous elements from the language of jurisprudence. The main argument is that instead of focusing on what something is, one should focus on *how something occurs*. On the other hand, the aim is to create a jurisprudential conceptual frame that would be sufficiently exact.[211] These were, according to Zitting, the most central means to characterize the transference of ownership in a totally fresh way and accordingly reshape and take advantage of the different aspects of the owner and the overall concept of ownership. His aim was to reshape the concept of subjective right to correspond to reality.[212]

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210 Analytical jurisprudence has in fact produced its most advantageous results in examinations of the concept of subjective right. Three basic axioms of analytical jurisprudence are: 1) a subjective right stands for being *in legal relationships*; 2) legal relationships can prevail only *between persons*; and 3) a subjective right prevails not only in the *inter partes*, but also *ultra partes* relationship. See Niemi 1999, 291a.

211 Subjective rights as legal positions, rather than possession of an object, made it possible to re-examine and rebuild several different traditional legal institutions in a modern way. Good examples in Finland, besides the one described by Zitting concerning the transition of ownership, are the undistributed estate, examined by *Aulis Aarnio* 1967 *(Perillisen oikeusasemasta),* and ownership of a building, examined by *Leena Kartio* 1974 *(Rakennuksen omistajan oikeusasemasta*). However, Markku Helin questioned the very existence of subjective rights and considered it simply a non-existing legal fiction. See *Helin Markku*: *Lainoppi ja metafysiikka* 1988.

212 Ownership may thus also be viewed as an undivided whole in which the essential focus is its use value. This is traditionally the core of the *constitutional protection of property*. See Zitting 1984, 655.

A subjective right like ownership is founded on a large number of legal facts and legal consequences which are then connected by the concept of ownership. More precisely we can say that the concept of ownership is built up of a cumulative set of legal consequences. Legal facts alone do not build up any cumulative whole.[213] They are mere facts which could also constitute a disjunctive whole. These simple legal facts are then connected to a set of legal consequences by the concept of ownership.[214] Ownership was no longer necessarily considered a substance of rights deriving from different legal facts or consequences. Rather, it could be defined as a term describing the totality of elements forming the complexity of legal positions.[215] The emphasis moved towards different elements, which further form the basis of ownership. Ownership is the common concept for these positions. It can also be said that ownership was no longer a substantive concept but, rather, a functional one. It could also be described as a dynamic dimension.[216] This was essential for societal development.

Ownership illustrates clearly the overall *social circumstances*. Thereby, any transference or development in those circumstances necessarily affects the scope of ownership. The level of engagement of the owner and any change concerning it is evidently one manifestation of the development in those social circumstances. Another is the evolution in the position

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213 The theory of subjective right as a connecting concept between legal facts and legal consequences was researched by *Per Olof Ekelöf*, who came to the conclusion that the concept of subjective right consists of two elements and includes both facts and consequences. On the one hand, the concept refers to a group of legal facts and, on the other, to a group of legal consequences. See Ekelöf 1946, 310 - 311. In this respect the concept becomes twofold and could be defined to describe either legal facts or legal consequences, with the facts and the consequences both bound together by the concept of subjective right so that the concept itself becomes equivocal. See Ekelöf 1945, 246 - 247. This view was questioned by *Ivar Strahl*, who took the view that the concept of subjective right cannot be used as a concept including several meanings. Strahl argued instead that the content and meaning of a subjective right have to be the same as regards both the legal facts and the legal consequences. It cannot be equivocal. This means, in other words, that the concept of subjective right (a claim, for example) has to contain the same meaning in all premises and the concept of subjective right was thereby only an illustrative concept referring to a group of legal facts. See Strahl 1946, 206 - 208.

214 In this respect, ownership consists of a complex of different norms, either behavioral norms or competence norms. See Zitting 1953, 596. Ross defines this to be a simple example of logical systematics, with the consequences derived from the set of legal facts. See Ross 1951, 476 - 477.

215 The new way to view a subjective right like ownership made it also possible to distinguish elements within the concept that had been impossible to distinguish before. One major change was the transition from the static position to the dynamic one. The need for this kind of change was due to several factors at the same time, the principal ones being increasing exchange, the change in the social structure generally and the incompatibility of the legal instruments in the changed reality. See Zitting 1952a , 387 - 391.

216 See Zitting 1952a, 387 - 391.

of individual owner as the possessor of private property.[217] The social circumstances were traditionally more fixed to using the property for one's own benefit rather than transferring it or using it as collateral security. In those circumstances it was sufficient to consider *ownership as a static concept*, where the main focus was on drawing a clear borderline between ownership itself and the limited law of property.[218] Expanding exchange, however, changed this static and steady status of ownership, and dynamic ownership came into the limelight. Dynamics simply rose over statics when examining the scope of ownership. This likewise brought the change of subject and especially the different phases of this transferring process into the focus of research.[219]

The legal status of the owner comprises three different components, which are the primary right of the owner as a right of possession, competence, and a certain level of dynamic protection, i.e., protection against creditors or other parties directing claims at the assignor.[220] Transference of ownership may further be examined by considering all these three components. This diverse basis makes it possible to define ownership in both static and dynamic terms. This makes ownership clearly twofold. Further, the legal positions found in ownership are built up on the basis of either the static aspect or the dynamic aspect. These aspects then further reveal the different characteristics of those aspects and make it possible to focus on their most salient qualities. In the static aspect there is the right-holder's right or privilege to use his or her right, whereas in the dynamic aspect the most characteristic element is the right-holder's power to decide on his or her right.[221]

The difference is significant when the transference of ownership is examined as different phases that form a process, and especially when the different elements of the owner's legal position are examined. This significance is made more visible as it has become possible to differentiate the right to use the object oneself and, on the other hand, the power to transfer ownership of it to someone else.[222] The static aspect is then constituted of the owner's right to possess, i.e., his or her primary right. The context of this right is the freedom to use the object. Freedom of use an object further includes two main factors, namely, *how it can be used* and the *certainty of the right to use*. These two factors are, in other words, *content* and *protection*.[223] The most central element of the dynamic aspect is nevertheless the owner's competence, which entails the owner's capability to affect the object's transference from one sphere of ownership to another. In other words, competence implies deciding about

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217 See Zitting 1952a, 387 - 388.

218 For the related studies, see for example, *Wirilander, Juhani*: *Käyttöoikeudesta kiinteistöön*, 1980.

219 See Zitting 1951, 8 - 9.

220 See Zitting 1952a, 501 - 502.

221 See Zitting 1951, 22 - 23.

222 On the right of possession, see Zitting 1951, 25 - 26; further, on competence; see Zitting 1951, 30 - 31.

223 See Zitting 1951, 25 - 26.

the primary right of the object.[224] Additionally, the dynamic aspect includes a special form of protection, which is called dynamic protection. Dynamic protection is carried out when two rights collide. The collision refers to a situation where two rights collide and cannot both be realized at the same time. One has to be extinguished.[225] The clear divergence of the static and dynamic aspects is likewise manifested in the mutual completeness of content and its protection in the legal relationship. The protection that is to be given in the static aspect is called *static protection* and it is essentially the protection that is given to the right-holder in relations *ultra partes*. Dynamic protection is then only carried out where certain severally and personally defined relationships are concerned. It is essentially carried out only in certain personal relationships. In this sense, it concerns only a certain special personal relationship and it concerns only a certain legal relationship, i.e., *inter partes*. Dynamic protection is characteristically rather relative.[226]

This is where the Hohfeldian conceptual frame is exploited by Zitting. The Hohfeldian frame is used for constructing the solid basis for differentiating varied personal relations in the transference of ownership. The Hohfeldian correlative pairs construct, on the one hand, the static aspect of the transference of ownership and, on the other, its dynamic aspect. Further, the conceptual duplexes are more accurately defined in such a way that the legal concepts of the static aspect are privilege - no-right and right - duty. This classification is the additional basis for the definition of the owner's protected freedom to use. This protected freedom to use is constituted of the owner's privilege to use the object and, on the other hand, his or her statically protected right to claim protection if this use has been disturbed.[227] The conceptual correlative pairs of the dynamic aspect are then the remaining ones, i.e., power - liability and immunity - disability.[228] The analysis gives us the necessary instruments for examining the variation of personal relations while transferring ownership. The most crucial element is the correlating pair of power and liability, which is the essence of the owner's competence. Bearing in mind the fundamental description of competence as the capability to transfer an object from one sphere of rights to another, the significance of competence in the transference of ownership is most understandable. Competence is clearly aimed at causing some kind of change in the relations involved in ownership. In other words, when using his or her competence, a right-holder tends to decide about the primary right that is the essence of ownership overall as a right.[229]

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224 See Zitting 1951, 30 - 31.

225 See Zitting 1951, 43. See also Zitting 1989, 10.

226 See Zitting 1951, 78 - 79.

227 See Zitting 1952a, 400 - 401.

228 See Zitting 1952a, 396.

229 See Zitting 1952a, 501 - 502.

The dynamic aspect is at least as interesting. The correlating pair immunity - disability is defined as dynamic protection when examining the transference of ownership.[230] The protection is crucially carried out when two rights collide and both may not be carried out simultaneously. Both right-holders derive their right from a correspondingly valid cause but those rights may not be carried out simultaneously. One has to be extinguished. The collision occurs when the assignment is invalid in such a way that the assignee may claim his right in certain, but not all legal relations.[231] In these cases dynamic protection implies the stability, or the validity, of the legal relationship. This validity is the basis of the assessment of the collision and the crucial focus is placed on those relationships which are to be sustained, i.e., which are to be protected.[232] When one gets a dynamically protected position, one is in fact released from liability. This liability is further caused by the incompleteness in the legal relationship between the assignor and the assignee. Accordingly, getting a dynamically protected legal position implies that the assignee becomes immune against the creditors of the assignor or other parties directing claims at him or her.[233]

2.3.2 Analyzing the legal position of a creditor

In Finnish jurisprudence the most well-known application of the Hohfeldian conceptual frame is the analysis of transference of ownership, where the core of analysis lies in the division of transference into different phases. Accordingly, property law has become the key branch in which to employ the Hohfeldian conceptual frame. It is not impossible to apply the frame in other branches of law, however. One illustrative example of the use of the Hohfeldian conceptual frame in the law of obligations is the analysis carried out by *Matti Ilmari Niemi*, whose analysis focuses on obligations, more specifically the analysis of the debt relationship.[234] The examination focused on a claim to a right. The very beginning of the examination defines the content of a claim to a right. This further requires that the mutual coexistence of the Hohfeldian conceptual duplexes ought to be characterized. These conceptual pairs reflect the central essences of the subjective right, with those elements described from two different personal views. Debt is defined as a relationship between two individuals in which one acts as an assign and the other as an external party. The position of the assign is primary and it constitutes the kernel of the overall examination. On the other

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230 See Zitting 1952a, 517.

231 See Zitting 1952a, 511 - 512. On the difference between absolute and relative protection, see Zitting 1951, 54 - 55.

232 See Zitting 1951, 66 - 70.

233 See Zitting 1952a, 517 - 518.

234 The analysis of the debt relationship is actually a comprehensive example of the usefulness of the Hohfeldian conceptual frame, and the mutual relationships of the Hohfeldian concepts. See Niemi 1996, 48 - 49. On similar applications, see also Wirilander 1970, 298 - 323.

hand, a claim necessarily requires a debtor, and from the debtor's viewpoint the relationship is debt. Through this short analysis we have constructed the basic relationship of a claim to a right. This is based on the relationship between creditor and debtor, and it further constructs the correlating relationship of claim and debt.[235]

The examination of a claim to a right may be started by looking at the static aspect. The examination is then based on the main concepts of the static aspect, privilege and right, which here may be defined as a claim.[236] The claim corresponds to the debt and accordingly the creditor's claim to payment. On the other hand, parallel to the payment itself is the creditor's freedom from pecuniary obligation, given that the debt is only unilateral. The creditor's legal position is then constituted, on the one hand, of the claim to a right and, on the other hand, of his or her freedom from pecuniary obligation. Further, the creditor's claim to the payment correlates with the debtor's obligation of payment. On the other hand, the creditor's freedom from pecuniary obligation correlates with the external party's no-right to payment.[237] Furthermore, in the static aspect the creditor's legal position includes the right and privilege to possess a promissory note. If the promissory note is a negotiable promissory note, the creditor's position is essentially constituted of possession of the note. This constitutes the privileged position for the holder of the right. This further implies that the holder of the right may behave in a certain way and at the same time he or she has the right to forbid external parties to behave similarly. The privilege is actually an excludable right. It correlates with the debtor's duty to refrain from possession of the promissory note and accordingly his or her no-right to possession. The debtor has no right to a claim of payment; he or she has freedom from this.[238]

The examination of the dynamic aspect is first focused on the origins of debt. Debt is often originally based on the assignment of the debtor; i.e., debtors use their power to oblige themselves. At the same time, the position of the creditor has been converted into one of power, with the debtor entering a position of liability. The debtor's pecuniary obligation includes the power to gain possession of the promissory note. Payment, on the one hand, and assignment of the promissory note, on the other, then extinguish the right of the creditor. In addition to the claim of a right, the creditor has the competence to assign the debt, i.e., transfer it to another person. Competence describes the creditor's power. This power correlates with an assignee's liability. The new creditor may then, as assignee and as possessor of debt, receive immunity, with the debtor correspondingly being bound to

235 See Niemi 1996, 21 - 22.

236 See Niemi 1996, 19.

237 See Niemi 1996, 42.

238 See Niemi 1996, 48.

disability. This is due to the legal protection of the assignee. This is the case, for example, when a creditor acts in good faith when receiving the possession of a bearer bond.[239]

The most fundamental, even paradigmatic, difference between Zitting's transference of ownership and Niemi's analysis of the legal position of creditor is found in the construction of the static aspect. This difference actually gives even some further tools for examining the conceptual frame and the possibilities to apply the Hohfeldian conceptual frame to intellectual property rights and the phenomena of the digital economy. The difference is clear. In Niemi's analysis, unlike Zitting's, the static correlating duplex right - duty does not imply legal protection.[240] Zitting constructs legal protection as a central and concrete part of the conceptual frame and its applicability.[241] The strong significance of legal protection as a part of the analytical examination actually causes some additional substantive problems in illustrating the mutual coexistence of certain elements in the complex of legal relationships. Legal protection as a central part of the Hohfeldian conceptual frame further implies that the concepts of right and duty would no longer have any accurate substantive significance or context. These concepts would thereby only illustrate the legal protection of privilege, not anything else.

A good alternative to this interpretation is to consider both correlating duplexes of the static aspect as substantial and contextual. Thereby, a claim-right as a right to forbid third parties to interfere with the right of a right-holder may actually be defined independently from the overall design of the conceptual frame. Thus, the Hohfeldian concepts may be defined as illustrating only allowed and not-allowed acts but not legal protection at all. In other words, the concepts of the correlating duplex of right and duty are actually interpreted *as two different sides of the same legal relationship* and further they are treated as correlating concepts, i.e as a duplex of right and duty.[242]

The chief similarities in Niemi's and Zitting's analyses are found in the dynamic aspect and are manifested in two different ways. First, the dynamics in legal relationships are essentially based on the power to change legal relationships that are implemented between different personal relations. This is carried out by transferring an object or a debt to another person and, accordingly, leads to a change of subject. For Zitting the competence clearly corresponds to the capability to transfer the object from one sphere of ownership to another.[243] Niemi's view fundamentally corresponds to this, with the power position of the creditor in his analysis essentially constituted of the creditor's power to assign the debt, in

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239 This applies even when the goods being sold are useless and the bearer bond was given as a payment for those particular goods. See Niemi 1996, 48 - 49.

240 See Niemi 1996, 50 - 53

241 See Zitting 1952a, 400.

242 See Niemi 1996, 50 - 53.

243 See Zitting 1951, 30 - 31.

addition, of course, to his or her power to demand payment.[244] Thereby, the most essential significance of the dynamic aspect seems to be to create changes in personal relations.

Changes in personal relations actually turns the focus on another similarity in the two analyses: dynamic protection, or the legal protection in the dynamic aspect. For Zitting, dynamic protection represents a special form of legal protection, one clearly diverging from the static protection.[245] This is due mainly to its very essence as a certain guideline for solving collisions of rights. Further, it relates essentially to substantive law and dynamic protection and is not in fact procedural legal protection. This is actually the state of affairs when speaking about static protection.[246] The similarity of these two applications of the Hohfeldian conceptual frame is best revealed when examining dynamic protection. The fundamental derivations of dynamic protection are substantially and contextually similar. Dynamic protection is defined as a sustaining subjective right of the present right-holder and immunity is a crucial part of that subjective right and its context.[247]

2.3.3 The evolutionary contract

The analysis of a debt relationship may clearly be considered as an analysis of a general contractual relationship involving a promissory note although there does not exist a clear line of development such as that seen in the two previous paradigmatic examples. The Hohfeldian conceptual frame may nevertheless be applied also to contracts. In these cases the applicability of the Hohfeldian frame is clearly found in the usefulness of the tools that it offers for examining the legal relationships. This is simply carried out by reshaping the context of the contract and then reducing its main elements to basic factors. In this examination a contract is considered as both a regulative tool and a cooperative tool.[248] The most reasonable argument requires that different contractual elements be clearly distinguished and their mutual relationships be further examined. The focus is placed on

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244 See Niemi 1996, 48.

245 See Zitting 1952a, 511 - 512. Sometimes it is argued that the Hohfeldian conceptual frame always also contains elements of legal protection. This would apply to both the static and dynamic aspects. See Zitting 1952a, 400.

246 See Zitting 1989, 15.

247 See Niemi 1996, 55.

248 The applicability of the Hohfeldian conceptual frame in the law of contracts and examination of contractual relationships has been seriously doubted. The suspicion is apparently based on the view of contract as cooperation of the contractual parties. Contracts have been considered a process that is carried out in different phases. As such, a contract rather extensively defines the cooperation of the parties. These both factors have made it possible to see a contractual relationship in a more versatile manner, but at the same time the main focus has been only on setting the behavioral norm for the parties or defining how to behave. See Pöyhönen 1988, 217 - 218.

the significance of a contractual norm as a regulative tool for the parties 'cooperation. On the other hand, this normative regulation may be carried out by the legislator, with the norm-setting actually carried out at a slightly more general level.[249] As a cooperative instrument, a contract is based on several discretionary norms. Contextually these norms set a further pattern for certain desired behavior and they further define the content of this behavior. These foundational elements describe the extent of the validity of a contract, which is defined in terms of three different aspects: temporally, contextually, and personally.[250]

As such a contract is a constellation of different relationships and further it may be considered as a continuous process.[251] Contractual relationships may be considered as networks of legal relationships, where the inter partes relation may be complemented by relations to totally external parties.[252] On the other hand, contractual rights and duties have traditionally been inter partes.[253] The Hohfeldian conceptual frame actually would face some counterarguments here. This is the case when some of the conceptual duplexes are considered as definitions of legal protection, i.e., as instruments for solving legal collisions. In the law of contracts the ultra partes relations are not particularly significant.[254] The solution to this lies in the Niemi ś analysis of the legal position of the creditor, which suggests that the Hohfeldian conceptual duplexes may be interpreted only substantively and contextually and that none of the correlating pairs describes legal protection.[255]

From this basis the evolution in contractual concepts clearly diverges in two development lines. These lines are, however, rather close to each other. The one is the view of *Juha Pöyhönen/Karhu* and its most essential context is to examine the contract as a

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249 A contract is composed of different kinds of norms, of which some are set individually and others generally. This means that the contractual norm setting is carried out for only one single contractual act, or then it is carried out generally. See Zitting 1987, 491.

250 See Zitting 1987, 491 - 492.

251 See Pöyhönen 1988, 215 - 216.

252 There exist actually some counterarguments against applying the Hohfeldian conceptual frame to *network relationships*. The latest one to argue was *Tapio Määttä* in his dissertation on land ownership as related to nature as environment. The critique was aimed at two points. On the one hand, the relationship of the owner and environment is rather impossible to classify as personal inter partes or ultra partes relations. On the other hand, Määttä maintained that it was impossible to apply the Hohfeldian conceptual frame for analyzing rights and duties when there exists a whole network of them. Määttä ś conclusion was that Hohfeldian analysis would not be a suitable instrument for examining the relation of land ownership and environment. See Määttä 1999, 173 - 176.

253 See Pöyhönen 1988, 217.

254 See Niemi 1996, 43 - 44.

255 This is one possible interpretative model of the Hohfeldian conceptual frame. See Niemi 1996, 52 - 55.

continuous process.[256] Considering the contract as a process is a clear consequence of dividing the undifferentiated concept of contract into its constructive parts. This division has actually made it possible to consider a contract as a large assortment of behavioral rules set for the contracting, and cooperating, parties.[257] Likewise, a contract can now be seen as a chain or network of several successive phases. The character of a contract is changed from a single entity towards continuous change and maturation.[258] Further, considering the contract as a process changes the overall view of contracts. This is especially the case in assessing contractual liability, which may now be carried out also phase by phase. In other words, liability no longer begins at a certain time and is extinguished at some other time but may exist continuously. Full contractual liability does not begin at a certain time nor does it remain similar all the time.[259]

The Hohfeldian conceptual frame and the process view of contracts are most readily influenced by each other through the three aspects of the contractual process. These aspects construct the maturation of contract, with the contextual dimension defining the liabilities. The temporal dimension, for its part, defines the period of validity, and the personal dimension defines the extending of contractual liability to external parties in addition to the contracting parties.[260] These aspects then constitute the mutual instrument for arranging the cooperation of the contracting parties. This instrument overall may be then called a behavioral norm.[261] By these means the Hohfeldian conceptual frame has been suggested as an instrument for characterizing the developing view of a contract as cooperation among parties. The most characteristic demand for changing perspectives is a reaction to the traditional way to see legal concepts as undivided entities. The most crucial problem was the failure to see behind the broad, undivided general conceptions. The concept of a contract is traditionally considered as a subjective right and as such it is a legal fiction. However, by using the Hohfeldian analysis it is possible to abandon the concept of a contract as an undivided entity. The relationship can be seen as a personal relationship, instead.[262]

Viewing a contract as a personal relationship makes it possible to define it further by describing it in terms of certain legal positions. These positions are complex and at the

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256 See *Pöyhönen, Juha*: *Sopimusoikeuden järjestelmä ja sopimusten sovittelu,* 1988.

257 The concept of contract is often claimed to be too monolithic and this is why there exists a crucial need to reconstruct it. See Zitting 1987, 490 - 491.

258 See Pöyhönen 1988, 211 - 215.

259 This was the most distinctive characteristic of the traditional view of a contract as a one-off commitment. A contract was considered as an act carried out at one particular point in time. See Pöyhönen 1988, 211 - 212.

260 See Pöyhönen 1988, 217.

261 See Zitting 1987, 492 - 493.

262 Here the examination and distinctions may be carried out by examining the subjective position in different legal relations, in particular interest, proceedings, and disposition. See Ross 1974, 183.

same time contextually variable. Here the legal positions actually describe a complexity of legal facts having a certain legal consequence. One suggestion for extrapolation is offered by *Simo Zitting* as a continuation of his studies of transference of ownership. This view is parallel to the view of a contract as a continuous process and is most essentially based on a contract as a regulative instrument and as such a crucial instrument for cooperation. A contract is studied by concentrating on the process of contextual constitution, which includes defining the behavioral pattern through rules of behavior. This pattern is then completed by defining the validity of contract in trams of temporal, contextual, and personal dimensions.[263] Personal relations in cooperation on rule-setting describe who sets the norm, the one to whom the norm is addressed to, and the subject of interest. The contracting party acts in all these roles by turns.[264] For example in licensing, the licensor acts as the one who sets the behavioral rule when he or she has placed him- or herself under a duty to be bound by a licensing agreement. The licensee then acts as the subject of interest. When the obliged position of a licensor is based on the commitment made by him or her, he or she acts accordingly as the one who sets the norm. Where payment of the contract price is concerned, the licensee acts as the one to whom the norm is addressed. Actually, at the same time the licensee also acts as the one who sets the norm, with the licensor acting as the subject of interest.[265]

As can be seen from this example, defining the behavioral pattern is rather significant in contractual relationships, given that they are considered as cooperation between two parties. Defining the particular behavioral pattern actually justifies the rule of behavior by creating some reasonable content for it. On the other hand, setting and validating the rule of behavior also requires that the behavioral pattern can be further defined. Definition actually converts mere exemplary behavior into a demand that the other party behave in the contractual relationship in a certain way.[266] This analytic view makes it possible to rethink contractual relationships; it makes it possible to see both regulation and cooperation as *collaborating elements* of contract. As such they are used as complementary elements, which makes it possible to consider the common behavioral norm as a part of cooperation.

The most significant element here is nevertheless the personal relationship, examined as the relation between the one whom the norm is aimed at and the subject of interest. The one who is bound by the rule of behavior has to behave in a certain way, which is described by the rule. He or she is then under a duty, with the subject of interest having certain expectations based on the rule of behavior. The subject of interest does not, however, have any substantive right, like a right to a claim, but does have the power to liberate the one who is under the rule of behavior. The power actually creates competence to transform

263 See Zitting 1987, 492 - 493.

264 See Zitting 1987, 494.

265 The logic of this example comes straight from Zitting. See Zitting 1987, 494.

266 See Zitting 1987, 492 - 493.

the status of behavior. In other words, behavior that ran contrary to the behavioral norm is now completely permitted.[267] The most crucial Hohfeldian conceptual duplex here is the one of power and liability. This actually places some further questions for the Hohfeldian conceptual frame in the law of contracts. Namely, establishing competence as the most crucial element of the contractual relationship balances the overall contractual concept in a new way. Competence as a principal element of a contract sets the focus on the regulative aspect of the contract, with legislation only a supporting element.[268]

2.4 A reinterpretation of the Hohfeldian conceptual frame

2.4.1 The interrelation of right and privilege

Rights governance is based on an interrelated communication of interests. The foundations of the rights governance architecture are constituted essentially on the Hohfeldian conceptual frame. The Hohfeldian frame, however, needs some reinterpretation because of the *changed environmental prerequisites*; the cooperating interests ought to be reconciled and rebalanced. Nevertheless, in all cases, the Hohfeldian conceptual frame draws a clear distinction between its two basic concepts, the *concept of right* and the *concept of privilege*. These concurrent concepts constitute the kernel of the overall Hohfeldian conceptual frame. As such they likewise constitute the most fundamental starting point for the further applications of the Hohfeldian conceptual frame in this study.

On the other hand, the distinction between these two concepts is even slightly emphasized through the further examination. These two concepts are namely by no means included in each other; i.e., the combination of these two concepts does not imply any exclusivity as such. Indeed, it is rather normal that someone has a right to forbid others but does not have the privilege to do the thing in question.[269] A good example of this is found in the area of computer code and more precisely in open source. Open source software is essentially based on free access to source code.[270] However, at the same time as everyone is free to read, redistribute and modify the source code, it has to be maintained free of

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267 See Zitting 1987, 494.

268 Connecting both of the contractual elements, i.e., regulation and cooperation, would be one possible and reasonable way to develop the law of contracts. This would require that the normative and conceptual viewpoints are carried out mutually. Both regulation and cooperation would constitute the basic elements of the contractual relationship. At the same time, they would support each other. See Zitting 1995, 1240 - 1241.

269 See Niemi 1996, 35.

270 The rationale for this movement is that a larger group of programmers not concerned with proprietary ownership or financial gain will produce a more useful and bug-free product for everyone to use. In other words, they will make source code available and then set rules governing its use. See Rosenberg D. 2000, 97.

charge.[271] Thereby, anyone is allowed to forbid others to violate the rights of the open source community (that includes everyone of us, actually) but no one, not even the one who is forbidding, is allowed to violate those rights.[272] The right-holder's right nevertheless also includes some exclusivity. The exclusive right of a right-holder is clearly different from the above-mentioned the right to forbid without any necessary privilege.

Exclusivity has some clear *background as the combination* of the two concepts of right and privilege. First of all, exclusivity requires that the right-holder have both a right and a privilege.[273] In other words, in order to be able to exclude someone it is not enough that the right-holder has only a right to forbid the external parties from interfering in his or her use. In practice the scope of an exclusive right is generally explicitly defined. In Finland a computer program is protected through copyright (*Copyright Act 1§* and special provisions *Copyright Act 25j§ and 25k§*). Directly pursuant to this right the right-holders have the privilege to use the computer program that they have created and, further, they have right to forbid others to use it. This defines exclusivity as such and it constitutes the traditional scope of all exclusive rights.

On the other hand, there also exists a distinction between right and privilege. Distinctiveness is evidently expressed in the *two opposing elements of liberty*, with liberty here considered a fundamental concept. Liberty describes the basis of the overall combination of right and privilege and it is divided into two elements. These two foundational elements may actually be defined as the positive aspect and negative aspect of liberty. The negative aspect is best described when the concept of privilege is examined alone. This implies precisely the no-right of third parties; for example, a composer has the *privilege* to distribute his or her composition, whereas the third parties have no-right to do this. Through his or her privilege the right-holder has this right alone. By definition the *negative aspect of liberty* sets out precisely that no one is able to forbid the one who has privilege to do something.[274] For example, every author is free to modify his or her own text. The negative aspect of liberty actually describes *the extent and scope* of behavior of the privileged person (here, the author). On the other hand, a right in its narrow Hohfeldian sense is clearly different from this. A Hohfeldian right implies exactly the right-holder's right to forbid, which is *one of the positive*

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271 There exist some further restrictions. The most crucial of them is that no one is allowed to collect any royalties on the distribution of the open source program. Neither is it allowed to place any restrictions on the open source software. The rights attached to the program must not depend on the programs being part of a particular software distribution. The rights granted on the grounds of the source code being open source software have to be maintained under the open source conditions.
See http://www.webopedia.com/TERM/o/open_source.html

272 This is precisely the area of *res omnium*. See Paasto 2000, 349. In the case of computer codes this means that a computer code is in everyone's possession.

273 See Niemi 1996, 35.

274 The third party here is, on the one hand, any third party who may have some kind of interest to disturb the privileged one. On the other hand, this corresponds also the authority that neither can forbid the privileged one. See Niemi 1996, 36.

aspects of liberty.[275] To go on with the previous example, every author may forbid others to modify his or her writing under the original author's name.

The static aspect of the Hohfeldian conceptual frame connects these two aspects of liberty. This is precisely the context of traditional exclusive right, like in the previous example. Likewise, the combination of right and privilege actually completes the static aspect of the overall Hohfeldian conceptual frame. In order to draw the complete picture we need, once again, to define the mutual communicative relationship of right and privilege.[276] This implies that in order to be able to connect these two different aspects there is a crucial need to *justify them as parallel concepts*. It is nevertheless the static aspect that is to be utilized as the starting point for interpreting the overall Hohfeldian conceptual frame. This is basically due to the contextual character of the static aspect, which is rather foundational because of its primary nature. This primary nature indeed implies that all the powers and competencies that follow from the dynamic aspect are mainly derived from the level of primary rights, i.e., from the static aspect of rights. The dynamic elements round out the overall examination in that those powers and competencies are really secondary to rights and privileges.[277]

The static aspect is first *defined contextually*. At the contextual level it includes the right-holder's entitlement (which actually is privilege) to behave in a certain way. At the same time he or she accordingly has a broad right to forbid external parties to behave in the same way.[278] A right, in its broad definition, describes not only freedom from injunctions, but also the right to require or forbid.[279] Thereby, the position of a right-holder usually describes an *exclusive right to liberty*. No one has the right to forbid and the right-holder is allowed to act as he or she wishes.[280] Further, *privilege may be defined as primary* in its relation to right. Privilege is not, however, fundamentally derived from the fact that external parties have been forbidden to utilize a right. Instead, privilege derives from the fact that *the right-holder has not been forbidden*. This description of liberty has sometimes been considered even a natural

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275 This aspect of positive liberty is the liberty of doing something. In this sense the right to forbid the others is only one more aspect and its significance clearly depends on the case where it is to be applied. It is not so significant when the right-holder is willing to realize his or her right. See Niemi 1996, 36.

276 This is actually the basis of subjective right. A subjective right consists of elements that are found from two different levels and in order to get the really complete position of right-holder one needs to get both right and privilege. See Niemi 1996, 20.

277 See Niemi 1996, 20.

278 A good example of this kind of right, i.e., a subjective right here is ownership. See Niemi 1996, 20.

279 The Hohfeldian right in its narrow sense describes the *right to claim*, or right to forbid. See Niemi 1996, 32.

280 According to this definition liberty in its broad sense defines integrity and personal freedom. This is precisely the area that is restricted through the rights of the external parties in the Hohfeldian analysis. See Niemi 1996, 32.

state, which would then mean that the right-holder is not subject to any particular behavioral rules.[281] However, to be able to describe both of concepts, right and privilege, there exists a crucial need to add a regulative element to this pattern. It is a fact that rights have been created even fundamentally through legislation. This applies to intellectual property rights as well. Therefore, the author's privilege to modify his or her creation and his or her right to exclude the external parties is created by law. However, there still exists some degree of liberty, even if it is regulated. The natural state in this sense does not imply that there is no regulation at all.[282]

In the further definition of the static aspect *exclusivity has one great advantage*. This advantage is the nature of exclusivity as related to its overall framework. Exclusivity is usually defined against all the third parties (*ultra partes*). It concerns everyone. This has a clear implication for the further use of exclusivity as a definitive element of the static aspect in that exclusivity operates as one of the components of the scope of protection. Protection actually includes two different, but still overlapping scopes. On the one hand, there is the *scope that stays within one's right*, which includes the overall definition of contextual exclusivity. This corresponds to the scope that is to be included in the right-holder's right. On the other hand, there is the *scope of exclusion*. This includes the parties that ought to be excluded from the right. This definitive distinction between included and excluded actually implies that protection is defined as static, with the scope of statics implying that the protection is clearly based on drawing a strong boundary between included and excluded, i.e., *right versus wrong*.[283] This in fact explains the general character of static protection.

The rights governance architecture described here is constituted partly on the static aspect of the Hohfeldian schema. Thereby, in the further design of this architecture it is significant to define the statics in this way. Static protection in this sense makes it possible to construct the static aspect of this overall architectural design. Most fundamentally this means designing the sphere of privileged and protected utilization of rights. On the other hand, without any sphere of protection and exclusion, the right to use would remain only a possibility, not a proper right. Therefore, both of the correlating pairs of the Hohfeldian static aspect are equally essential when constituting the rights governance architecture. The

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281 See Zitting 1952a, 398.

282 In more precise terms, a pure natural state cannot even exist without at least some kind of legal system. Accordingly, a natural state like this includes the concept of liberty in its positive aspect. In other words, external parties are ordered not to interfere in the behavior of right-holders, or prohibit them behaving like they do. Liberty is placed above legal regulation. Therefore, liberty requires a legal order to really be legally protected liberty. See Niemi 1996, 33.

283 Legal protection is carried out when legal is posed against illegal. Further, this illustrates the inner character of static protection and it is explicitly granted to a right-holder when his or her interests and those of the external parties are opposite. Overlapping interests cannot be carried out at the same time. See Zitting 1951, 47 - 51.

conceptual pair of privilege - no-right and the pair right - duty, are both *alone* too static to illustrate even the statics of any exclusive right sufficiently enough.

2.4.2 The combination of privilege and power as a legal position

The Hohfeldian conceptual frame is constituted on two main presuppositions. One of these is that the static aspect of the conceptual frame further constructs the contextual part of the legal relationship. Legal relationships are fundamentally based on privilege and right as the two main elements of the static aspect. In other words, the whole structure of the conceptual frame is fundamentally based on the static aspect. The nature of the Hohfeldian conceptual frame is fundamentally derived from the static aspect. Further, the second of the main presuppositions is that, as there is the static aspect describing the content of a right position, there is always also the dynamic aspect, which is based on transference of legal right; i.e., it characterizes some change in legal relationships.[284]

These presuppositions set some further requirements for the overall constitution of a legal relationship. The traditional constitution of that relationship is mainly based on the sharp difference between statics and dynamics. This is, however, questioned by the emerging digital economy, for statics alone are by no means sufficient for illustrating the versatility and diversity of the *dynamic digital economy*. Rather, the overall construction is now more likely based on continuous functionality. This is well described, for example, by examining *hypertext*. Hypertext is essentially interactive, and its context is accordingly variable. Some parts of the text may even be created by the reader, rather than the author, if the concepts of reader and author are understood in a traditional way. Hypertext is functional and as such does not necessarily fit into the traditional model of the static context.[285] Another illustrative example is *hypertext links*.[286]

Functionality is defined as one of the core elements of the digital economy. It is not, however, constituted only of mere single functions; rather, these single functions are further complemented by the overall operational frame. This is the reason why the perspective cannot remain only static but crucially needs to be complemented through dynamics.

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284 For example, a stakeholder in an incorporated company has two kinds of rights. He or she has an administration right and a property right in the company. See Drockila 1964, 16.

285 For example, the special status of hypertext makes it difficult to define who has an exclusive right to www pages and whether this right is copyright or some other exclusive right. The Copyright Council of Finland has assessed the scope of protection of www pages between copyright and database protection in the case *TN 2002:17*, 10 - 11. In this case www pages were excluded from protection.

286 Linking was also assessed in the *Copyright Council of Finland* in the case *TN 2001:8*, where linking was equated to providing public access to copyrightable material. See *TN 2001:8*, 7 - 8.

Dynamics are also needed for elaborating the operational frame.[287] The operational frame is further constituted of operations and operational rules that make it possible to add functionality directly to the functional core. In terms of Hohfeldian concepts, this is carried out by *applying power to the static context*, i.e., by empowering the context as such. For example, empowerment is carried out by granting a right-holder the power to restrict someone's access to written text. Empowerment is mainly carried out by keeping privilege as the main element of the static aspect but introducing power as the definitive element instead of a right. This combination of privilege and power is then used as a *reflective surface* that operates beyond the overall functionality. These two overlapping phases are applied together to form a baseline of the complete architecture of the digital economy. Functions and foundations are brought into mutual interaction in order to become *dynamic functionality*.

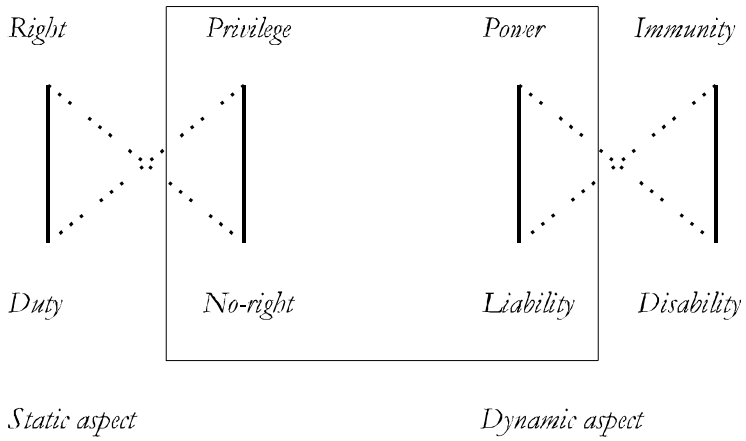

Figure 3. Interpretations of the Hohfeldian conceptual frame

287 This may also be described as changing the view from traditional either-or to both-and logic. A good example of either-or regulation is the use of nature. Nature is protected when at the same time the owner of a piece of land is guaranteed the ensured rights to use his or her property. The question is not whether doing something is allowed but on which conditions it is allowed. See Määttä 2000, 6.

Dynamic functionality, as it is described above, challenges the traditional intellectual property rights. Intellectual property rights are traditionally based on the sharp difference between the static and dynamic aspects, which derives from their definition as property rights. These rights are usually governed through exclusivity. The author, or the inventor, gets a right to exploit his or her literary creation or invention although this right is granted with the external parties given some slight exceptions to exploit the creation to a certain degree. The statics of intellectual property rights are in this way based on their connection to exclusivity. This, however, easily leads to *rights being frozen*, especially in the digital framework. Frozenness is rather opposite to functionality and it eventually undermines the *real functionality* of rights. Frozenness is found, for example, in the protection of databases. A database often contains only certain strictly defined content that determines the scope of its protection. This, however, easily freezes the whole, the very *dynamic collection of information*, in a certain concise, static form. This is precisely defined in the requirement that the *substantial part* be the core of the object of protection. This promotes functionality as related to the actors involved and further research and development.[288]

The strong connection to exclusivity has some further implications, e.g., that creating a strong exclusive position means that the content of exclusivity needs to be defined strictly. Thus, strength in content likewise requires strictness in definitions. Database protection, described above, again offers an illustrative example. On the other hand, to be able to define the content strictly is actually the main prerequisite for exclusivity. On these grounds, content is accordingly defined as *privilege to use*. The right-holder has an exclusive right to access and use the fruit of his or her creativity by forbidding the access of third parties. In Hohfeldian terms this privilege may then be defined through the correlating duplex of privilege - no-right. Privilege includes the right-holder's privilege to exploit the right and it also implies that third parties have correlatively no-right to this. In this sense dynamics slightly modify the overall scope of exclusivity as the core of the right-holder's legal position. In the scope of dynamics, exclusivity remains only as the definitive element of the static aspect; i.e., exclusivity only strengthens and defines a privilege as the right-holder's freedom to behave in the way he or she desires. This is not a very dynamic but an essentially static excluded right to use. Dynamics require that there be more functionality in the pattern. This is then the starting point for defining the content of a legal relationship as a combination of privilege and power.

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288 See *Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the Legal Protection of Databases. Sui generis right, article 7*: "Object of protection: Member States shall provide for a right for the maker of a database which shows that there has been qualitatively and/or quantitatively a substantial investment in either the obtaining, verification or presentation of the contents to prevent extraction and/or re-utilization of the whole or of a substantial part, evaluated qualitatively and/or quantitatively, of the contents of that database."

Dynamics are the very core of digital economy. Traditionally, dynamics in property rights have been defined as the right-holder's power to transfer rights and further, as this dynamic position is protected, also imply the right-holder's ability to get legal protection in those transactions. This certainly still applies in the operations of the digital economy and the transactions are still naturally considered the kernel of the economy. Accordingly, for example, the ability to license and transfer one's patent is a valuable right for any right-holder. However, in the development of the digital economy there has occurred some parallel gradual development. However, this development has not taken place in the area of exchange, although it has had a great influence on the dynamics of property rights. Namely, the very definition and the content of dynamics have been changing gradually while the traditional focus of the balance and especially the focus of the examination of this balance have been on exchangeability and the smoothness of exchange. This is exactly where functional dynamics diverge from traditional dynamics, with this changing scope then affecting the balance of the overall legal relationship.

The change is carried out contextually. The traditional balance of dynamics centers on smooth exchange, whereas the new scope of dynamics concentrates more on *governing the overall communicational process* of those relationships. Dynamics, when illustrated from the viewpoint of the digital economy, are then based sooner on functionality and on the governance of this functionality. The emphasis overall is no longer on exchange but rather on cooperation and communication. Accordingly, the power to affect legal relationships, or change them, is not necessarily any longer defined only as the power to transfer rights, but as the power to *participate in the relevant operation*. An explanatory example of this changing balance is found in the difference between utilizing trademarks and domain names. Both are defined as names and both are further used for communicative purposes. A trademark makes it possible to communicate with consumers in the market, while a domain name makes it possible to access the network. There exists, however, one great difference. The express purpose of a trademark is to increase trade and it is in this way closely connected to exchange. A domain name, on the other hand, has to do with access to the relevant communicational environment, where the dynamics are clearly different. They are no longer based on exchange only.

Another illustrative example comes from the field of contracts - the licensing of intellectual property. Licensing gives the licensee a right to exploit the information that is licensed and transferred. Licensing, however, differs slightly from transferring tangible right, because when licensing the right is not totally transferred from one sphere to another in the traditional sense. Rather, rights are *made available to two parties* at the same time. This is fundamentally due to the nature of information as an incompletely excludable resource. In other words, information remains in the use of the one party even when it is transferred to the use of the other. It may even seem that traditional property law remains totally helpless in cases like this. This is closely analogous to the relationship of humankind and nature, with nature viewed as property. Nature or the pure environment is used by people, but at

the same time it is also used commonly as pure nature and environment.[289] In this sense nature, as well as information, are characteristically included in the sphere of commons.

It is necessary to examine these elements in the combination of power and privilege as *interrelated to each other*. None of the Hohfeldian correlating pairs alone, not even *power-liability*, is sufficient for constructing the dynamic and communicative aspects of a legal position in their entirety the digital economy. The correlating duplex of *privilege and no-right* is also too static for the purpose but is nevertheless useful for describing the core of the static aspect. In other words, both of these duplexes are needed. The whole picture requires the *complementation of static content with dynamic functionality*. Statics and dynamics must be combined and connected, which requires the *harmonious use* of static privilege and dynamic power. This causes some variations inside the Hohfeldian conceptual frame although these are only interpretative ones. On the other hand, the examination of those variations is most reasonably carried out by changing only the balance of reading. In this examination the most significant focus is obviously set on the overall combination of privilege and power and their mutual interaction.

The combination of privilege and power shapes the scope of *empowered privilege* or, on the other hand, the scope of *privileged power*. These concepts overlap, but also in some respect diverge. The overlapping and diverging character of those concepts is best examined as an overall and complete combination. This is precisely what is to be done when privilege is complemented by power and accordingly power is complemented by privilege. This is how the combination is conceived of at the theoretical level. This combination at the same time affects the content of the overall examination of legal positions. The change is nevertheless pertains more to the balance, with the empowered privilege extending the mere right to use towards a more dynamic view. This implies that the privilege is carried out together with power in such way that the two work together. Further, in the construction of empowered privilege the concept of privilege is complemented by power. This has some consequences for the legal position of a right-holder. First of all, the right to use is slightly altered by the *structural reformulation* of empowered privilege. Traditionally this legal status is characteristically rather static. In other words, the right to use is linked exclusively to statics when it really is only defined as a right to use, or rather as a privilege to use, in Hohfeldian terms. The creator of a computer program has the right to use his or her creation in the same way as the author of a book has the right to use his or her writing. The statics here imply the traditional statics of rights, meaning that rights are not transferred or changed but are kept in the possession of the owner.

Here is in fact the main focus of the variation of the Hohfeldian conceptual frame. The change lies *in the area of privilege to use,* where the empowered privilege is manifested. Empowered privilege alters the right to use in the direction of the real functionality of rights. In other words, the power to affect legal relationships is brought directly into, or at least

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289 See Määttä 1999, 173 - 176.

close to, the right to use. More concretely, this closely resembles the alteration of the form of an analog creation, e.g., text, music, or photographs. The digitization of such content changes the status so greatly that some new possibilities are necessarily introduced, e.g., easy copying, constant quality, or modified authorship. These possibilities may easily entail some additional power. A good example is music files, where the easy copying of music makes it increasingly possible even to bypass the possession of the right-holder, as seen in a case heard by the *Supreme Court of Sweden NJA:2000:48* (B413-00): the court decided that linking *mp3-files* was not creation of new copies of those files.[290]

> *NJA:2000:48.* A is charged with an offence for breaking the Copyright Act by copying music files from CD discs and distributing them in mp3 format. Distribution has been carried out through A's Internet page by providing links to the music files on the page. Linking was not considered creation of new copies.

This is exactly where the scope of empowered privilege is found. The focus of the scope of empowered privilege is set squarely on privilege. In other words, it is privilege that is the starting point of the examination of the scope of empowered privilege. The view is somewhat static in essence and dynamics are brought in by connecting privilege and power together. It is then privilege that constitute the most fundamental element.

The view illustrated here is not, however, complete. Namely, the combination of privilege and power is *characteristically bidirectional*. This bidirectional nature is actually again a direct implication of the digital economy being an essentially dynamic operational frame. The dynamics require the cooperation of both privilege and power, with the combination of the two aspects then requiring that there be a certain degree of two-sided influence. The structure should thus be interpreted also from the viewpoint of privileging power. Indeed, in this way, the content and the interpretation of a legal position is defined also as the *privileging of power*. This actually means that the variation of content is carried out from two opposite but still overlapping directions; i.e., it is genuinely bidirectional. Structurally, privileging power corresponds exactly to giving power to privilege. The only difference is the *direction of interpretation*. When power is privileged, statics are complemented by the dynamic aspect, and when the privilege is empowered, the dynamic aspect is complemented by statics. The interpretative model itself is the same in both cases.

The most central element where the privileging of power has an effect is the balance between statics and dynamics in legal relationships. Indeed, *privileging power moves the dynamics towards the right to use.* In other words, the right to use is dynamized. At the same time dynamics are complemented through usability. This then impacts privilege to power and in this way the overall combination of power and privilege or privilege and power is completed. This completion has some further consequences. The most essential one is the

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290 A similar view was presented by the *Copyright Council of Finland* in *TN 2001:8*.

ability to *create excludable positions in dynamics*. Depending on how dynamics are described this enables exclusivity of exchange, or at least *exclusivity of dynamics*. The empowered position is greatly strengthened by privileging it. This kind of privileged power is rather strong and its strength is due exactly to the strength of the privileged power. The privilege first creates an exclusive position, which essentially includes a right to exclude the external parties in favor of the right-holder. For example, authors have an exclusive right to publish their texts. This privileged position is then strengthened by adding power to it. Authors may become able to remove access to their writings, making the exclusive position extremely strong and powerful. This is the reason why this kind of privileged power rather easily leads to monopoly in exchange. A dominating market position and its further implications constitute a good example of this. A dominating market position is actually only a powerful position in the market. Privilege is not included until the first in the market gets a dominating position. In other words, the one who first notifies and accordingly exploits the resource actually gets a powerful market position. This constitutes a relative market domination. This position may then be privileged by protecting the dominating market position, for example, though a trademark or domain name, which then privilege the power.

The combination of privilege and power may also be examined through the Hohfeldian conceptual frame. This is carried out by first examining the interpretation of the overall frame. The interpretation ought to be in accordance with the new interpretative design, whose core, however, is still the combination of privilege and power. The correlative duplexes themselves remain totally untouched and the only thing that changes is the balance between the static and the dynamic aspect. The content is then interpreted by asserting the correlative duplex of privilege - no-right as the most definitive element of the static aspect of the combination. This also corresponds completely to the interpretation of privileged power. On the other hand, the other aspect of the combination is constructed rather in accordance with the construction of privileged power. The only thing that differs from the constitution of privileged power is the Hohfeldian conceptual duplex that is posed as the core of the interpretative model. This is, instead of privilege - no-right, the correlating pair of power and liability. This duplex constructs the dynamic side of the same combination that the duplex of privilege - no-right constructs on the static side. These two correlating duplexes then constitute the overall kernel of the revised interpretation of the Hohfeldian conceptual frame.

2.4.3 Legal protection in the Hohfeldian conceptual frame

Legal protection constitutes a crucial part of legal relationships; it comprises a number of essential elements. Legal protection is likewise closely bound to the Hohfeldian conceptual frame. Even the basic distinction of legal protection as static and dynamic protection corresponds to the Hohfeldian frame, which is generally defined in terms of a static and

a dynamic aspect. Accordingly, the traditional starting point is the division into two fundamentally different classes of legal protection, absolute and relative protection. This classification derives fundamentally from the clear divergence of two closely related branches of law, namely the property law and the law of obligations.[291]

First of all, legal protection is constituted of *de facto legal protection*, which is the essential core of that protection. Legal protection is defined also as general legal protection that is given against all the third parties (*ultra partes*). General legal protection like this is often called *absolute legal protection*.[292] Absolute legal protection is always carried out against a non-definable group of people although it is by definition carried out also in every single legal relationship.[293] Absolute legal protection is also often characterized as static protection because of its nature as a protection against any illicit disturbance by external parties. This corresponds to the protection that is given when a right is used. The most essential element here is that the protection is given against all the external parties, not only certain persons. The protection is also considered absolute protection. On the other hand, absolute protection is further defined as static. It refers to protection that is carried out when wrong is against right, i.e., *wrong versus right*. This, on the other hand, explains the general nature of static protection. When wrong operates against right it is actually unimportant which are the personal relations or what they are like.[294] This brings the fundamental reasoning behind those forms of protection onto the same level.

Absolute legal protection is further complemented through *relative legal protection* which unlike absolute protection, is always given against a definite party (*inter partes*).[295] Relative legal protection is carried out in exchange and is bound to the relationships involved in transactions. Relative legal protection thus differs from absolute in character, because it is realized only in certain personal relations.[296] Dynamic protection occurs when two equal, and equally valid, rights collide. The collision is precisely a consequence of the validity of both of those rights, given that both cannot be carried out concurrently. However, dynamic protection is not the only form of protection in the dynamic aspect in the Hohfeldian conceptual frame. The dynamic aspect also includes the elements from the static protection, i.e., the protection that is carried out in the collision of wrong and right. Both forms of protection are equally usable, but it is precisely the dynamic aspect where the collisions of

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291 See Zitting 1989, 9 - 10.

292 See Zitting 1951, 39 - 41.

293 See Hohfeld 1964, 72. See also Wirilander 1970, 297 - 298.

294 This also illustrates the nature of static protection. It is given to a right-holder when his or her interests and those of the third party are opposite, i.e., when there are overlapping interests involved and not all the interests can be carried out at the same time. Static protection is given when something legally right opposes something legally wrong, i.e., there is right against wrong. See Zitting 1951, 47 - 51.

295 See Zitting 1951, 81 - 82.

296 See Zitting 1951, 44.

two equal rights are to be found. Proper dynamic protection is directly connected to different protectable personal relations. Namely, the collision is resolved on the basis of the mutual personal legal relationships, which reflects precisely the relativity of dynamic protection.[297]

The reinterpretation of the Hohfeldian conceptual frame is accomplished by implementing legal protection as a part of its entirety. The reinterpretation corresponds to the traditional implementation of legal protection in the Hohfeldian frame. Legal protection is implemented in the Hohfeldian conceptual frame directly as a part of the conceptual duplexes. These correlating duplexes are then further interpreted in such a way that two duplexes, one of the static aspect and one duplex of the dynamic aspect, are defined as including legal protection instead of simply the content of a legal position. Therefore, legal protection and the content of a legal position are clearly differentiated as early as the level of conceptual definitions. On the other hand, the breakdown of legal protection into two clearly different aspects implies the division of legal protection itself into either the static protection or dynamic protection. In Hohfeldian terms, static protection is further manifested through the correlating duplex of right - duty. Dynamic protection is then similarly described through two correlating concepts, immunity and disability.[298]

The core of the static aspect is the right-holder's legal position. The static aspect is mainly based on privileged position, that is, in Hohfeldian terms the correlative duplex of privilege - no-right. Conceptually, static protection is the protection of a static right to use. On the other hand, content is defined by defining legal protection first, with legal protection employed as an instrument of the contextual aspect. The content and its extent are in fact defined by examining the difference of right versus wrong. This may likewise be used as the *kernel of the overall architectural design of rights governance*. In other words, static protection as such *defines the limits* of the governance architecture. Thereby, the static aspect has its origin in both contextual rights governance and legal protection in its static sense. Static protection is, in other words, absolute; i.e., static protection is protection against all the external parties. Absoluteness of protection strengthens the statics of the rights governance and makes the governance architecture even more closely connected to certain limits. Strict limits on the governance architecture are crucial for being able to construct the content, even though the content in the dynamic framework often remains/becomes rather blurred. The blurred nature does not, however, make the right governance impossible as long as the *limits of the variation* are defined. This is precisely why the limits at this level ought to be drawn through statics.

Nevertheless, dynamics still constitute the essence of the digital economy and thus likewise constitute the essence of the rights governance architecture. This aspect is also examined through the Hohfeldian conceptual frame. The dynamic element in its traditional sense is based on the power to cause some kind of change in legal relationships. Dynamic

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297 See Zitting 1951, 48 - 51.

298 See Zitting 1952a, 400. See also Niemi 1996, 46.

protection diverges slightly from static. In the traditional interpretation, dynamic protection is called protection against creditors or other parties directing claims at the assignor and is closely linked to the collision of rights.[299] A good example of this is the trade of the same object to two different persons. The right that remains permanent is said to receive dynamic protection. In the area of intellectual property rights there is, however, one rather crucial problem concerning the interpretation of the dynamic aspect and especially dynamic protection. The dynamic aspect is more likely and more often interpreted from completely procedural premises. On the one hand, this is due to the emphasis on *exchange as the basis* of the dynamic aspect. On the other hand, the procedural focus is due to the nature of *dynamic protection as the rule of priority in collision of concurrent rights*. Dynamic protection is clearly associated with the protection that is to be given to a third party in exchange when rights are in collision.[300]

Further, both of these two factors are elements of the dynamic aspect of the Hohfeldian conceptual frame and this makes the overall interpretation of the dynamic aspect of the frame likewise rather dynamic. On the other hand, this procedural view of the traditional interpretation of the Hohfeldian conceptual frame has been criticized. The criticism has mainly been focused on the different nature of the legal protection and the primary norms, i.e., permitted and non-permitted behavior. The norms are at two different levels and as such they would not be parallel at all. Legal protection and legal remedies are, according to this view, only secondary in relation to the actual subjective right. Further, according to this criticism, the Hohfeldian correlative pairs would not illustrate legal protection at all. The static correlative pairs, i.e., privilege - no-right and right - duty, would both be defined only materially and contextually.[301]

Another way to interpret the Hohfeldian conceptual frame is to consider both of the correlating duplexes of the static aspect only as *substantive and contextual*. Thereby, a claim-right as the right to forbid external parties to interfere with the right of the right-holder may actually be defined equally independently from the overall design of the conceptual frame. Accordingly, the Hohfeldian concepts may be defined as illustrating only allowed and not-allowed acts, but not legal directly protection at all.[302] These concepts of the correlating duplex of right-duty can then be interpreted as two different sides of the same legal relationship and further they are treated as correlating concepts, i.e., as a duplex of right

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299 This occurs when two totally legal and as such protected rights are in conflict but both cannot be carried out accordingly. In these situations there is *right against right*, which is precisely what causes the conflict. See Zitting 1951, 47 - 51.

300 See Zitting 1989, 15.

301 See Niemi 1996, 52 - 53.

302 See Niemi 1996, 50 - 53.

and duty.[303] This interpretation model actually suits better for intellectual property rights. This means that, exactly like the static aspect, the dynamic one may be examined as only material and contextual. In these cases dynamic protection may be defined as the immunity of a right-holder and consequently as the disability of a third party. As such the protection provided for in the dynamic aspect of the Hohfeldian analysis is interpreted as stability of the subjective right. In this way immunity - disability as correlatives may be considered as a part of the subjective right itself.[304]

The dynamic aspect is, analogously to the static one, divided essentially into content and legal protection. The third argument for the uselessness of the procedural focus in the dynamic aspect is found precisely in the nature of dynamic protection. Dynamic protection is based precisely on protection against creditors or other parties directing claims at an assignor, i.e., *rules for solving collisions* between two conflicting rights. In the Hohfeldian analysis, legal protection is related directly to the correlating pairs and as such it becomes a part of their mutual structure. Both static and dynamic aspects are further divided into two elements, which are then defined to be the content and the protection of the aspect concerned. This classification applies to both the static and dynamic aspects although it is clearer when examining the static aspect. Because of the nature of the static aspect in the Hohfeldian conceptual frame.

2.5 Summary

The main purpose of this section was to concretize the foundation of the traditional Hohfeldian conceptual frame as it is applied in the illustration of legal relationships. The traditional interpretation is based on a clear difference between the static and dynamic aspect as two basic elements of the frame. The conceptual correlatives of privilege - no-right and right - duty constitute the static aspect. Further, the right-holder's competence is based on power - liability with the utilization of this competence ultimately protected through immunity - disability.

For the purposes of the digital economy and its fuzzy legal phenomena the Hohfeldian conceptual frame has been slightly modified and reinterpreted, however. The reinterpretation is realized by moving the balance of the conceptual frame slightly towards dynamics. This is carried out in keeping with the development of the digital economy. The digital economy is characteristically dynamic meaning that completely static interpretation of any property right is no longer a sufficient description of its legal positions. The reinterpretation is realized through sketching the content of the right-holder's legal position in terms of both the static and dynamic aspects of the Hohfeldian conceptual schema. The core of this legal position

303 See Niemi 1996, 51 - 52.

304 See Niemi 1996, 55 - 57.

is founded on privilege - no-right as statics, and power - liability as dynamics. In this sense the content of the legal position is based on statics and dynamics, both being definitive for the content.

The interpretation is completed through defining the limits of dynamics. Conceptually static protection is the protection of a static right to use. The content and its extent are in fact defined by examining the divergence of right versus wrong. This may actually be used likewise as the kernel of the overall architectural design of rights governance. In other words, static protection as such defines the limits of the governance architecture. The static aspect has its origin in both the contextual rights governance and the legal protection in its static sense. The strong limitation of the governance architecture is crucial for being able to construct the content, even though the content in the dynamic framework often is relatively blurred. The blurred nature does not, however, make rights governance impossible as long as the limits of the variation are defined. This is precisely why the limits at this level ought to be drawn through statics.

On the other hand, dynamics still constitute the essence of the digital economy and thus likewise constitute the essence of the rights governance architecture. The dynamic element in its traditional sense is based on the power to cause some kind of change in legal relationships. In this respect dynamic protection differs slightly from static. Dynamic protection may thus be defined as the immunity of a right-holder and consequently as the disability of a third party. As such the protection provided for in the dynamic aspect of the Hohfeldian analysis is interpreted as stability of the subjective right. In this way immunity - disability as correlatives may be considered as a part of the subjective right itself.

3 A RIGHTS GOVERNANCE ARCHITECTURE IN LIGHT OF THE HOHFELDIAN CONCEPTUAL FRAME

3.1 Background

The fundamental basis of the Hohfeldian conceptual frame is twofold. It is, on the one hand, fundamentally based on the relation between *control and access*. This further defines the content of a legal position, whose contextual basis is founded on the privilege of a right-holder and his or her power. On the other hand, a legal position is based on *rights governance*. Rights governance is further based on defining personal relationships as legal relations. This is carried out on the axis of included and excluded, and the axis of the interrelation of different personal relations. This twofold construction then links two different classes of powers included in private property. Private property always includes two kinds of powers, *private and public*. The classification of property as a combination of powers is derived from a certain view of property as *sovereignty*. Sovereignty is in fact the foundation of property as a combination of powers.[305]

The private nature of power comes into focus when property relations are to be presented as a relationship between a right-holder and a duty-bearer. Property rights are considered single relationships and are likewise defined as an *individual relation* between two parties. Public power is manifested when property rights are examined as a class of similar rights held by an individual and used against an indefinite number of persons. Those rights are exercised as a set of rights.[306] The distinction between private and public power actually connects the Hohfeldian conceptual frame and the rights governance architecture. This is carried out by first examining the two areas of legal protection in the Hohfeldian conceptual frame, namely, static protection and dynamic protection. These two different areas of legal protection reveal some of the most essential elements of a legal position.

First, it is possible to *classify personal relations* by considering the difference between private and public power. Private power is defined as the scope of inclusion, i.e., the included context defines the sphere of private power to be exercised. Here, the scope of public power, for its part, actually corresponds to the static protection, which is protection against all the third parties. Public power also illustrates the owner's legal position from the outside, when someone is interfering with the owner's right to use. Accordingly, public power is also absolute in nature; it is carried out against all the third parties. Thus, in the Hohfeldian

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305 Private power does not necessarily concern private property only. In other words, private property is not necessarily and not always linked to private power. See Drahos 1996, 148 - 149.

306 In other words, property rights are used for excluding the world. See Drahos 1996, 149.

interpretation, public power actually describes the scope of included and excluded. This illustrates the scope of control and access on the *axis of included and excluded*. This part of the Hohfeldian interpretation constitutes the static aspect of examination. On the other hand, private power well *illustrates the legal position* contextually. The content of the legal position is described in relative terms when the legal relations are examined as personal relationships, such as contractual relations or other legal rules that constitute interpersonal relations. This is then the scope of relative protection, which is further carried out as interpersonal legal relations. Further, it is rather essential to be able to describe the interrelation of different persons, as this constitutes the very scope of the rights governance architecture. The rights governance architecture overall is thus constructed of the static aspect, which is based on control and access, and of the dynamic aspect, which is founded on cooperation through different personal relations.

The evolving overall design of the digital economy changes the prerequisites of the legal architecture. This is exactly where the Hohfeldian conceptual frame is to be employed. In the physical world the barriers to the rights governance architecture are mainly based on the functions of the construction itself and in this scope the physical constraints constitute additional boundaries for the rights governance architecture. This applies to the *architecture in its physical sense*. For example, goods are governed through transferring the possession of a thing. In the physical world the governance architecture is reasonable and easy to build on physicality. Easiness is founded on the real boundaries of tangibles, which then further restrict, or ease, their use and transference. Tangibility might also make the construction of the governance architecture easier, as it is mainly based on the clear visible boundaries of physical things.[307] Therefore, the physicality of governed objects is one reason for deriving the overall rights governance architecture precisely from physicality. Physicality has clear advantages in the traditional legal framework. The traditional rights governance architecture is mainly based on governing the rights that are derived from physical things. This is in fact the foundational paradigm of property law. This is where the digital economy mainly has an impact: all the natural restrictions of physical space have been pushed aside by the digital economy. It is this collapse of pure physicality that has brought about the most significant paradigmatic change.

This change is has occurred due to digitization together with the network effect and it directly affects the core of the rights governance architecture. The most fundamental change is seen at the level of physicality or intellectuality of governable objects. Rights to be governed constitute at the same time the boundaries of "things", i.e., the governed objects. Objects in the digital economy are mere artificial constructions and the boundaries are

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307 Digital content can be copied perfectly and practically freely; a great deal of content can be moved almost freely and instantly; and it is possible to replicate almost instantly whatever good there is in one place and send the content forward. See Lessig 2002a, 120 - 121.

consequently drawn by legislation.[308] These altered conditions change the way of looking at the main foundations of the rights governance architecture. This has been carried out to the extent that there no longer exist any actual boundaries for the objects that are to governed, or at least the existing boundaries are not very clear. Therefore, even the barriers in the digital economy are radically different from the barriers of physical space: these are functions of the design of the system itself, which then further affects the rights governance architecture.

The framework of the digital economy has in fact no natural character but is as it is built to be. This actually sets some further requirements for the rights governance architecture in the digital economy, the primary one being closely linked to the *central role of computer code* in the digital economy. Computer code constitutes the kernel of the overall operativeness in that it is the *kernel of digital "products"*. This gives a powerful position to the one who is able to decide on the construction of the rights governance architecture. This sets some further requirements in the digital economy. The relative aspect of rights governance, i.e., the dynamic aspect of the Hohfeldian conceptual frame, is focused on this reinterpretation of the frame and these new requirements exactly.

The other requirement of the rights governance architecture is to be able to *support and refresh innovativeness*. The rights governance architecture plays a central role in shaping innovativeness, which is one of the main focuses of digital economy. Innovativeness is also one of the central creators of the digital economy as it is greatly based on rapid innovations. Those rapid innovations are, again, based on creating new improvements as fast as possible. In this way, the digital economy actually binds both innovativeness and technological development closely together. Rapid innovativeness requires correspondingly rapid technological inventions. This is where inventiveness and innovativeness are connected together. The close linkage of inventiveness and innovativeness has some further influences. These influences are clearly seen in the further development of the cooperation and communication of inventiveness and innovativeness. In fact, this communication is rather essential for converting the mere static inventions into the creative dynamic innovations. As a consequence new products generate new markets and new models of distribution, mainly because of the altered elements of physicality.

3.2 Innovation as governance relations

Ideas in business are based on *mutually communicative innovations*, which constitute a crucial force. This force is based on the difference between invention and innovation which requires that there always exist a need to bring ideas to and utilize ideas in the market in order to

308 In intellectual property law, there have been discussions concerning the qualitites that an object needs to have before one can speak about intellectual property. See Helin 1978, 646.

modify them to become innovations. Unless ideas are brought into effective use, they remain mere inventions. Business ideas are thus always innovations as they are employed strategically in business. On the other hand, a business idea itself may be examined as an invention. For the purpose of this examination, a business idea is divided into certain component elements. A business idea is made up of three main elements, which are further divided into minor internal elements. These main elements are *name, idea and money*. In the further examination of business idea and its components, it will be necessary to keep the main examination lines clear. Accordingly, it is rather crucial to note that the elements of a business idea are in continuous interconnected communication (*mutual communication*).

The interconnection of internal communicativeness as the kernel of a business idea means that none of three main elements alone is able to represent the idea. They are all needed and even necessary elements for illustrating the complete picture of the communication between different interests inside the business idea. Their mutual relationship and interconnected effect on each other is based on constant communication, which is the only way in which the structural elements may illustrate the whole process of the business idea. A business idea is *not a status* that remains exactly the same all the time. Instead, it is more like a *developing process* all of whose elements are present and evolve together. Secondly, none of elements, nor the business idea as a combination of these, is *complete*. A business idea is constituted of networking, which implies some serious demands for the cooperation and communication of those elements. On these grounds, as the core of networking, the elements affect and are supported by each other. Finally, it is crucial to note that at the same time each of the elements *needs the other two*.

The mutual communication and the continuous incompleteness imply a need for further elaboration and reinterpretation of the Hohfeldian conceptual frame. On the grounds of the recent development, illustrated above, an alternative interpretative model may be constructed on the combination of *privileged power* or *empowered privilege*. This constitutes the contextual part of the combination of relationships as the core of a legal position. Communicativeness mixed with incompleteness constitutes the very core of this content. On the one hand, *communication is based on privileged operative positions*. The most essential thing here is communicativeness and this privileged position is more than only a static privilege protected against interference by external parties. A privileged position is rather more like a necessary and essential but not sufficient element of the business idea as a process, or as a combination of operations. The other crucial element of *innovation as a process is based on empowered positions*. Increasing the power of content that is further constituted on privileged positions it is carried out through the dynamics of digital economy. Rather than being constituted on a mere static status, the combination of privilege and power is more likely to be based on dynamics and functionality.

Being founded on dynamics, those positions become accordingly extremely powerful. The importance of the privileged positions is more likely to be based on power as the complementary element of the combination. In other words, privilege does not remain static,

as in the cases when it is only a protected right to use, but it is made more dynamic through empowering it. Empowerment increases in this way the power of privilege. In a more practical example, adding power to the privileged position is like recharging a car battery. The battery is as such a useful and potentially significant source of energy but the real power is implemented in it through recharging. In this way recharging increases the operational power of the battery. This is exactly what happens to privilege when it is given power.

3.3 Domain names as functional governance relations

A business idea overall consists of interconnected aspects of a name, ideas and money. It is divided into *certain components* for purposes of further examination. The name is one of the crucial elements of this configuration. In the functional rights governance architecture it is essential to consider the name as one of the main organic elements. A name is even crucially significant as a communicational instrument. It is a name that makes the communication overall even possible; on the other hand, communicativeness constitutes one of the most important purposes of a name.[309] A name may be utilized as an interface, with a name having a dual task in communication. A name operates as a *means of recognizing* the communicating parties and, on the other hand, names make it possible to *direct the content* of a message to someone.

A name is an expedient for directing rights and duties in societal communication and as such it may be used as an instrument of rights governance.[310] The usability of a name is twofold. First, in order to be able to direct rights, and accordingly duties, there *has to be someone* whom those are directed to. On the other hand, this someone has to be recognized and by these means the directive force of legal duties is actually built into the name directly. A name thus *includes a part of the governance architecture*, as it is used to bind together the elements of personality. Second, a name is used as a *means of identifying* of those who act in society, with a name becoming a *privilege of its holder*. Thereby, a name actually constitutes a privileged communication position. In this way, a name as a communicative tool includes some power in it but at the same time includes also some privilege. This is the basis for examining a name as a combination of privilege and power. Communicativeness makes a name powerful, but at the same time its privileged character means that it is treated like

309 The crucial role of a name in communication is highly dependent on the communicational framework. For example, ordinary discussion is carried out face to face in the context of personal contact. In the case of personal communication (discussion) the conversational prerequisites and the consequences of the conversation are directly derived from this personal aspect. This is closely linked to the terms on which people communicate in society. See Benkler 2002, 296.

310 See Kangas 1991, 34.

property, i.e., a name becomes excludable. This is then further the basis for examining a name as a combination of different kinds of legal relationships as the core of a legal position.

The rights governance architecture is also founded on functionality. Functionality derives from the combination of privilege and power, which then establishes functionality as a whole as the kernel of the governance architecture. This is further carried out through connecting the crucial incompleteness and operations of the digital economy together. Both of these factors require networking and the rights governance ought to be effective and reasonable.

3.3.1 The content of the domain name as a combination of rights

3.3.1.1 The domain name as a communicator

The significance of a name as a communicator is fundamental. In communication, names above all increase the reliability of communication, the reliability being built directly into the essence of names. In the communicative environment, names are used as a tool of identification, which actually makes the *identification function* as one of the most important tasks of a name.[311] Reliable identification is crucial for smooth communication.[312] On the other hand, identification has a close connection to the operational framework, where the significance of identification increases with distance. This is best illustrated in *distant communication*, where there do not exist any real instruments other than names for identifying the communicators. This is precisely the situation on open networks, where domain names are to be utilized. Therefore, as an identification tool, a name has actually less meaning in face to face communication than in long-distance communication. On the other hand, long-distance communication is impersonal, which increases the meaning of a name as a means of identification. This is exactly where the development of the communicational framework of open networks has an impact.

Names are employed as a means of directing speech; i.e., a name has a certain directive task. This task is best described when the vertical construction of a name is examined. Verticality is illustrated through the rights embedded in a name, where they are arranged

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311 In this sense, a name has a close connection to autonomy. A person is considered autonomous to the extent that his or her actions accord with his or her preferences and to the extent that those preferences can be said to be the product of his of her own choice. See Benkler 2001, 34 - 35.

312 Communication on open networks is no longer personal face to face communication; it has become more and more important to be able to identify invisible and unfamiliar communicative actors and determine that they are trustworthy. On the other hand, a name is generally utilized as an instrument of ensuring confidentiality in communication. Confidentiality refers to the ability to remain private or secret. Confidentiality is one of the main dimensions of information security. See Parker 1981, 40.

as an *overlapping structure*. Thereby, in this structure some elements are fixed to names and some other elements are fixed to the rights underlying it. An illustrative example of this is the institution of names overall. Everyone has an obligation to have a name, which makes a name actually *an obligation at the same time* as it is an instrument of identification in societal communication and participation. In this sense, a name is required of everyone and in societal communication a name is essential.

On the other hand, without a name no one is able to become part of the functional society, i.e., to operate as a member of society. Functionality together with the essentiality of a name has been recently clearly stated by the *Supreme Court of Finland* in the case *KKO:2004:51* (R2003/362), which basically concerned a falsifying a signature. Forgery, however, undermines the trustworthiness of certain documents in business and exchange. Most of all, falsifying a signature *infringes a person's right to his or her own name*, according to the reasoning of the Supreme Court. Societal operations thus seem to be closely linked to the confidence implied by the authentication using names and, on the other hand, at the same time to the integrity of names.

> *KKO:2004:51.* A had placed a mail order using regular customers 'client cards, wherein A had forged the signatures of those customers. According to the Supreme Court of Finland, the essential purpose of preventing forgeries is to ensure the public reliability of pieces of evidence, i.e., the public interest in the reliability of certain pieces of evidence in legal and economic life. Forging another person's signature also infringes his or her right to his or her own name.

The reasons for treating a name as a communicator are rather fundamental and clear. First of all, a name establishes a *societal position*. As a socially operational position, a name likewise creates a functional position for its holder. Further, related to a name, personal rights and duties in general are governed through the name itself. This is carried out through the societal order of which human beings constitute a crucial part. A name also *establishes an obligation*. A name is a useful means to accumulate the rights belonging to a certain subject. As such, a name is really essential for everyone. These positions created by a name are basically also the ones that are to be protected. A name accordingly establishes a *protected position*, given that the right to a name is uninfringible. On the other hand, the protection of names ensures societal communication. This is the basis of the cooperation of all of the positions that are based on names. Communication in society, or life overall, would be impossible without having any usable and protected names.

3.3.1.2 The domain name as an identifier

A name has a certain value as an identification tool in varying frameworks and is actually defined in different ways. Those definitions are further rather dependent on the environment where a name is to be used. Thereby, a name employed in the real physical world is rather easily distinguishable from a name employed in an intangible environment. *Intangibility as the framework of names* is one essential implication of digitization, together with networking.[313] Further, these two factors change the whole communication infrastructure and the significance of names in it. Names likewise have their special formulations designed especially for the digital world. A name in the physical world has its counterpart in the digital environment in the form of a domain name. On the other hand, there are not, however, very many differences between these two different forms of names. Even an ordinary "physical" name is often used as a domain name; in fact a domain name actually includes precisely the same features as a physical name. Therefore, the most fundamental character of a name itself is not altered much from the traditional use of names.

The greatest difference comes with the *altered communication framework*.[314] Communication is namely no longer only the interaction of two parties but is often carried out in an undefined network. In other words, communication is not fixed anymore only to pure interaction; there is always a need for a certain *identifying element* in domain names.[315] It is actually a consequence of the communicational environment that has made names and the digital environment closely linked. It is precisely the identification task of a name that has been changed along with the change of the communicational environment. This makes the domain name a *prototype of the name in the digital world*. Digitization has some other consequences where names are concerned. A name in the digital environment is more than a mere means of identification. Parallel with its task as an instrument of identification, a domain name is used to define and make recognized the position where information is to be found.

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313 Society overall is based on communication, the two most fundamental factors being the communicating parties and the communicational environment. See Dommering 1996, 15

314 The communication environment has changed with the emergence of electronic administration and electronic transactions. See *Government Proposal HE 194/2001 vp.*, 25 - 26.

315 Here the development is actually carried out through electronic identification, which is technically realized by connecting the name and personality of a human being. In the electronic communication environment, this is carried out even more effectively than by using only specific person identification numbers, although the identification number constitutes the kernel of the process. The fundamental purpose of electronic communication is to improve the access to, and quality of, certain administrative services, as well as the customer orientation in government. Effectiveness is also one of the crucial aims of the government. See also Korhonen 2003, 350 - 351.

The identification task of a name is one of a name's essential elements. A domain name is further clearly considered as an identification tool, precisely like a proper name in the physical world. A name thus grants some autonomy to its bearer. In this respect, autonomy is considered as both a capacity and a condition of which people can have more or less.[316] As such, a domain name has one feature in addition to its identification task: it may be an address that expresses where the domain name holder can be found.[317] Thereby, a domain name is not only an instrument of identification but also an *expression of position*. In other words, a domain name generally tells certain facts about the location and possession of the relevant domain name and its holder.[318] As such, domain names rather closely resembles geographic names or some other geographic information that contains street addresses, postal codes and information about a country.[319]

3.3.1.3 The domain name as a connector

A name in the digital environment corresponds essentially to that in the physical framework. There exists, however, some elements that make the name in the digital environment somewhat different from a usual name. First, the *character of communication* differs clearly from the communication being carried out in the physical environment. The characteristic change is due to the digitized design of information when information is communicated in digital networks and represented in digital form. This kind of information is more clearly *bound to its technical form*. The technicality of digital information is best illustrated in its close relationship to the communication framework itself.[320] Technicality as a formal representation of communicated information therefore affects the fundamental design of a digital name.

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316 Autonomy is thus a relative concept. Autonomy may also be considered to have value for people who come to and live in a world. Moreover, autonomy is considered to be part of the relationships both between individuals 'actions and their preferences. See Benkler 2001, 33 - 34.

317 A domain name may be called an electronic address. See Koktvedgaard - Levin 2004, 354.

318 A domain name usually tells where on the Internet one has been, where one is now, who one is dealing with and how one can find the same content or position again. See Gulliksen 2001, 57.

319 The domain name system has been compared to the 1-800 telephone numbers that can be dialed as mnemonics. Domain names thus serve as vanity telephone numbers for companies that want a number that is both easy to remember and to guess. See Gulliksen 1999, 24.

320 This has several visible manifestations. Communication on open networks is based on *technical protocols* (on the Internet the TCP/IP protocol) where a message is sent digitally to its receiver and the protocol operates as an enabling framework. Technicality is manifested even when a message is concretely sent in that the message is *split into several separate fragments* and all the fragments are generally sent to a receiver through different transmission channels. In this way, the protocol regulates how the data is to be divided and how the resulting packets will be shipped. See Lessig 2002a, 149.

Communication derives directly from the technical structure of names and the digital communicational framework.

Digitization changes the fundamental elements of names as communicative instruments. In this way information as the foundation of a domain name and the name itself are connected. This is precisely how a name is used as a connector. In the digital communication network, it is the domain name that operates *more like an address* of a certain Web page or an attribute of an actor than a real name. This is due to the construction of Web pages, where a concrete name is only a visible illustration represented in textual form. A name in the digital environment is *used for navigating* in this environment; for the equipment the numerical IP addresses would be more suitable, as computers actually recognize each other by those numbers.[321] However, in human communication the domain name is usually expressed as a human-understandable name or symbol.[322] A name in the digital world is thus more than a name in the common sense. Digital names or domain names make the communication more dynamic, with a name being used for describing both a name and a position at the same time.

Having a certain position on the communication network is significant in another sense as well. The location where the information is to be found takes on extreme importance in digital communication. In physical communication it is significant to be able to get recognized by one's name. This is not, however, enough in digital communication, where the ability to be found by computers, i.e., search agents, is important for overall communication. At the same time, the name and position being pointed at by the name are connected together. This is exactly where the third dimension of the domain name is found. A name in digital form has some economic value that is included in the name as a connector precisely in the digital environment. The value is created by connecting a name and the information that is included in that certain name. A domain name takes on great economic value and as such closely resembles a trademark. A trademark even often includes a domain name and vice versa. The reason for this is clear: a trademark may be protected as property whereas a domain name may easily remain only a right to use.

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321 An IP address consists of numbers and it is significant to other computers for their mutual communication. In order to be able to participate in this communication a computer (=a user) must have a unique IP address. See Grewlich 1999, 387.

322 See Rahnasto 2002, 19.

3.3.1.4 The empowered privilege of the domain name

The communicative structure of the digital economy is fundamentally based on names. A name is the attribute that is used for recognizing actors. This is clearly manifested in the combined roles of a name. In the overall communicative structure, a name plays at least three different but closely overlapping roles at the same time. First, a name is both a central means of communication and an essential tool of identification; i.e., *it has a communication and identification* function. These two factors then create the third one, which is the *connective task* of a name. A name is thus a rather central communicative tool in the digital environment. This then prompts the examination of the content of a legal position as a relationship of privilege and power in the case of a name.

The empowered privilege of name is fundamentally based on two essential factors. The first of these is the *special exclusivity* of a name. In this view a domain name is *sui generis*. On the other hand, for the domain name the status of sui generis is created through the foundations of the rights governance architecture due to the different roles of a name and its foundations. Basically, the privileged position of a domain name is created through state governance with rights governance based on the registration of domain names.[323] State governance is further based on strict restrictions concerning the use and granting of domain names.[324] This constitutes the basic foundation of the governance architecture of domain names. When governed by the state, a domain name is basically founded on a *right to use*. In the system of state governance, domain names are not actually owned by their possessors. In this system a domain name resembles an ordinary name: the possession of a domain name is more based on the exploitation of a right.

A domain name as such is *not owned*, and the protection of domain names is not proprietary either. A domain name is mainly governed through state governance and as such a domain name may also be defined as non-proprietary. On the other hand, due to the lack of ownership and the non-proprietary character of a domain name, it is not sustainable to define the content of a legal position only through a right to forbid. Granting the right-holder a right to forbid the external parties is precisely how ordinary property rights are constructed. The owner has a strong right to restrict the acts of external parties and a right to restrict is, further, due to the absoluteness and exclusivity of ownership.[325] Ownership is thus stable

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323 Domain names are regulated in Finland by the *Finnish Communications Regulatory Office* (*FICORA*).

324 The other way to govern the field of domain names is the market. These two lines are the main areas in the governance of domain names. See Rahnasto 2002, 31 - 32.

325 The content of private ownership is basically defined through three core elements: 1) the *completeness* of the right, meaning that the owner, and only the owner, has complete power over a thing, 2) *exclusivity* and *indivisibility*, meaning that there can be only one complete right

and through this stability ownership actually gives a similar stability to the rights to be owned. On the other hand, the stability of ownership is established through the right to forbid others to interfere in the use of the right-holder's right. This is where domain names differ from other general property rights.

Domain names are *incompletely excludable*.[326] In this sense they do not belong to anyone as property. The incomplete exclusivity of domain names therefore requires that the content of a right-holder's legal position is defined differently from the traditional definition, that is, as being fundamentally based on excludability. The content is now more likely to be defined as a certain relationship rather than as a mere position. As relations this includes the domain name *as privilege* and, on the other hand, the domain name *as competence*. The domain name creates a privilege through its *de facto* exclusivity. As it at the same time operates as a communicative connector, the privileged position is also characteristically functional. In the communication network, the domain name creates at the same time an empowered position for its holder. This is due to the character of a domain name as precisely a domain, or as an address where the relevant information can be found. Thereby, a domain name is *equally a name and a position*. A domain name is recognized by the name, but utilized through the information it includes.

The *combination of name and position* is the very kernel of a domain name. It creates a position that may be called an empowered privilege. This requires that there exist in a domain name some elements from both spheres: the sphere of power and the sphere of privilege. The empowerment of a privileged domain name is carried out through the dynamics of the privileged position of the name. This is based on the insufficiency of statics alone in accounting for the dynamic and functional entity of a domain name. When the static definition of privilege is not enough, there emerges a crucial need to draw the basic borderlines dynamically. Dynamics is brought into the model well by combining the Hohfeldian power and the Hohfeldian privilege as elementary parts in the overall definition of the content of a legal position. This is then the fundamental factor that changes the pure statically protected privilege the *status of empowered privilege*. The empowerment of a name may be illustrated through an example where empowerment is carried out through a combination of domain and name. This is actually a direct consequence of the strong status of a name in the communication on open networks.

The strong status is linked directly to the communicativeness of a name, i.e., a name is used as both an instrument of identification and a denominator of position. This alone already creates a rather strong empowered position. A further example comes from the field

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attached to the thing, and 3) the *limited scope of right*, meaning that the object of the right has to be limited and demarcated. See Tolonen, H. 2004, 205.

326 Exclusivity is based on both the state governance of domain names and the mutual relationship of domain names and trademarks. This is exactly where the second level domain names come into play. See Rahnasto 2002, 60 - 61.

of brands. Even communicativeness itself may be empowered, which is clearly manifested when a name is expanded to become a brand. A brand illustrates rather clearly the empowerment of a name or even a domain name. A brand often increases the value of a name or a trademark. At the same time, the marketing force of the brand is increased and the name becomes empowered. The empowerment of names is not, however, a new invention, given that a name as a privilege has been accorded power even earlier. This has been carried out through the possibility to transfer a right to a name, i.e., selling a trademark or a domain name. Empowerment has then been carried out in the *traditional sense of property rights*, with transferability forming the very core of dynamics. Property rights have been considered to be dynamic and have been brought into the sphere of exchange. This kind of empowerment is, however, slightly different from the dynamics in the sense of dynamic functionality.

Transference, and its related dynamics, are based only on transferring rights; the real functional aspect of dynamics has been excluded. In other words, objects, such as trademarks may have been transferred, but this is basically all that the traditional dynamics has included. Empowerment in the sense of functional dynamics is more than this. Domain names and trademarks are actually included in a special class of names because proper names as such cannot be transferred at all. They belong squarely to the sphere of commons. An illustrative example of the common scope of a domain name is the possession of a domain name that is exclusive. A domain name may belong to only one possessor at a time. This sharply differentiates a domain name from an ordinary proper name, as ordinary names may be possessed by any number of people and all at the same time. This is exactly where the communicational environment mostly affects names. Personal communication may easily be carried out even if none of the names involved is exclusive, but the communication in open networks changes the significance of names as communicative instruments. The whole communicational system becomes functional and the functionality of the system further requires, on the one hand, the exclusivity of domain names and, on the other, a clear rights governance architecture.

The dynamic functionality of names in the communicational framework is manifested even in the evolving utilization of names. The inability to transfer proper names is manly due to the valueless character of names; i.e., names do not have any *exchange value*.[327] The inability to be transferred is characteristic of names but dynamics are not. A name is still a powerful instrument of communication and this gives a name also extreme significance. However, in the case of domain names, the scope of dynamics has been altered even from the free transferability of exchangeable names. This is again further carried out through the change in the means of communication and the significance of a name in it. A right

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327 Value is often acquired through having creations experienced; i.e., inventors generally want people to experience their works. See Marks - Turnbull 2000, 199.

to a domain name is transferable despite its ownerless nature, but dynamics are nevertheless realized alongside this through communicational empowerment.

3.3.1.5 The privileged power of the domain name

Power may also become a dominating element in the legal position of a right-holder. The kernel is founded on an empowered privilege as described earlier. As such the content of a legal position is described one-sidedly from the viewpoint of statics. The content, however, generally needs to be defined also from the viewpoint of dynamics, i.e., from the *viewpoint of the power position*. This definition does not much alter the content itself, which remains essentially the same as in the case of empowered privilege. The only factor that changes is the structure and the overall view of the content. The structure becomes precisely the opposite to empowered privilege, in which the content is described from the viewpoint of privilege. When examined as privileged power, the statics of privilege are further *complemented by power* as an extra element. This is precisely where the opposite interpretation is to be carried out and the content is examined from the viewpoint of dynamics and further complemented through privilege. Stability must be added to the overall functionally dynamic architecture.

Empowered privilege in names is likewise linked closely to communication, as explained above. A name is actually an essential element in communication, which makes it very dynamic in nature. On the other hand, the right to name is also a privilege that is stated already in the law.[328] A name is used as an instrument to identify and control people. This is exactly where the combination of privilege and power with regard to names further creates a strong power position in the basic communicational architecture. The strength is implied by a name being protected property, with the strength then increased with some power bound to the overall communicative pattern. A name is in the possession of its holder, but at the same time it is used for getting access to the communication network.[329] On these grounds, this position might even be defined as the core of communicativeness overall on the open networks.

A name constitutes the core of communication. Therefore, the crucial role of a name as the kernel of the communication architecture is also the core of the privileging of power. This is basically due to the twofold foundation of the communicational circumstances, where

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328 For a human being, a name is both a right and a duty. A name is actually essential for anyone to become a member of society and to be able to communicate with others in the society. See Kangas 1991, 33 - 34.

329 Domain names and the access granted through them is essential for actors to be able to transmit and receive information. The main task for the domain names in the network environment is to ensure *access to information resources*. This involves both the transmitter and the receiver of the information. In order to guarantee equal access, domain names are granted and governed by state and generally on a non-profit basis. See *Government Proposal HE 96/2002 vp.*, 8 - 9.

a name is used as connector. A domain name is used as a means to direct communicational speech. On the one hand, the power of this privileged position is due to the participation right that is attached directly to the name. A name as a privilege creates the basis of communication. Further, the close link to communication also creates a strong foundation for the empowerment of this privilege. For example, a name is essential in the market even as a prerequisite for identification. Goods are marketed through trademarks and, on the other hand, a trademark is used later as a means of identification by consumers. This actually, at the same time, creates an empowered position for a name, with empowerment occurring by making a name a means of communication. This position is further strengthened when a certain product comes to dominate the market.

The empowerment of privilege is also due to the access right that is also attached to a name. The access right further ensures the functionality of the overall communicational structure. The totality, i.e., the content of the whole communicative structure, is based on everyone's access to networks. In this structure a name takes on great significance indeed. In this way, the significance of a name constitutes another foundational argument for the privileged status of power in the communicational architecture and for the significance of domain names in it. This is best described through an example. Access to networks does not mean only the simple ability to log on but entails *real accessability*. This means that there ought to be ensured access to the information that is available on the network.[330] This is the core of communication. In order to be really smooth, communication requires that there exist a real possibility to get information and give it. Accordingly, access to network is generally described as a privilege. This is supported in the strongest way through copy protection.[331] On the other hand, access is restricted by empowering privilege through the rights management system. Rights management grants access only to a restricted sphere of actors, with access further defined precisely through the rights management system.[332] This is often realized through registration.

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330 This is often referred as access to network and it is further pursued to be controlled. See Bishop 200

331 Copy protection refers to techniques used to prevent the unauthorized copying of software. Copy protection is mainly realized through protecting software by issuing registration numbers with each package. When one installs the software, one must enter the registration number. This does not prevent all piracy, but it limits it. In addition, users cannot get updates for a product unless they own the original diskettes and documentation.
See Webopedia http://www.webopedia.com/TERM/c/copy_protection.html

332 Rights management systems are often connected with copyright managing information. Copyright management systems are basically databases that contain information about content, author and other current right-holders. This information is also needed to support the process of authorizing the use of works by others. Rights management systems often include ancillary modules for payment or accounts receivable. See Gervais 2000, 78.

3.3.2 Included versus excluded concerning names

A functional business idea contains always a static element that is parallel to its essential dynamics. The statics of a business idea is founded on the requirement of defining the sphere of those who are included contextually as right-holders. Accordingly, it is crucial to draw the borderline along the *axis of included/excluded*. Inclusion and exclusion are the only stable instruments to define the sphere of those who are entitled to get the legal position of a right-holder. This is also where the demarcation of access and control is to be carried out. The difference between inclusion and exclusion makes the definitional structure necessarily rather static, however. Statics are an unnecessary but at the same time characteristic consequence of this definition as the determination between included and excluded is based on a certain absoluteness. The demarcation is comparable to exclusivity, as exclusivity and absoluteness constitute the basic elements of ownership in its static sense. Statics are in fact in this way bound to the way in which they are defined: when defining the difference between inclusion and exclusion, the boundaries need to be drawn strictly and in a stable way. On the other hand, despite the overall dynamics in the rights governance architecture for names, it is essential to define the static context of the position of a right-holder.

A name is crucial in communication. A name has at least one extremely significant attribute that makes it a rather special communicative instrument: *its exclusive character*. A name is always a kind of privilege and as such it always contains a certain exclusivity. The privileged position of a name is derived from its private character. A name is even characteristically included in the private sphere of a human being. Thus, even when a name is not legally protected, it still includes a number of personal elements. These elements give a name some additional privilege. Thus, the exclusivity of a name is not necessarily a legally protected exclusivity, i.e., not legally protected in the sense of property rights. In other words, although a name is possessed by its carrier, no one is able to have any *real ownership of a proper name*. This concerns especially the names of human beings. These names are not owned but distinguished or appropriated from the general sphere of commons. It is precisely by distinguishing or appropriating that names are made exclusive.

Neither defining strict boundaries nor creating exclusivity is necessary before the system is able to become functional. Functionality itself creates the need and the *foundations for drawing any boundaries*. If there is no functionality, there is no need to draw boundaries. On the other hand, drawing strict boundaries beforehand leads to statics in the whole system when the system is based on traditional intellectual property rights. Thereby, drawing boundaries basically constitutes the starting point of the traditional system of intellectual property rights. This is one of the points of divergence between the traditional system of intellectual property rights and that of the digital age, and one that places new demands

on the system. One good example of these new operations is networking.[333] Networking requires functionality to a significant degree. Functionality is in fact the core of networking overall. Operativeness and the capability to behave operatively is the core of the coherence of the whole system. Thereby, there actually exists no need for drawing any borderlines beforehand. Functionality itself creates the boundaries if there happens to be any need for them. This is, however, basically where the strict rights management systems, for example, a system of digital rights management go wrong. Those systems bind intellectual property too closely to statics. Digital rights management allows access and also ensures it, or then access is denied.[334] The whole construction is built on the *static on/off pattern* and provides no room for any variety or flexibility.

The static aspect of the rights governance architecture operates as the basis of exclusion/inclusion axis. This aspect is ultimately based on two main elements. One is the *empowerment of privilege that truly changes the character of statics*. In the traditional system of property rights the privilege constitutes the core of the static aspect of the Hohfeldian schema, and as such it is assumed to remain static. Privilege is linked to rights in their static sense, e.g when the rights are not transferred and they are not involved in any dynamics. This occurs for example, when a patent is exploited by the patent-holder in his or her industrial production. In the evolving framework of the digital economy, privilege in its traditional sense is one of the core elements to which the impacts of the digital economy are targeted. This is where dynamics are brought into close coexistence with privilege by the empowerment of privilege. The other main element of the rights governance architecture is the *need to define access rights by excluding* those who are not entitled to access. Exclusion is focused on the privilege and as such is principally defined solely as a complement of the static aspect. In the new dynamic interpretation of the Hohfeldian schema, exclusion is realized after empowering the privilege when actually *it is precisely the empowered privilege that is defined through exclusion*. In this way exclusion takes on even more significance given that privilege itself is further strengthened through empowerment.

Exclusion itself further creates a privileged position. Privilege is created precisely *through the possibility to exclude others*. A privileged position does not necessarily have to be defined through property rights or the ability to protect those rights legally. Privilege may also be established by including certain elements while excluding others. For example, a name is often considered a privilege in that it basically determines some certain individual

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333 Networking constitutes an online working method where people get connected to open communication networks and establish two-way links. See Marks - Turnbull 2000,199.

334 Digital rights management protects the copyrights on data by enabling secure distribution and/or disabling illegal distribution of the data. Typically, a DRM system protects intellectual property by either *encrypting* the data so that it can only be accessed by authorized users or marking the content with a *digital watermark* or similar method so that the content can not be freely distributed.
See Webopedia http://www.webopedia.com/TERM/D/DRM.html

information of its bearer. This personal information is included in the name. In other words, a name and the information included in it are closely related and welded together. On the other hand, certain information is always related to a certain name and this is where these elements together enhance the sphere of privilege. The exclusivity of names does not, however, correspond to the exclusivity of property rights. First of all, the exclusivity of a name is not necessarily based on legal exclusivity. Further, there do not exist any official rules for using names. The use of names is based on everyone's right and duty to have a name. This differs slightly if a name is legally protected, i.e., a trademark or business name. In Hohfeldian terms, the right and duty to have a name would actually be the privilege of having a name and the duty to have it as its *opposite.* In a certain sense this is totally congruent.

The problem, however, arises when names are generally examined in the Hohfeldian conceptual frame. It seems that the privilege of having a name is matched by the external party's no-right to have one. For trademarks this is the case, but all the other classes of names, i.e., names without any legal status or protection, would be excluded from this definition. Names seem to belong to the scope of *incomplete excludability*. Incomplete excludability implies that the use of names is not clearly defined by excluding the external parties. This is a direct consequence of incomplete excludability and the unprotected nature that is characteristic of a name.

The sphere of privilege needs to be outlined in some different way. Here the core is exactly the strong position of the empowered privilege, which is especially significant for names. The significance is due to the exclusion from empowered privilege, which further creates a strong position for the one who is included, i.e., the one who has the privilege. This is due to the common nature of names, which further implies that names are basically *reserved for the common use*. Names are common for the entire society. The other important factor here is the *significance of a name in communication*. Both the incompleteness of excludability and the significance of names in communication further reflect the common and general character of names. It would actually be rather exceptional for a name to be excluded from the sphere of commons. A good example of exclusion is a trademark, where the exclusion is carried out through legislation. Exclusion is defined by comparing two or more trademarks to each other in order to find out the similarity between the two. An illustrative example comes form *Supreme Court of Finland* in case *KKO:2004:49* (S2001/710) where two closely similar names of closely similar products were compared to each other.

> *KKO:2004:49.* A health food store sold a special food product under the name *"Renichew"*. According to the Supreme Court of Finland the name was confusingly similar to the trademark *"Rennie"* belonging to a medicament sold in a drugstore and available without a prescription.

A name here is used as a distinctive instrument in the market and in this way it maintains the proper and smooth communication of the market and consumers. The protection of a trademark as a name, however, also includes protection of the value of the name in the market, in which respect it closely resembles a domain name. A domain name is both a tool of identification and a position of communication. This division is also one consequence of the dynamics of the digital economy.

3.3.3 The relative governance of the right to a name

Communication on open networks is basically carried out through domain names. Communication requires some degree of ability to contact another terminal on the network. For this it is necessary to have the address of the terminal that one wishes to contact.[335] This address, as well as the information concerning the control of the relevant domain name, is included in the domain name itself. This is exactly why a domain name constitutes an essential instrument for communicating through the open networks. Additionally, such communication requires proper rights governance for the overall construction of domain names. Rights governance in this sense and the way in which it is carried out is actually becoming the highest commercial and strategic interest.[336]

Another key issue is governing the global information networks which, again, are based more or less on the *proper distribution of powers*. The distribution of powers also constitutes the foundation of the governance architecture of domain names. In this way rights governance has a close connection to the functionality of the digital economy. This is further carried out through the dynamics of both rights governance and the functionality of the digital economy. Dynamics further implies that there are several different communicational, and at the same time operational, relationships involved in that functionality. These relationships construct the fundamental basis of dynamics. For instance, network delivery of digital content constitutes a network of several cooperating actors, e.g., content providers, service providers, licensees, and end-users. There actually would be no dynamics without these functional and cooperative relationships in the sense of digital operativeness. Functionality is based on *involving relationships* as the basis of operations.

The functionality of domain names is basically founded on their *dynamic content*, with dynamics in this sense constituting the fundamental reason for the need to govern domain names. Domain names have several essential tasks that add some degree of dynamics to the overall rights governance architecture. As such, domain names serve to identify the destination in communication. This is the identification function of domain names and it

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335 The domain name system has actually been developed for the governance of cyberspace. See Grewlich 1999, 194.

336 See Grewlich 1999, 194.

is associated with the character of the name as an address of certain information. Accordingly, the rights governance architecture of names needs to be based, at least partly, on governing the identification rights, i.e., the identification of relevant information. This is carried out by *governing names*, which constitute the main connecting link between the information and its position. Domain names allow for higher accessibility to information.[337] On the other hand, accessibility like this requires that the communicational structure be approached from within the information itself. Accessibility has a close connection to the communicational structure itself, exactly like domain name as a means of identification.

Basically, in communication through the open networks the capability to get oneself identified is as important as getting access to information. A domain name has additionally a few economic functions for which an effective rights governance architecture is needed. These functions are connected with names as used in the market. Nevertheless, the economic function of a domain name is rather different from the traditional economic function of names in the market. The difference stems from the altered framework, i.e., an open network as the main communicational environment. On open networks domain names *may even strengthen* the organizational identity of an enterprise. On the other hand, domain names may get some economic value of their own, exactly like trademarks.[338] Further, the economic function of a name as a communicator is the third dimension that requires a proper rights governance architecture. In this sense, rights governance closely resembles rights management as a more economic construction.

The dynamic aspect of rights governance architecture is based on the distribution of powers, making the architecture essentially functional. Further, the distribution of powers characteristically implies that the governance architecture can no longer be based on including something and excluding something else. On these grounds of inclusion and exclusion, the overall legal position of a right-holder remains too static. The exclusion/inclusion distinction is not very dynamic despite the essential significance of the distinction for the whole rights governance architecture. Therefore, this dualistic differentiation is used only for defining the absolute boundaries of rights and the static position of the right-holder, whereas the relative rights governance is more based on *governing cooperative relationships*.

The other focal factor in the rights governance architecture is the *relativity of the governance architecture* itself. The relativity of governance, as well as the significance of functionality, affects the dynamics of the overall architecture. This is best illustrated in the interplay of rights, which implies that the operational network is more and more *based on several colliding rights*; i.e., there are various parallel rights that should all be carried out. This resembles closely the collision of rights in the traditional dynamics of exchange, where there are several competing rights and only one may really be realized at a time. Communication

337 See Grewlich 1999, 195.

338 See Grewlich 1999, 195.

on open networks and networking overall, however, differ from the pure classification of priority in their synchronousness. There is no longer only one right that should be sustained but rather several cooperating and communicating rights which are *each equally essential* for the functionality. Networking is, in other words, based on synchronous rights that operate simultaneously. In this way networking is not based on the logic of exclusivity.

The need for relative rights governance is thus basically due to the *operational environment becoming more dynamic*. Dynamics require functionality, which is carried out only by combining a set of different rights. The core of rights governance in its relative sense is defined in terms of immune positions of right-holders. In this way governance in its dynamic aspect is actually based on immunity and, on the other hand, the third party's disability to affect the right-holder's legal position. These dynamically protected positions then derive from privileged power as the basis of the dynamic aspect, it being exactly the privileged power that is protected through the immunity of a party and the disability of the third party. Convergence is one of the central factors that directly and clearly affect the requirements of the relative rights governance. Convergence is carried out at least in two areas that are also closely linked to names. One is the *interconnection of the market and cyberspace*. Cyberspace is more and more becoming the area of commerce to be sold and marketed effectively.

On the other hand, the operations in the market generally, and in the market in cyberspace in particular, are converging. Accordingly, it is becoming more complicated to maintain the fiction of a connection between a trademark and its immediate environment where the trademark would be bound to the environment where it is to be used. In other words, two similar trademarks would not collide if used in totally different markets. The convergence of the market and cyberspace, however, changes this slightly. Now, cyberspace is not a competing marketing environment but a parallel one. This is basically *"relative exclusivity" in the respect of the positions* involved in operations. Thereby, operating on open networks only complements the existing market and in this way it is only additional to it. This may, however, lead to collision between a trademark and a domain name when these are similar but do not belong to the same enterprise or another holder.

Further, the overall governance architectures for trademarks, on the one hand, and domain names, on the other, differ somewhat from each other. A trademark is fundamentally classified as property and is based on ownership. The control of a trademark is based on the right-holder's domination on the grounds of ownership. Accordingly, at the same time its governance is carried out statically by excluding external parties from the right-holder's use and dynamically through the right-holder's competence to transfer a right to trademark. Rights associated with a trademark are governed through property rights when the governance does not maintain pure dynamics in the sense of digital networking. On the other hand, the governance of domain names is not based on ownership at all but is more like granting the rights to use for a certain time period. A domain name is still all the time *owned by the state*, like a phone number. As such it is also like *an address that cannot be owned*

either. A good example is the Finnish shopping mall *Aleksi 13*, whose name refers to the address of the mall, Aleksanterinkatu 13. The name belongs to the shopping mall whereas the address is merely the address where this mall can be found.

The other implication of convergence is *identity and name*. This is the sphere of the domain name, which includes both an identification segment and a domain segment. Both converge to become a domain name. The convergence of name and identity is an outcome of the development of the communicational framework, where it is necessary to identify oneself. On the other hand, the amount of information on open communication networks is so enormous that there also exists a need to get some visibility in one way or another. This is exactly where the altered operational framework changes the significance of names in communication. This implies, however, at the same time the parallel governance of both identity and name and that governance cannot be carried out through absolute exclusion. There is thus a need for relative rights governance when both of the regulative values are to be set in place. Further, convergence has one additional implication where names are concerned. It explicitly *increases the value of a name*. This is due to three factors: the importance of communication, the significance of names in it, and the emergence of the market and the influence of market forces in the communicational framework. Basically, all these three elements are firmly linked to the domain name, which becomes a structured combination of these three factors all together.

3.4 Business ideas as functional governance relations

Rights governance in the altered framework may be approached through ideas as well. Good ideas constitute the basis of innovativeness and rapid innovations are the basis of the digital economy. This is true especially in the case of business ideas as one of the most important implications of the digital economy. The digital economy itself and its wealth-increasing power are both based on business ideas and business methods as digital innovations. Where a name constitutes an essential means of communication, the business idea is the other of the core elements of modern business.

3.4.1 The content of the business idea as a combination of rights

Innovation and names have at least one connecting link. Innovations are communication, exactly like names. The communicational structure of an innovation is, however, constituted somewhat differently from that of names. In this comparison a name is surely a communicational feature, even when it is used alone. Innovation is thus constituted differently from a name in that it must be *bound to more functional content*. Innovation always has to include some significance in content. On the other hand, the functionality of content

is the most elementary factor in dynamizing the digital economy. Innovations are constituted on communication between innovations and the framework where those innovations are to be utilized.[339] This is the basis for viewing the content of innovativeness as the combination of rights as the legal position of a right-holder.

3.4.1.1 The business idea as information

Communicativeness is the kernel of the functionality of a name. Likewise it is the core of functionality of innovativeness. The communicative structure of innovation is, however, interrelated with its framework. This connection of content and its framework is actually the overall basis of functional dynamics as innovativeness. Naturally, a name also includes this element, but the communicativeness of a name is more likely to be based on its strict relation to the personality of its bearer. The functionality here is rather vertical, whereas for business ideas *functionality is more horizontal*. Operations are to be carried out in an interrelated manner and in parallel, whereas names always have the vertical relationship defining the content of name. Horizontality thus correlates closely to innovation networks.

The statics of protection have some further serious consequences. Information embedded in a business idea is usually *closed* to exploitation by third parties.[340] This is carried out by patenting an invention, for example a business method, when this closed nature easily affects the business idea overall. On the other hand, the need to close ideas is also based on communication, more accurately on the *communicational capacity of an idea*. Business ideas, like ideas overall, are communicative and as such have a great capability of bearing and transmitting certain information concerning the invention itself. In this sense, in order to create statements about the world individuals need access to information.[341] Basically, an idea is actually built up of information, as this information constitutes the very core of the business idea itself. In this way a business idea is actually *nothing more than information*. This is actually why the capability to contain and bear information constitutes the core to get inventions closed through patenting them. Information is revealed to the others in the form

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339 This is in fact where convergence affects the market: traditionally separate markets thus converge and form completely new sectors. See *SOU 1999:55*, 37. One example is information and communication technology.

340 The digital economy seems to be founded on the control of ideas. This is further based on the importance of innovativeness and innovations as the essence of the functions of the digital economy. On the other hand, digital economy seems to be characteristically founded on sharing and it is generally based on intensive sharing of work, social experiences and other forms of knowledge among members of the community. This is clearly illustrated, for example, in the easy copying of information, with contributor able to give away an infinite number of copies of a document without losing it or diminishing its value. See Bergquist - Ljungberg 2001, 309.

341 See Benkler 2001, 84.

of an invention whether it is protected through intellectual property rights or not.[342] Moreover, the tendency towards protecting ideas by closing them is due to the *value of information* or even the ideas themselves. Information is valuable, with the value depending on whether the information is revealed to someone or not.[343] Ideas are often based on their potential to include value and information. This potential actually forms the foundation of innovativeness as well. However, the potential to include information together with its value affects the stability and endurance of a patent as the protection method of business methods as inventions.

The informative character of ideas is accordingly based on the *dualistic use of an idea*. An idea may at the same time be used by two or even more persons, and even then it is not overused or exhausted. In other words, ideas might easily *be used by many people* at the same time. However, communicativeness is not necessarily characteristic of ideas and there is moreover a tendency to enclose ideas even when there would otherwise be a free flow of them. The aim of acquiring wealth and of increasing the economic profit from ideas requires that even business ideas be closed and protected. On the other hand, business ideas *include a lot of information*. This can be seen when ideas are revealed and exploited by several users as well as when ideas are kept secret and exploited by only one user. In both cases, business ideas affect the framework where they are used. Business ideas are always *instruments for informing the surroundings*. This actually means that a business idea is used well as a medium for communicating an idea and its framework. In this way a business idea is used for constructing cooperation and networking.

A business idea as information is thus also fundamentally a central form of communication in the digital economy. Business ideas, however, also constitute the *foundation of innovativeness* itself. This is due to the tacitness of ideas.[344] Ideas are basically embedded in the actions of human beings and they are rarely revealed visibly.[345] This is also the power of innovativeness and the renewing force of ideas.[346] Ideas may be combined freely and in this way a new idea may always make an existing one obsolete. Further, ideas basically constitute the foundation of innovativeness, an example being the informative character of business ideas. A business idea as information needs rights governance, with the

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342 This is the essential vulnerability of modern inventions that mostly rely on legal processes to articulate and realize them. These inventions are mainly based on information and intellectuality and are thus rather artificial by nature. See Anawalt 1999, 134.

343 This is the basis for certain information markets where information is utilized as a commodity. See Shapiro - Varian 1999, 23 - 24.

344 For the most part, we know much more than we can explain. This is considered to be the most essential characteristic of tacit knowledge. See Polanyi 1966, 4 - 5.

345 See Ståhle - Grönroos 2000, 32.

346 Tacit knowledge is often hard to distinguish from the professional skills and craftsmanship of a person. Professional skills may include information being protected as a trade secret. See *Government Proposal HE 114/1978 vp.*, 14.

governance architecture to be implemented along with both innovativeness and its framework.

3.4.1.2 The business idea as communication

In the network economy *digitally manifested business ideas* constitute the core of the economy and the market.[347] Because of the digital character of the economy, business ideas are often represented in digital form, e.g., as computer code, as computer programs, or as software. Digital representation has become the principal way to illustrate business ideas in the digital economy. This is at least partly due to the possibility to protect digitally manifested business methods. The digital representation form operates even as the core of open networks. Accordingly, this makes *computer code the foundation* of the open networks; that is, the digital operational frame is constituted of computer code. In other words, it is precisely computer code that makes the operations functional. At the same time the code is used for constructing the central functional framework as the foundation of communication.

On the other hand, business methods are often embedded in computer code, at least in the digital environment. This is basically due to the need to *create some value for a business idea* by attempting to patent methods of doing business and, on the other hand, due to the fact that the traditional system of intellectual property rights that does not offer many options for protecting ideas in business. The value-creation and the communicational status of business ideas result in an obvious collusion, however. A business idea is used for trading profitably while, at the same time, constituting the main operational framework of the digital economy. Business ideas that are represented in digital form have thus become a fundamental part of the communicational framework, with this fundamental character affecting the whole communication structure implemented in the digital framework. In this way, the fundamental character of business ideas, when represented digitally, makes *communication bound to ideas* and their governance architecture.

Business ideas get *several interfaces with communication*. Basically, even business ideas themselves are communication. An idea is never born or lives on its own, but its wealth and brilliance is always a result of communication. In business communication is carried out *between the market and ideas*, and so it is with business ideas. Business ideas thus get their existence from the market in communicational interaction. On the other hand, there would

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347 Digital economy may be described from three viewpoints: first, there is a change in the rate of change of the needs of customers as a consequence of the digital economy; secondly, improvements in computing and communication technologies enable business to acquire deeper and broader use of knowledge; and finally, the character of competition by the developing technology may be redefined. Briefly, these elements may be described as the *pace of business activities* in digital economy, the essential role of informatization and the characteristic technologization. See Barabba 1998, 35 - 36.

be no ideas or innovation without smooth communication. Further, the communicativeness of a business idea ensures *the free circulation of information*, which is the core of overall communication. Allowing the free flow of information and keeping communication unrestricted has some further consequences. One of them is the evolving innovativeness that makes it possible to develop business ideas towards innovations. Innovativeness requires *free communication* due to the nature of information and ideas and their fundamental character in the digital economy. Business ideas actually communicate with improvements and accordingly steer development and innovativeness. In other words, communication is essential for inventions to reach a higher level of inventiveness. The acceptance of the market is always essential for inventions to become innovations.

Finally, business ideas make up part of society. As such business ideas are *solidifying factors*, even though they are fundamentally dynamic in character. Solidification thus does not require any statics. As such even business ideas may operate as a solidifying factor. This is carried out through innovativeness and the communicativeness bound to innovativeness. An idea is never the same but is always flexible and elastic. A business method patent, however, links ideas and innovativeness to the architectural construction of rights. This occurs through the communicativeness of a business method patent. A patent actually connects the right to use, i.e., the right to forbid third parties, and the right to access, i.e., the right to change the legal position or legal relationships. This applies to business ideas especially as they essentially include rights on both levels. The communicativeness of ideas becomes apparent also in the *changing balance of business ideas*.

In its traditional sense, business is commerce and is fundamentally based on transactions. This is true also in the digital economy but the digital economy is more than only transactions. The significance of transactions in the digital economy also affects the changing balance of operations. A change in the significance of transactions or in their essence is exactly due to the changing balance of operations. Even though it is commerce that makes money, the logics of the digital economy are constructed differently. The digital economy is based on operations being carried out through networking, which is precisely the most essential element. This challenges also communicativeness. At the same time it makes communication of ideas the most central way to *achieve functionality*. Communicating through business ideas, however, changes the way to see the scope of protection. First of all, a business idea *cannot be kept secret*, for secrecy actually closes communication. Secrecy closes communicativeness and this does not work in the digital economy. The main reason for this is the significance of the free flow of information as the basis of innovativeness. On the other hand, the business idea as a central means of communication, and the business method as its visible application, affects the *way a business method patent is viewed*. A patent is an effective way to govern rights but at the same time it has its disadvantages. A patent *closes ideas* although at the same time it may be used for *informing others* about the implications of ideas. Nevertheless, a patent is a means to control the use of information and as such governance through patents remains rather static. In the communicative and innovative

digital economy such strong and freezing governance easily closes even communicative networking.

3.4.1.3 The business idea as a connector

In business, a name is axiomatically employed as a connector. Usually a name is used also as a sign of identification of certain business and the products of certain producer.[348] A good example is trademarks and today also domain names. Identification here is not, however, not necessarily bound to mere goods or market actors as such but may even be carried out at the *level of the operational framework*. Identification at this level is based on innovativeness as the core of functionality and as such also as a central part of societal behavior. This is based on the rapid and fluent innovativeness of the digital economy. As the economy constitutes a central element of society, it is important to be able to *identify oneself even inside the economical structures*. This may be carried out through a name and its definitive expression but identification may also be carried out somewhat *more directly*. This is realized through the *capability to innovate*. This is a direct outcome of the scope of innovations as the basis of societal operations and it becomes extremely significant in the digital economy. By these means innovativeness closely resembles the domain character of the domain name as it determines how to define the position of an actor.

Innovation constitutes a domain character for the innovator. The domain character has some further consequences in the overall innovative framework. Business ideas may be used as *innovative units*. Each of them constitutes the elements of the overall framework. As innovative units, business ideas may be examined as connectors in that they connect ideas to the overall structure of digital economy. Further, when connected to the operational framework business ideas shape the very structure of the framework. In sum, business ideas, especially the ones that are structured digitally, are the main structural elements in constructing the digital economy and its functional framework.

Business ideas as connectors are, on the other hand, a means to *create identifications*. Identification in this sense is closely linked to the structure of the operational environment, i.e., the economy where business ideas are to be employed. Business ideas in a way shape the environment and it is rather essential to be able to take part in this construction task. In other words, to be part of the economy and communicate in it, it is essential to participate in its overall structure. In this way business ideas may easily be considered as both

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348 It is precisely distinguishability of a trademark that has its derivations in the origins of products. Distinguishability is often carried out through a name, with the name used as an indicator of the origin. Originality is closely bound to the ability to distinguish and identify goods in the market. The function of a name as an indicator of origin is employed exactly as a connector when there is a need to track products in order to be able to acquire the same one again. See Salmi et al. 2001, 6.

participation and identification. As such they ought to be considered as more than simply a way to make profits.

3.4.1.4 The empowered privilege of the business idea

The significance of ideas in the networking digital economy *appears at two levels*. At the one level, there is the static privileged character of ideas as protected and thus excluded property. In the digital economy this is precisely related to business ideas because of their essence. The focus of this level is on *statics*. Accordingly, at this level it is important to be able to define contextually the legal position of a right-holder. The position is now manifested in its static sense. On the other hand, defining the legal position in its static sense is crucial in order to be able to set certain limits on the right to use. This is the core of the static aspect when defining the content of the position as a combination of rights. However, mere statics is not enough for constituting the overall basis of rights governance architecture; there always exists a need for a certain degree of dynamics. On the other level, there are dynamics that are introduced by the right to access. Right to access is *closely linked to the external party's right to access* when a right-holder is able to directly affect the legal positions of other actors.[349] These parallel levels constitute the *scope of the networking of ideas*.

Further, these two levels are based on a clear but partly overlapping distinction that has to do with cooperation and communication. The static aspect is mainly based on a certain degree of inventiveness, whereas the dynamic is more or less based on innovativeness. For example, the utilization of certain information is based on the right-holder's patent, with he or she having a right to open the access of the public to it in order to increase innovativeness. Sometimes this information may even include ideas. The combination of these two levels is further employed as the core of a business idea; a business idea as a certain form of innovativeness includes both of these levels. The core of a business idea is constituted on the *coexistence of statics and dynamics* with this core becoming even deeper through this structure. The core is actually constituted of a static privilege to utilize the invention and a dynamic power to open access to it.

Depth is achieved by connecting these two levels. In this way they actually are not merely parallel but also in a *continuous communicational relationship*. This is in fact what the dynamics are based on. The communication between these two levels then makes the whole combination of rights dynamic, or at least functional as to its most fundamental character. In other words, both the static right to use and the dynamic right to open access need to coexist. This coexistence is then used in constructing the integrity of the contents of the

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349 This applies precisely to the differentiation of copyright into a set of rights. The set includes the author's right (composer's right when speaking about music) and accordingly performance rights and mechanical rights. See Vaidhyanathan 2001, 131.

legal position, which further constitute the combination of empowered privilege and the combination of the privileged power of ideas.

The combination of empowered privilege plus privileged power is first constructed from the static viewpoint. The proper functionality of the system of intellectual property rights requires that one define the sphere of those who are entitled to certain rights and those who are not. This is, again, carried out through excluding the external parties by creating the privilege for a right-holder as an included one. In other words, the privileged position actually includes a privilege to utilize the idea and it correlates with the external parties 'no-right to do this.[350] The right to use certain information as a privilege is actually the most central content when making use of a patented business method. At the same time, it may as well be defined as the scope of an invention as a static creation. This actually constitutes the core of the static aspect in the sense of the traditional position of the right-holder. Traditionally, content in its static sense would be complemented by the right to forbid third parties to behave in a certain way, i.e., to interfere with the right-holder's right to utilize his or her invention. This actually constitutes the core of statics as a protected legal position of a right-holder.

The overall content of the right-holder's legal position is, however, based on a combination of both privilege and power, exactly like the content of the corresponding position concerning names. The empowerment is increased in the privilege. Thus privilege as a patent for a business method is actually empowered by the market and networking when the overall business idea may be privileged through patenting a method. Networking is precisely the *social element* in the scope of a business idea. This is where there emerges a need for a new interpretation of legal status. Basically it seems that in the scope of the digital economy the traditional view remains fundamentally too static, exactly like the examination of domain names presented previously. In the scope of a business idea there likewise exists a crucial need for dynamics in this interpretation. The structure needs to be complemented with some degree of dynamics when the content of more dynamic business ideas is constructed of power to open access to the public in addition to privilege to use. The crucial need to combine these two positions - privilege and power - is again one of the essential consequences of the digital economy. In the context of the digital economy it is insufficient to interpret the content of legal position only through the static aspect. Statics are a necessary but no longer a sufficient building block in the overall structure. Namely, there ought to be some *reconciliation* of statics and dynamics in order to highlight the social aspect of business ideas. Dynamics and the social aspect are introduced by networking and reciprocal

350 For example, copyright is defined to be more than one right. It is in fact a set of rights that includes the exclusive right to make copies, authorize others to make copies, create derivative works, sell the work, or perform the work publicly. Copyright is actually *copyprivilege*. See Vaidhyanathan 2001, 20 - 21.

communication, with the dynamic element of content introduced by the power to open access.

Privilege is further complemented through empowerment, which is then further founded on public access to ideas. In this scope ideas are excluded from the public domain, for example, through patenting the application underlying an idea or keeping simply ideas secret. A right to open access to an idea adds some power to a legal position that is first described through privilege. Empowerment is here carried out precisely through opening the access to an idea in order to innovate and cooperate. The access to an idea as empowerment is based directly on the need for innovativeness and networking in the digital economy. In this context empowerment is carried out for several reasons. The first is directly connected to *innovativeness as networking*. Modern innovations can no longer (if they ever could!) be based on closed exploitation of merely the innovator's own ideas. Innovations need to be developed in social communication and, further, ought to become accepted by the market. Innovativeness is very much communication.

Communication in the area of innovations is carried out between the market and innovations but at the same time also in the whole operational networking environment. However, it is exactly this approval that gives invention some *special strength*. This is then the basis of the overall empowering force of patent. However, when protected through a patent the opened access to applied ideas is doubly strengthened. First, the strengthening is carried out by creating a privileged position by excluding the external parties through the patent. Second, it is carried out through market approval itself. By these means protection also becomes twofold, but the communication is carried out in two separate relations. The first of these is determining, taking the form of the right-holder's right to his or her invention, while the second is more functional, taking the form of innovativeness as networking. This structure is nonetheless the core of empowerment.

Parallel to this task there is, however, the *aspect of technical development* that always needs to be taken into consideration in the case of patents. This applies also to business method patents. Despite their essential social connections, business methods are usually patented as technological applications, thus connecting the patents closely to technological development. The privileging of this power is carried out through an excluded access, which actually makes the invention a part of overall technological development. Each business method patent thus becomes a part of the group of existing inventions. This constitutes the basis for why patenting these inventions creates a position of empowered privilege. In this way, both business and technology are linked together, which is the core of business methods.

A business method as an invention becomes a part of inventiveness and functional networking. This is also why an invention as a privilege of the right-holder is empowered by its engagement with continuous technological development. As a combination of two parallel and overlapping areas, a business method patent may practically be considered a *prototype of the empowerment of privilege*. A business method fundamentally contains all the crucial

elements of empowered privilege. First, privilege is created by patenting. Patenting implies exclusion of all the external parties from the utilization of an invention and accordingly implies a privilege for the right-holder to utilize the invention. This applies to patents in general; business methods, however, constitute a special category because of their close connection to the market and the economy. This engagement is complemented by empowering this privilege, which is carried out through the acceptance of market.

3.4.1.5 The privileged power of the business idea

A business method constitutes one of the core elements of the digital economy, especially when examined in a slightly larger sense as a business idea. Even at the structural level, business ideas include both privilege and power. They also operate as the foundation of privileging power. Further, the concept of privileged power itself is actually carried out by concentrating on the very same aspects as in the concept of empowered privilege. The combination of power and privilege is then constructed equally in both of the cases, i.e., that of privileged power and of empowered privilege. It is only the prescriptive approach taken in interpretation that is to be changed. Thus, the empowerment of privilege and privileging of power are basically interconnected counterforces in the sense that they are similarly created, only from opposite standpoints.

First of all, power is privileged through granting the right-holder *exclusive access to an invention*. Exclusivity of access to and utilization of an invention operates as a powerful position in an innovative framework, with the privileging of this position imparting some strength into this combination. Empowerment is carried out precisely through the *mutual communication* and *internal functionality* of the patented business method and the market as an operational frame. Market acceptance gives the business method patent such a vitality that the whole patent is strengthened, i.e., empowered through it. Usually this kind of strong market acceptance grants the right-holder a controlling position in the market, especially when market acceptance is aimed at a protected and, for this reason, excludable object. In this way a possibility to reach a controlling position in the market creates a powerful position for the business method. This is also why market acceptance creates empowerment for a patent, with a patent defined as a privilege.

On the other hand, empowered privilege is linked to an exclusive position that is further empowered by market acceptance. In this sense market acceptance is reached in the course of time. The better and more powerful a business method is, or the better it becomes in the market, the more it gets value that is increased for the company. This actually means that the *controlling position in the market is privileged through patenting* a business method. For business methods this kind of privileging is likely because of their significance in the market. Business methods are exploited directly in the market, their being precisely designed for market purposes only. Moreover, a successful business method increases its value and

strength. A good example is the lock-in effect, which is precisely a means of getting and exploiting one's controlling force in the market.[351] On the other hand, market operations are constituted basically of market-accepted business methods. Thereby, any business method patent becomes rather promising in the market, even if not yet accepted by the market.

3.4.2 Exclusion as an essential part of the business idea

A business method patent is constituted on excludability, with the core of a protectable business method as the core of an idea being defined through its entitlement to the right-holder's right to utilize the invention and access to it. The core is defined through a patent as the main protection instrument of business methods. This, however, requires that a business method needs to be expressed and manifested clearly in order to exclude others from the utilization of the method or in order to include someone in it. This constitutes the static aspect of the content of the legal position. At the same time, this exclusion creates a privilege for the included one, i.e., the right-holder. On the other hand, the privilege contains exclusion from ideas in the sense of being able to forbid external parties to interfere in using the right-holder's privilege. Accordingly, each of the external parties has a no-right to interfere in the use-right of a right-holder. A business method may be utilized only by the right-holder.

In this way, exclusion delimits the privilege in its static sense. On the other hand, the privilege associated with a business method is created through patenting. Patenting may be considered a means to constitute a sustainable exclusive right to a business method. At the same time, exclusivity sets limits on a business method as an invention. These are exactly the boundaries that are needed for creating the exclusive position. In this way, boundaries define a privilege as a right to utilize the information included in a business method. This is basically how the content of the position of a right-holder for a business method is constituted in its static sense.

Exclusion is static. This is mainly due to its strict boundaries, which are basically nevertheless structured communicatively. Communication is carried out as *related to society in the form of existing inventions*. This is a direct implication of a business method as an invention and the requirement that it be useful, novel, inventive, and properly disclosed when a patent is granted. These prerequisites are clear but at the same time they are static. Statics are then further implied in the overall system of intellectual property rights, in this case through patent. Communicativeness is derived from the sphere of existing technological development,

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351 The lock-in effect means that the market becomes locked in and concentrated on one product only. The stability of a dominating standard with a strong lock-in effect is clearly manifested in the character of standards overall. The one dominating the standardization market gains an eminent opportunity to control the overall competition in the technological development and at the same time affect its direction. See Shurmer 1996, 50 - 51.

meaning that the basis is constituted of existing patented inventions. This is exactly why the exclusion is rather static and its boundaries are *not very flexible*. In this respect the existing mass of inventions as the basis of technological development implies the statics of inventiveness. In this sense, it is precisely inventiveness that constitutes the kernel of exclusion in its static sense. At the same time, the static exclusivity in business methods for its part makes up the static part of the rights governance architecture. Thus the boundaries of exclusion are drawn through the communicative relationship of an invention and its framework. In this respect inventiveness, even in its static sense, is fundamentally *no more than communication*.

The scope of exclusivity, on the other hand, is defined from the viewpoint of drawing those boundaries. The exclusivity of patented business methods is precisely *legal exclusivity*. There do not exist any features that would *naturally exclude ideas from common use* and the boundaries ought to be defined through law. This is also why these boundaries are artificial and exclusion, i.e., the right to utilize an invention, is likewise clarified artificially. The demarcation is carried out against the sphere of commons. Here, exclusivity from ideas for making business may be examined also from the viewpoint of how *crucial the information* is from which the external parties are to be excluded. This is based on the view that there simply exist some resources upon which many people depend. Inventing new technology is not enough: there always exists a need for a "killer" application that actually inspires people to *learn how to use* the new development. Business methods are described as one such inventions.[352] This again illustrates the social aspect of business ideas. Information that is excluded by patenting a business method actually seems to be rather essential when it is used to construct "killer" applications. Such business methods are used precisely for *inspiring new technological development*.

3.4.3 The relative governance of rights in business ideas

The rights governance architecture would remain static if founded on exclusivity as its only element. The static exclusive element of the rights governance architecture ultimately needs to be complemented through a dynamic view. This is best illustrated by going on in the examination of the rights governance architecture of the *most essential societal resources*. At the same time the balance of the overall rights governance architecture moves to a somewhat more abstract and more dynamic level. Governance is thus aimed at governing abstract objects. On the other hand, when those abstract objects, or even rights, come to be governed, access to socially crucial resources may give rise to some problems. These are handled by

352 In other words, this is based on giving opportunities to people exploit their knowledge in order to increase social wealth. These opportunities are given to those who have already learned to use the new technology. See Dreyfuss 2000, 265.

adding to the resource-dependent relationship a formal and legally constituted person-dependent relationship. An example will shed some light on this: A farmer, in order to plant crops, is dependent upon having seeds to plant. This is called an object-dependent relationship, because of the crucial nature of the object. If these seeds are now the subject of a patent, the farmer is dependent upon the permission of the owner of the abstract object for access to those seeds. A person-dependent relationship has been added to the object-oriented relationship.[353] This would easily be considered a business method.

The close interconnection of object and subject in the core of rights governance is actually the reason why there exists a need to examine both the static and dynamic aspects; i.e., there is a need to define the dynamic aspect parallel to the static aspect of rights. The core of this examination lies in the person-dependent relationship as described above. It is precisely in the empowerment of a static excludable object-dependent position that the need arises for relative rights governance in the rights governance architecture. This is in fact the scope of the dynamics that have been added. Therefore, as statics are needed for defining the sphere of excluded and included, *dynamics are necessary for defining the rights carried out in mutual networking*. Networking is a rather direct consequence of the person-dependent construction of artificial resources. Several rights may be involved in networking; it is in fact possible that there may exist several competing rights.

The main difference between statics and dynamics in constructing the rights governance architecture may be found directly in the character of both aspects. Static exclusion of rights is carried out for an invention, as an invention is characteristically static. The statics are exactly *definitive statics*, which are suitable in this delineation. When defining the boundaries whether something constitutes an invention or not, there is not yet very much need to examine the rights in their later interaction. This is exactly the focus of the difference between statics and dynamics. On the other hand, dynamics need to be defined slightly differently given that dynamics are generally used for combining inventiveness and innovativeness, i.e., combining the static aspect and the dynamic aspect. In this context it is then precisely innovativeness that connects the business method and dynamics in the overall rights governance architecture.

The dynamic element is further brought in precisely by the empowerment of privilege. For business methods this is generally carried out through market acceptance. Market acceptance actually closely connects the crucial role of "killer" applications in technological development in employing the crucial information in its social context and the person-dependent relation of those socially crucial resources. Both the importance of "killer" applications and the person-dependence of intellectual property rights increase the power of inventions, which constitute their own background. Those "killer "applications are based on excluded privilege as the core of invention, as object-dependence is based on excluded privilege. Here, the object-oriented view of relationships illustrates statics even more clearly

353 See Drahos 1996, 159.

when the object constitutes the core of the whole construction. The relative connection to the market in fact changes the privileged position directly into empowered privilege.

In addition to market acceptance innovativeness requires rights governance. Inventiveness is carried out through the static element and it is founded on the requirements of usefulness, novelty, and inventiveness. These prerequisites are essential in order to define the business method patent as a privilege. Innovativeness itself may, however, be carried out only when there are several parties involved. Innovativeness is like an ongoing process or a continuous procedure, which consists of cooperating actors. This kind of process is rather complicated to fit into the traditional systematics of intellectual property rights. The process is constituted of communication, which is basically carried out between technological development and (co)operating innovators. Strict adherence to traditions would freeze up the system. A good example of dynamic functions shrinking back towards static ones is the system of digital rights management. From the viewpoint of intellectual dynamics the main aim of the traditional systems of digital rights management is to make the online world more like the offline.[354] This actually means that nearly all business models exploiting digital rights management systems are somehow based on or located somewhere in the supply management chain, where there still exists some commodified information.[355] This is why the paid download models are not a revolutionary reform for business; they are totally fixed to statics.[356] It is only the form in which the content is downloaded that has really changed. The business framework as such has remained unchanged, and it seems that there is no need to remove the traditional business pattern from the framework.

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354 This probably is because of the old-fashioned business life, which still requires that things be physical. Therefore, information needs to be commodified and made more "thing-like". See Rosenblatt - Trippe - Mooney 2002, 19.

355 The basic purchase of goods on open networks, however, occurs exactly in the most traditional way. One goes to the Web site, fills in some information, gives one's credit card number, and gets a file that contains some content in encrypted form. One then downloads a client application that decrypts the content and plays or shows it, or passes it to another application to do this. Traditional trade is based on this kind of activity on the network as well as in the physical world. This is based on encryption technology, and it provides scrambling of information. This is called cryptographic key management system and protection is carried on in such a way that it can be decoded only by authorized users. Decoding can be done only by using a certain key or code The encryption technology ensures that some digital transactions are secure. See Samuels 2000, 112.

356 One and the most original of these business models is paid download. Paid download is the closest equivalent of selling and purchasing physical goods because of the simple model of buying, selling, and then getting what one has bought. This system is simple, and it is mainly based on digital rights management. See Rosenblatt - Trippe - Mooney 2002, 20.

3.5 Venture governance as functional governance relations

Venture capital is based on pure communication. Communication inside venture capital is *carried out through money and capital*. Capital is the most essential structural kernel of venture capital. Capital constitutes the central accumulating element, to which all the structural parts of the overall venture are then linked. In order to remain functional, this core requires unrestricted communication inside it. On the other hand, capital is squarely based on money and the relativeness of capital is directly affected by money. Accordingly, communicativeness as the kernel of venture capital constitutes the foundation for its further examination. This is in fact the definitive element that makes venture capital in a structural sense partly static and partly dynamic.

The coexistence of statics and dynamics requires communication in order to be functional enough. It is precisely the interplay of statics and dynamics that constitutes one of the most foundational communicative consequences in venture capital. Statics are implied through a certain part of the structure of the venture. This structure is constituted of some elements of capital that have been described as its privileged elements. These privileged elements further constitute the content of the legal position of a right-holder in its static sense. In what follows, the constitution of this legal position is actually used as to posit capital as the element linking statics and dynamics.

3.5.1 The content of venture capital as a combination of rights

3.5.1.1 Functional capital

The functionality of capital is clearly manifested in its *ability to constitute relationships*. In this sense capital is generally considered rather strong, with this strength basically founded on communication. This is the very core of the functionality of capital. The communication here is, however, rather relative: it is *constituted always differently depending on the parties participating in it*.[357] The communicative pattern is constructed relatively, which actually corresponds closely to communication being the kernel of capital. The structure here is as highly dependent on the overall design of the cluster of relevant relationships. On the

[357] In this way money is constituted significantly by social relations and it cannot be fully understood outside them. Therefore, money could be best understood as credit money, which is actually fundamentally a social relation or a network of social relations. Money is a tool of this governance structure, with the actual frame constituted on a legal basis. In the market, money is utilized as an asset which is also one basis for the overall governance. See Ingham 1999, 23.

other hand, this cluster constitutes the communicative part of the overall construction, where functionality is employed somehow differently depending on the purpose of different relationships and on their significance in the overall governance architecture.

The capital involved is either real tangible capital, such as physical assets, or intellectual capital. This is exactly where money enters the picture. Namely, these different classes of capital are rather incommensurable unless translated into the language of money. Money is an essential tool for *interrelating the diverse elements and relationships of capital* as the kernel of functionality. In this task money is actually made to imitate this overall functionality. This then affects relationships that are based directly on money. Those relations are often described as two-party relationships. As such they are likewise defined as two-way relations, with this two-way character making the functionality rather determined. Functionality is namely fixed to the mutual connection of the two cooperating and communicating parties. In a two-way relationship money is defined as a sort of *contextual feature of this connective relationship*. In other words, there would be no relationships without money, which is employed in these two-way relations in the form of credit. Money actually has two tasks when it operates as the core of functional capital: it *communicates social relations* and *operates as an intermediary* between them.

Money is used as a commensurable measurement of the amount and the value of capital.[358] This twofold communicativeness of money is rather manifest in the networking relationship, where there exist several cooperating actors. An illustrative example is venture capital and the governance architectures of venture capital relationships. Such relationships are even more complicated than simple two-party relationships. The task of money is to define the mutual relations of the actors and their relative values. This is precisely the basis of the rights governance architecture of money: this basis has to be founded on economic commensurability. Economic commensurability seems to be the basis of the overall rights governance architecture in that it is founded precisely on money. In this respect money has, however, again a dual meaning. It is both *an asset and a position*. Money operates namely as an illustration of economic value while it is precisely economic value that constitutes the significance of money as an asset. On the other hand, the ability to constitute and govern relationships is a manifestation of the capacity of money to constitute positions. These two indicators are closely and solidly bound together in the essence of money.

The functionality of capital is constructed on the cooperation of the static function of money as an object and the dynamic function of money as a position. These two functions are carried out in parallel and their realization is at least partly *mutually interdependent*. In other

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358 Commensurability is the foundation of materialized exchange. See Kennedy 1999, 199. Commensurability is well manifested in several dimensions of electronic money, i.e., *e-currency*. Currency operates as a universal medium of exchange in that money makes it possible for people to enter into global transactions. Further, it operates as a unit of account by enabling buyers and sellers to understand the worth of goods, and finally, as a store of value when competition drives unstable products out of markets. See Macintosh 1999, 3.

words, the value that is given to the capital may be any value whatsoever, but the capital as such is always a part of the rights governance architecture of cooperating relationships. The *object-orientation* becomes a crucial part of those governed relations. Concurrently, the position that is constituted through money may be defined differently depending on the operating parties and their mutual relationships, but the capital has always some value that has to be further defined through money. Here, the position-orientation, for its part, is implied directly in the governance architecture. This dualistic task of money also constitutes the functionality of money and is precisely carried out by the combination of the static and dynamic dimensions of capital.

Moreover, money characteristically includes a *hazardous dimension*, with this hazardousness of money as a venture illustrating communicativeness as well. Money as a venture is the factor that applies precisely to the functional dimension of capital. This is basically because of the necessary uncertainty and hazardousness involved in a venture. Capital as a venture includes several different acting patterns as the basis of getting rewarded. These patterns are further described either as *risks* or as *opportunities* as they are bound directly to the very essence of a venture. In other words, a venture gets its most central content as the *unity of different acting patterns* and operative possibilities. In this context relationships constitute the core of functionality.

3.5.1.2 Structural capital

Concurrently with its functional dimension money has also some other significant tasks, one important one being bound to the structural dimension of capital. The structural dimension of capital is precisely based on money, exactly like the functionality of money. Here, the functional dimension is complemented by the structural one. On the other hand, the structural element differs slightly from the functional one. The variation is manifested mainly in their application. The most essential function of the structural element of money lies in its *constructive potential*.[359] Money is thus used, for example, as an intermediating instrument for vested investments. Investments are vested and, by these means, embedded, into innovations. Innovations often may even govern money flows, whereby money at the same time operates as a governing instrument for innovations.

Money operates as a constructive instrument and as such it is used for governing rights and responsibilities. In this way money constitutes the basis of the rights governance architecture. It is exactly here where the divergence of the functionality of money is

[359] Money is foundational for rights governance established on a legal basis. Money is juridified and the significance and purpose of money is changed and differentiated into certain relationships. Token money is often identified through the legal tender laws that determine what must be accepted as means of payment. See Wray 1999, 51.

illustrated. The starting point for both is nevertheless the foundational network of relationships, but where the structural pattern is based on adaptation of both static and dynamic elements at the same time, the functional one is more likely associated with dynamics.

However, capital has some *conflicting elements* here, compared to ideas, or names. Both a name and an idea may be protected through intellectual property rights - a name through trademark, an expression of an idea in the form of invention through a patent. Accordingly, they get protection that is directly based on the privilege and right of the right-holder to exclude external parties from his or her utilization of a right. In this way an idea and name both rather closely approach the traditional sphere of intellectual property rights. This is precisely where capital is very different. There is no way to construct any protected privileged position with regard to capital that is similar to the traditional privileged position that can be constructed on intellectual property rights. In the case of money these positions are thus more likely to be focused on governing investments vested in innovations. This is precisely where the structural examination of capital needs to be focused. The first task is to construct the core area of rights by defining privilege within it.

The privileged position of a right-holder is derived directly from money as the core object of capital. Money that is committed to venture capital is usually used in an operative network; networking for its part constituting the most usual operative form of venture capital. On the other hand, in an operative network the privileged position is for this reason essentially based on money. This means that money is the definitive element in these relationships and especially in constituting the privilege of the right-holder. Functionally, this totally equalizes the two-party credit relationship as a prototype of legal relationships. The owner of money thus has a privileged position in venture capital in its structural sense.

3.5.1.3 Identificational capital

In addition to functional and structural dimensions, money has at least one more important task. Money is also used as a tool for *identifying the actors* who are participating in networking. In this sense venture capital is paradigmatic as a construction of several different cooperating actors. The identifying task of capital is slightly different from both its functional and structural ones. As an identification tool capital namely *defines precisely the roles of different actors*.[360] This is integral especially in venture capital, where the whole structure of capital is built on a mutually collaborating network. Further, those roles are the basis of constructing

[360] Money is thus constituted by social relations and it cannot be fully understood outside them. Society is founded on the modern monetary system. Money is best understood as credit money, which is fundamentally a social relation or a network of social relations. See Ingham 1999, 23.

any privileged positions with regard to capital. In these cases the investor receives the privilege on the grounds of his or her investment. Privilege is, in other words, based directly on the position of the investor. On the other hand, such a position is directly derived from the amount of his or her investment. This is also why his or her privilege is derived directly from money as an identifier.

The identificational function of money is manifested also in another way. Venture capital is founded on the *operative abilities* of cooperating parties. In other words, the capability to participate in operations and the ability to influence them constitutes actually another viewpoint on the identificational function of money. This is most clearly illustrated in the ability of venture capital actors to acquire essential business information and employ it. In the risky network of venture capital, access to business information is a rather important feature of privilege. On the other hand, here it is again precisely money, exploited through the investment, that opens up this access and forms the basis of the privilege. The risky nature of venture capital also requires a clear definition of privileges and identification of actors operating under those privileges. The hazardousness of venture capital is one important factor when constituting the rights governance architecture through money. In this architecture the identification of actors is indeed one of the most essential elements. Identification like this is then further carried out through money as an intermediary instrument, granting the investors privileged positions through their investments. This is also the main feature that is used in identifying their positions.

3.5.1.4 The empowered privilege in capital

The core of the legal position of a right-holder is based on his or her privilege and the correlating no-right of a duty-bearer. This constitutes the static kernel of the right-holder's legal position from the viewpoint of venture capital. The privileged position is thus created in venture capital on at least three different grounds. One of them is the *essence of money*, with money used as an *intermediating tool* in the venture capital structure. The essence of money has a close connection to the essence of investment in venture capital. Investment creates a strong operative position for the investor. Money is precisely the factor that creates a privileged position for the investor. In this sense the investor acts as the owner of this invested money and accordingly gets a privileged position through his or her monetary investment.

The privileged position of a right-holder is founded on the significance of information. This position is precisely based on the privileged position as a *right to access*. On the other hand, privilege as access is based precisely on the *essential nature of information* in those relationships. Access to information creates a strong privilege for those with access. They get access to required information and at the same time get a strong position because of that. Access to information does not, however, as such yet impart any empowered

functionality to the information itself. Access is still only access without any precise dynamic power in it. It is further basically the *employment of privilege and access together* that makes up the empowerment of this privileged position.

The third of the fundamental grounds of privileged position in venture capital is *networking*. In fact, networking is partly connected to both access to information and money as an investment. Both constitute, each for its part, the privileged position in venture capital. Further, both privileged positions - access to information and money as investment - constitute in part the network structure and the operative positions inside it. Networking may basically be considered as a *prototype of a rights governance architecture*. This is precisely due to its communicative character and the significance of social relations in it. By these means communication within networking as a whole is basically founded on rights governance. Moreover, networking as the overall communicative construction is still an effective instrument to bring some power to the privileged position.

These arguments are all closely bound to investment, which through money constitutes a privilege for the investor. This privilege is basically constituted similarly to the credit relationship, which implies considerable statics in the position. The legal position of a right-holder in the credit relationship thus becomes generally rather static. Nevertheless, the simple credit relationship between a debtor and creditor may well be considered as the prototype of legal relationships when those are based on money. Accordingly the credit relationship may be defined as an exemplar of the privileged position of the right-holder in financial relations. The credit relationship is useful in another sense as well. Namely, the two-party credit relationship as the basic financial relationship *places capital in the center* of the privileged position. Actually, it is precisely the private and static character of this relationship that creates the privilege for the right-holder. At the same time the position of the right-holder is defined as a privileged one. This is indeed why the relationships that are based on capital or money are often primarily examined and defined exactly through the statics of the basic relationship.

On the other hand, *statics are not unfavorable* for the rights governance architecture where money is concerned. The statics of the basic credit relationship provide the venture governance with some *constancy*. This is clearly manifested in the impending realization of a credit relationship, that is, if there occur some problems in paying back the loan and enforcement is needed. This constancy of the credit relationship appears in the arrangements for the impending realization, which may be termed a sort of *risk governance*. Money in the sense of an obligation of the debtor to the creditor is employed here exactly as a tool of governance. Nevertheless, the statics of this relationship make the governance structure static as well. On the other hand, we may examine the illustration of rights governance as governing risks. This is the *reverse side of the kernel of rights governance* in venture capital. However, the statics of risk governance in the credit relationship are manifested in another way through the amount of risk and the allocation of it. In the static basic credit relationship there is no way to allocate either the amount of obligation or the bearer of the risk of failure.

It is always the debtor who has to bear the risk of failure and this is naturally a rather heavy burden for a small start-up enterprise.

The Hohfeldian pattern is clear in the credit relationship, which as such is constituted of the correlating privilege of a right-holder and no-right of an external party. In a simple two-party relationship the correlative relationship of privilege and no-right is rather clear. This also applies to relationships in venture capital, where it is the monetary investment that creates the privilege for an investor. Venture capital is, however, rather more dynamic. For this reason venture capital emphasizes even more the privileged position of only one actor, i.e., the investor. On the other hand, the significance of the privileged position of the investor is further mainly manifested in the cooperativeness of venture capital. Further, this is exactly where the empowerment of privilege is carried out. Empowered privilege is based on the elements introduced above and it is mainly created through the *position that the investor gets when he or she receives the power of decision* in the financed company. This is true especially in the case of venture capitalists, who aim at maximal profits; i.e., they invest for maximal profit and aim to exit right when the maximal profit is reached. Therefore, the decision-making power, as well as the privilege that is to be empowered, is more focused on governing and increasing the forthcoming profit.

On the other hand, capital venture may be examined from the viewpoint of *risk management*, exactly like risk governance in the credit relationship. Risk management is actually the other of the main indicators of a capital venture, together with profit for exit. It is true that risks in capital venture are based partly on the expected profit, but they are also based on *powdering the hazards* of cooperating parties. The risks are borne by a larger number of operating parties, whereby the amount of risk often remains lower. On the other hand, the realization of a risk is not such a big calamity for the debtor. The most threatening risk a small early-stage enterprise is naturally that it will not be viable. From the viewpoint of an investor this means that he or she might lose his or her investment. Basically, however, risk management is just like risk governance. This is due to the mutual relation of risk and the actors in a venture capital arrangement. In this classification risk is more likely to be connected to the possible profit or damage and risk management gets its definition from the situation itself. Risk management is based precisely on the risk and its management, whereas risk governance is somewhat opposite to this. It is likely based on governing relations of people and the functional coexistence of the relations among them. Risk governance is more relationship-oriented and it is also characteristically more functional.

The functionality of risk governance places some demands on the overall system. Most of all, the governance structure requires *some concretization*. This may be realized in the form of money and by means of creating empowered privilege on the basis of governance. Money, once again, is a useful feature for concretizing a risk and communicating it to others. This again illustrates the commensurability of money, which makes possible its use as the basis of right governance. The governed relationships need to be defined through the positions that they constitute in the overall functionality. This is then exactly again the place

where privilege as position and money as a concretizing feature are brought together. On the other hand, the significance of money as risk governance is clearly manifested in the market. The market is clearly based on money, with the social relationships in the market based on exchange and trading possibilities.[361] The commensurability of money also gets its manifestation here. The significance of money is closely linked to the value of goods, with the value further employed as the societal task of a good. Therefore, when goods are exchanged they fulfill at the same time their societal task and ensure societal communication. This is the most fundamental reason to base the rights governance architecture on objects: the rights governance architecture is based on exchange and on the value of a thing as a constructive instrument of governance. In this respect exchange operates as a parallel instrument to rights governance. Risk governance is realized at the same time as exchange and is at least partly bound to exchange and the value of things. Risk governance thus follows the possession of a thing, with the one having possession often also bearing the risk.

3.5.1.5 The privileged power in capital

Money is communication. When speaking about capital, it is precisely money that constitutes the foundation of communication. Money operates as the fundamental factor in constituting the overall communicative structure of capital ventures. This is carried out through the *communicativeness of money as such*. Capital, being founded on money, is already functional and it gets its entire content from different relationships and their coexistence. It is basically money that gives capital its functionality. On the other hand, the *power of money* derives directly from its functionality. The very ability to communicate is power, especially in the networking framework. Money may as such be used as a communicational tool and the one who has the *control of money in a certain operational framework* also has the power to control the use of that money, for example, in the form of innovations as vested investments. Through this power he or she further gets the power to control and direct all the other operations that are to be carried out by the controller. Innovativeness is often carried out through this. As such money takes on a significant role as a controlling device. This also applies even to venture capital.

Rights governance, as well as risk governance in venture capital, are both based on the privileged position of the right-holder that is created through money. An investor invests in an enterprise and its potential success. The investment is carried out in the form of money, but at the same time money creates a privilege for the investor. This privilege then creates

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361 Money has a certain market-oriented task. Money is utilized as a communicative tool and it is further founded on the rise of the monetary market. Money itself becomes a commodity that is to be used and exchanged in the financial market. See Tolonen, H. 1992, 245.

the power for the investor to influence the executive decisions inside the enterprise, given that the investments are vested in its crucial operations. Money is here employed as a connecting factor between the privilege and the investor. On the other hand, the *bond of privilege and investor* operates as the foundation of the privileged power of money. For this purpose the privilege that is created through money is simply strengthened through empowering that position.

This requires that privilege and power be overtly connected. On the other hand, empowerment is carried out by the competence of the investor which is still a privileged position. The competence is, again, linked to the power of the right-holder, i.e., the investor, to make decisions regarding the business operations. Further, money as the manifestation of privilege in these operations converts the whole position into an empowered one. This is the core of privileged power. Thus privileged power is fundamentally based on the *active role of the investor*. The activity derives directly from the role of the investor as a shareholder rather than as a mere actor granting an ordinary loan. The role as a shareholder converts the passive and static role of the financier into an active role as a part of the executive body of the enterprise. On the other hand, the role of an investor is a privilege based on the investment, and the activity of the shareholder is definitively described as privileged power.

3.5.2 Exclusivity as the demarcation of venture capital

The content of the legal position of a right-holder may not be considered complete without any real right to exclude third parties. Exclusion basically operates as a complementary element of the static aspect of money and it is fundamentally constituted as the privileged position of a right-holder. The right to exclude constitutes the complementary element to the right-holder's privilege to utilize the object. In the terms of the Hohfeldian conceptual frame the right-holder's privilege to use correlates with the external party's no-right to use and accordingly the right-holder's right to forbid correlates with the external party's duty to not interfere in the use. The special character of venture capital is clearly manifested in the exclusivity of the privileged position of investor.

Here, contrary to exclusive rights generally, the rights of venture capital are *particularly restricted exclusive rights*. In other words, exclusivity does not mean a ceaseless or unchangeable right but only a limited one. Limitations are imposed through both the time to use and the way to use. In all cases both include the exclusivity of venture capital inside the boundaries of the static aspect. On the other hand, exclusivity that is restricted to a certain limited time period sets the position of the venture capitalist inside a defined future duration. The

financing that is carried out in the form of venture capital is always defined in duration.[362] On the other hand the defined duration is a means to introduce exclusivity by limiting the time period. In other words, a *time limitation defines the extent of exclusion*. Basically this applies clearly to the exclusion of those who are entitled to utilize the right. The difference is introduced by constituting exclusivity in a slightly varied way. Exclusion is carried out in a rather more functional way than by defining it only through different personal relationships.

Further, the restricted liquidity of private equities is the manifestation of exclusion in the relations of those who are bound to the venture capital enterprise. This is clearly carried out in the form of a *restriction of transferability* of the equities. In other words, the exclusion is based directly on the equities themselves and the exclusivity becomes defined as the attributes of those equities. On the other hand, the investor is bound to the enterprise by the exclusive nature of private equities.

3.5.3 The relative governance of rights in venture capital

Venture capital operates in a characteristically functional way. Functionality is basically due to two overlapping elements, which function mutually constructive parts of the venture capital structure overall. *Networking* brings functionality to the operations of venture capital and functionality itself is at the same time increased by these means. On the other hand, the *significance of information* sets some prerequisites for functionality. Information needs to be accessible to everyone in the correct form. Thus, networking as the core of operativeness and the essential nature of information both imply some further prerequisites for carrying out rights governance. The third element of functionality here is the nature of innovativeness. Innovations are thus based on vested investments and in this way closely bound to money.

These prerequisites are precisely the ones aimed at the *relative collaboration of rights* in cooperative relationships. Rights governance in its relative sense is fixed to prerequisites set directly for information and cooperation. These prerequisites then link networking closely to venture capital and information itself as one of the essential elements of it. The core of relative rights governance is based on communication. In this respect the rights governance architecture as a relative construction is based on collaboration and cooperation. The problem in venture capital is that there are several colliding or competing rights and in fact no means to exclude anyone. Rights governance therefore has to be constituted on real collaboration and the coexistence of cooperative relations. In this way networking becomes part of the core of the rights governance architecture.

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362 On the other hand, the financial structure of venture capital is often based on so called *exit strategies* where the arrangements are founded through contracts that allow an investor to exit when he or she has the strongest power in a company. See Lauriala 2001, 59.

Venture capital is characteristically founded on networking and is therefore founded on a coexistent consortium of several operators. On the other hand, the operative force of these actors has to be reconciled. In other words, the networking structure cannot be operated as an unbalanced process; *proper governability* is crucial for its functionality. The rights of an investor and the rights of the other stakeholders have to be taken into consideration. Networking can only be carried out by restricting the power of the deciding party through the corresponding immunity of the other actors. This is exactly where the balancing of cooperating relationships is to be realized. On the other hand, rights governance in this sense is closely fixed to risk governance; these two forms of governance are rather similar. Risk governance illustrates even more clearly the immunity position of some cooperating actors. On the other hand, rights governance is precisely the connecting factor between networking and information as the core of venture capital. In this respect, networking is basically carried out on the basis of business information. Information must be governed effectively.

Information governance is characteristically relative as well. This is basically due to the nature of information itself, which is relative. Information is possessed relatively and some actors may possess more information than the others. In this sense information is *not free* but rather a means to use power: information always tends to remain asymmetric.[363] Thus, information asymmetry is rather usual or even a general and typical element of a the decision-making process in cooperative networking processes.[364] Information governance is in fact rather parallel to the rights governance of cooperating network relationships. In this sense, information also makes up the overall kernel of venture capital as a relative process of rights governance.

On the other hand, with information governance constituting the core of the whole rights governance architecture, the governance as a relative construction is generally *founded on communication*. It is thus precisely communication that is to be governed. Further, both networking and the informational background of networking are both closely related to communication. Networking is even realized as communication and information may be processed to become more and more symmetric through the proper interrelated communication of the cooperating parties. By these means governing communication is a kind of *second degree governance* and it operates as the basis of governing both constructive elements, networking and information.

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363 Asymmetric information means that one party has more information than the other, but does not want to reveal it. This accordingly lowers the advantage of the other party, for he or she might not even have entered the contract knowing all the facts. See Lauriala 2001, 60.

364 See Lauriala 2001, 66.

3.6 Summary

The purpose of this chapter was to outline the rights governance architecture as based on the Hohfeldian conceptual frame. The main observation was the drastic change in the balance of statics and dynamics as the constructive elements of the cooperative processes of the digital economy. It seems that it is precisely the digital economy that has had the most greatest influence on the rebalancing of statics and dynamics. The traditional legal relationships are static and as such they are fundamentally based on the right-holder's privilege to utilize his or her right and forbid the external parties to interfere in that utilization. Correspondingly those external parties have a no-right to use this right and they have a duty not to interfere in another right-holder's right to use. In the scope of the digital economy this static structure seems to remain too static, however. This is basically due to the cooperation of certain privileges and powers, these privileges and powers existing even inside the same legal position. In other words, privilege is no longer only a feature of the mere right to use. Use is more and more defined as dynamic utilization, such as a participation right or active communication.

Through its development the digital economy affects the mutual existence of statics and dynamics, whose core elements are privilege and power. Privilege alone is too static to illustrate the utilization right as it is used in the operations of the digital economy. On the other hand, power no longer entails only the competence to transfer rights. This is basically due to the dynamic character of digital operations. They are based on both the right-holder's privilege to utilize his or her rights and correspondingly his or her right to affect the legal position of the other actors participating in the operations. This is exactly where the most paradigmatic economic change is to be carried out. This is also precisely where the empowerment of privilege, as well as the privileging of power, is to be realized.

Empowerment of privilege is best described as increasing the strength of the privileged position. Empowerment affects privilege directly by increasing its internal power. The privileging of power takes place accordingly, although it is only carried out from the viewpoint of power. The position of a right-holder is again strong as it includes the power or competence to affect the legal position of others. This empowered position is then further strengthened through its privileging. The empowerment of privilege and the privileging of power in this sense are precisely due to the digital economy and its operations as dynamic processes rather than point-like objects of protection. The operations are significantly dynamic but the dynamics do not derive only from the right-holder's right to transfer those rights. They are dynamics rather in the sense of being entitled to affect the positions of all the other actors in these operations.

The empowerment of privilege and privileging of power are extremely well manifested in some central operations of the digital economy, such as domain names, business ideas or venture capital. Each of these operations is based on both privilege as the core of statics and dynamics as the manifestation of power. On the other hand, all of these operations may further be considered the core elements of the operative digital economy as they constitute some of its most crucial foundations. This is indeed why the developing digital economy affects those operations. Domain names, business ideas and venture capital operate to a significant extent dynamically, with the rise of the digital economy strengthening the dynamics of those operations. On the other hand, all of these operations additionally include a privileged aspect as this part is protected in one way or another. This is further precisely where the privileging of power or empowerment of privilege have their impact.

CHAPTER FOUR. SUMMARY. CONCLUDING REMARKS

1 BUSINESS IDEAS AS COMMUNICATION

Business ideas are communication. A business idea is founded on innovativeness, with innovativeness itself consisting of some *new interpretations of traditional elements* of business life. The most crucial of these elements are names, ideas and money, these features defining the overall operativeness of business. In traditional business these elements are utilized as simple names, ideas or money, but in the digital economy they are defined somewhat more dynamically. Names, ideas and money *become essential operations* and they cannot merely remain protectable objects. They participate themselves in the operations of the digital economy and further constitute some of its core components. Innovativeness, for its part, should be based on the circulation of information, given that this constitutes the kernel of innovativeness. The circulation of information constitutes the crucial basis for the communication of innovativeness, inasmuch as communication is carried out on the basis of the free circulation of information.[365]

Communication ought to be carried out on the basis of diverse interests, which then together constitute the basis of the business idea. For example, a brand or a trademark may be considered as a cooperative unit connecting at least the interests of the enterprise, the stakeholders and the customer.[366] In this respect, a business idea as a reflection of several overlapping interests is *continuously dynamic*. Therefore, dynamics here clearly illustrate the communication of stakeholders in those interests, with the stakeholders well classifiable as the major actors in society. Communication is carried out between three different interests, those of the state, the market, and society. These are the stakeholders participating in the construction of the modernizing scope of intellectual property rights. This threefold communicative pattern is also the basis of the operativeness underlying business ideas, as business ideas are likewise constituted of those interests. In the traditional system of intellectual property rights it is the interest of the state that has been emphasized, with the other two stakeholders neglected in this regard. On the other hand, all of these interests have been emphasized differently depending on the focal operational frame and the functionality of the stakeholders in it. The state-oriented view has led to statics.[367]

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365 See Suarez-Villa 2001, 9.

366 In this sense a brand is a communicative relationship. See Petrusson 2004, 127.

367 The static intellectual property rights are used for invoking unauthorized usage of the property whereby it originates from the right to use one's own property without disturbance. Defining static intellectual property rights is used for evaluating to which structures one should be loyal and which structures one should reject in the business arena. See Petrusson 2004, 118 - 119.

On the other hand, the statics of a state orientation are best illustrated when examining the interest of the market. Namely, the market strives to be as dynamic as possible. In this sense dynamics constitute the core of the overall functionality of the market. This is also where the alteration of statics and dynamics is best seen, the interest of the market being solidly fixed on dynamics. However, both of these stakeholders need to be cooperative and mutually communicative and neither the state nor the market can be neglected. In the traditional economy this is carried out by building up contractual constructions to realize the dynamics, i.e., licensing or some other tools to utilize the property.[368] Licensing makes it possible to transfer rights and it is considered dynamic. The digital economy has nevertheless caused *these interests and the stakeholders to become more dynamic*, even in content.[369] This is exactly where cooperation and communication as the basic elements are linked. It is thus no longer sufficient to be able to constitute dynamics that are fundamentally still based on statics. Neither is it possible to constitute statics that have only slight connections to dynamics. One additional feature here is the scope of commons, which illustrates the interests of the society as the third major stakeholder.

Commons may be used as a *safety valve* when striving to collaborate communication between all these stakeholders and their interests. On the other hand, the scope of commons best supports the free flow of information as the core of innovativeness. Thus, from the viewpoint of innovativeness it is precisely information that ought to be kept free. In this sense information constitutes the overall foundation of innovativeness and, further, free information operates as one of the most fundamental elements of the overall digital economy. Innovativeness is thus communication and as a communicative function it forms an innovation network. The architecture of the innovation network as social cooperation is constituted of several different elements. Openness, flexibility and decentralization constitute here the most central elements. Moreover, social cooperation is based on a socially transforming logic of innovation whose core lies in social movements. In this sense, the core of the social cooperativeness is the creativity of action as based on mutuality and sharing.

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368 In this context dynamic intellectual property rights are based on a set of tools used to utilize the property in different structures. This is then further used for making a prognosis of the validity of their usage. See Petrusson 2004, 119.

369 A good example is customer relationships. In the cooperative digital economy, it is significant to know one's customers and collect some consumer information. See Shapiro - Varian 1999, 33 - 34.

2 COMMONS AS AN AREA OF INNOVATION

The scope of commons is crucially based on communication. Communication is used for ensuring the *free flow of information as the core of innovativeness*. As such innovativeness may generally be described as a crucially common interest: to a certain degree innovativeness is even impossible without collaboration and communicative cooperation. On the other hand, the sphere of commons may be described as a governance structure where no one has the right to exclude others from access to commons. In this sense the sphere of commons is controlled by no one, which correspondingly makes this resource free for all to use. One particular element of the commons is its *collective character*. In order to realize and even increase innovativeness those ideas and information need to be communicated with the rest of the society. In this sense free resources are also crucial for innovation and creativity.

Information as a free resource constitutes the essence of ideas, with free circulation further the basis of the commons. Commons is, in other words, the *freest area of innovation*. This is where the collapse of the traditional system of intellectual property rights is first to be seen. The traditional system is fundamentally based on the right-holder's ability to control resources, namely ideas and information. On the other hand, ideas and information operate as appropriate controlling instruments in that they are characteristically genuinely fundamental. This is best described in the foundations of the system of intellectual property rights. First, defining the boundaries of intellectual property operates exclusively in law, with law actually fixing and building up the internal meaning of intellectual property rights. Without law and its definitions there would be no patents, copyrights, or any other intellectual property rights. Intellectual property and likewise intellectual property rights are thus always fictions that are created by law. Second, the control of commons is generally reflected as the need to be able to define the boundaries of certain protectable inventions. Accordingly, intellectual property rights need to be defined strictly and fixedly.

An efficient way to operate in the creative digital economy is to endeavor to exploit information given that the digital economy is closely bound to innovativeness and the circulation of knowhow.[370] Innovativeness is closely bound to *creativity and dynamics* as the core of creativity. Dynamics thus constitute one of the most important factors of competitive business. Accordingly, creative capital operates as the core of the functionality of an

370 Along with the emergence of digital economy the information and communication technology have begun to play a major role. On the other hand, developing information and communication technology enables new operative forms. See Weill - Broadbent 1998, 6.

enterprise.[371] Creativity thus has a great influence on the overall cultural environment as the operational framework.[372] Innovativeness is thus best carried out in an environment where there exist no restrictions on the supply of information. The free circulation of information and the sphere of commons constitute the most effective generator of innovativeness, the non-restricted environment supporting the readiness of innovativeness. Unhindered innovativeness thus requires real access to information, which again emphasizes the sphere of commons.

3 THE DYNAMICS OF INNOVATIVENESS

Innovativeness is often considered a linear process in that it describes an invention as merely a static creation. Parallel to this, the statics of inventiveness are likewise due to the core of the concept of invention itself.[373] The concept of invention requires that the included attributes of the invention be defined and accordingly the rest excluded. The requirements, however, render the core of inventiveness explicitly linear in relation to the content. In other words, the easier the core of the content is to interpret, the easier it is to define the distinction between included and excluded attributes. This constitutes the foundation for *stable access to an invention* in order to constitute an architecture that supports inventions. The distinction is decisive for the concept of an invention and it has to be drawn, although at the same time it causes inventiveness to remain static.

The statics of inventiveness are, however, called into question by the digital nature of modern inventions. These inventions are mainly represented in the digital environment, which is fundamentally based on networking.[374] It often becomes impossible to constitute those creations in the form of a simple invention; rather, the inventions are more likely to be *described as being based on information as a flow of ideas*.[375] These freely flowing ideas constitute the fundamental core of a digital invention. In all cases, however, defining information strictly is complicated and it is accordingly equally difficult to force information into a certain

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371 This is often also referred to as Creative Commons. See Lessig 2004, 282.

372 The way to control information flows thus affects how culture develops. See Lessig 2004, 120 - 121.

373 Dynamic functions do not even occur without the static ones, but the static infrastructure has to be in place for the dynamic functions to occur. See Suarez-Villa 2001, 10.

374 This certainly affects the concept and context of property as well. Property is now more likely seen as an interaction between technology and markets. The power of technology supplements the law's control and the power of the concentrated market weakens the opportunity of property rights to operate as the basis of new development. See Lessig 2004, 168 - 169.

375 Digital technologies mostly affect acquiring and sharing content. Acquiring and sharing are the main operational lines for human being to live in society; it is only that capturing and sharing are both modified through digital technology. See Lessig 2004, 184.

pattern. The static pattern of inventiveness may here even prevent sufficiently strong protection. Information overall seems to be a complicated thing either to define or to stabilize. The problem of demarcation has two main reasons. There is the lack of both a real protection object and a sufficient amount of subjectivity given that information is not defined to be knowledge, which is actually only someone's subjective experience. Information seems to be very difficult indeed to force into the pattern of invention. Creations of the digital economy are characteristically versatile. However, in the age of traditional intellectual property rights, an invention was often described as frozen in such a way that it was easy to fit into the pattern of subjective right.

The innovation process is often described by traditional instruments. This seems to be the fundamental distortion inside its description. However, in order to be able to reveal the most essential dynamics of the innovation process, there is a *crucial need for some dynamic examination tools*. Innovation is a dynamic process; it may not be described as a mere development in single phases.[376] The innovation process is more and more likely to be described as a communicational process where the different cooperating parties are closely interconnected. For this reason a suitable dynamic approach to development from static inventiveness towards dynamic innovativeness is generally found in the utilization of completely new resources. The emergence of new resources and research on them is one factor changing the balance clearly from statics towards more dynamic operativeness. Basically, innovativeness generally cooperates with a dramatic change and is thus closely linked to new and explorative development. A close link to new resources and the ability to reveal changing foundations is thus characteristic of innovativeness. Innovativeness is, on the other hand, described as doing something in a totally new way. Innovation often refers to new products, processes, or systems being introduced on a large scale. Here, innovativeness is based on certain *foundational requirements* and is primarily based on the ability to reasonably *identify different elements*. This is often realized in order to create something new by bringing together something that has not been brought together before, i.e., *by innovating*. This is carried out, for example, by forming new associations.

Innovativeness is in this way based on making use of new resources or using existing ones in an innovative way. For this reason invention and innovation together constitute a single entity. As an entity the bounds of inventiveness and innovativeness constitute a complete illustration of the core of ideas in business. Ideas are founded on a congruent adaptation of inventiveness and innovativeness, both together. Distinctiveness is brought into the coexistence through some supportive additional features needed for completing the bond. Thus, the *most fundamental resources of an enterprise are generally communicative*, whereby there exists a crucial need for communication between the internal view of the enterprise

376 Invention is often described and examined as phases. During these development phases knowhow is refined and commercialized, and the parties merely operate together as independent participants. See Chesbrough - Teece 1998, 29 - 30.

and its external environmental frame. Inventions are relatively fixed to existing resources and the knowledge embedded in an enterprise. The basic approach to introduce these resources overall is purely to take advantage of them as completely as possible, with such exploiting affecting the communication architecture and, through this, innovativeness directly. In this way inventions are to be *dynamized* by balancing them towards innovativeness. Innovativeness is thus based on continuous utilization of resources and is defined as a dynamic and functional whole. In any case, on these grounds innovativeness requires unbroken communication; in order to capitalize resources maximally communication cannot be dispersed or fragmentary in any way.

4 THE ARCHITECTURAL BASIS OF INNOVATIVENESS

The combination of inventiveness and innovativeness constitutes the core of the architectural structure of innovativeness. This combination is characteristically *compact, but at the same varying*. The variation is found in the character of the overall process of communication as the core of the architectural design. Even the divergence of the process of inventiveness and innovativeness is based on a continuous process. This process, together with the additional architectural constructions, is in fact precisely the factor that establishes a clear distinction between invention and innovation. It keeps both areas as phases of their own in the core of functionality given that both have different functions to perform.

Innovativeness is linked to *individual creativity*, which articulates both inventiveness and innovativeness. These elements are bound together through communicative elements, created through the connective designs or structures, and included by the legal architecture. The digital economy includes the fundamental basis for this kind of design; innovativeness in the digital economy is mainly carried out though open networks, which further are generally based on a certain designed structure. This elementary structure is generally referred to as a legal architecture and it has a certain internal elementary pattern. The architecture constitutes the basis of all the general preconditions that societal cooperation considers to be necessities. The architecture *constitutes the basis of the overall communication* and societal cooperation. This makes the architecture rather essential for functionality, whereby the architecture ought to be an essential requirement for universal functionality. As such the architecture implements a certain functional design.

The architecture is dynamic and is founded on communication. As a system of rights governance it is based on two divergent but still overlapping requirements: the core functions of the digital economy and its operational framework as the reflective surface underlying functionality overall. The starting point in constituting the architecture of rights governance is found in the traditional view of dynamics, where the core lies in the ability to transfer rights and to become legally protected when those transactions occur. The main focus in the traditional system lies on balancing exchangeability and its smoothness, which actually

has placed the focus on the interests of the market. This is precisely where functional dynamics diverge from traditional dynamics and the basis upon which the rights governance architecture is to be built. Dynamics have been changing both definitively and contextually. *Dynamics are thus sooner based on pure functionality* and are founded precisely on this functionality. The power to affect legal relations is not necessarily anymore only the power to transfer rights but also, and even most fundamentally, the power to participate in the relevant operation.

Free participation is ensured by *decentralizing the network*, with the network becoming directly focused on the lack of control. Decentralization has thus one great advantage, which is linked directly to information being delivered through a network. The *power of neutrality* comes directly from the network's inability to control the content or any of the operations of the actors. This is further stabilized through the simplicity of the network, the combination of neutrality and simplicity in the network architecture meaning precisely the inability of a network to discriminate against content and applications. In this way innovativeness is increased given that it becomes possible for all the innovations and creations to emerge in a network. This affects both the *quality of information* and the *power to express* one's ideas. In this way an innovative network may be decentralized and ownerless and is even better as such.

5 EMPOWERING PRIVILEGE - PRIVILEGING POWER

Functionality constitutes one of the core elements of the digital economy. Functionality is, however, *not constituted only on single functions*; rather, these functions are *complemented by the operational frame* overall. The description cannot remain only static but must crucially be complemented through dynamics, with dynamics needed for elaborating the operational frame. The operational frame is constituted of operations and operational rules that make it possible to impart functionality directly to the functional core. Using the Hohfeldian concepts, this is carried out by applying power to the static content, i.e., by empowering the content exclusively. Empowerment is mainly carried out by keeping privilege as the main element of the static aspect but introducing power as a definitive element instead of right.

This combination of privilege and power is then used as a *reflective surface that underlies functionality overall*. These two overlapping phases are applied together as a baseline of the complete architecture of the digital economy. Functions and foundations are brought into mutual interaction in order to create dynamic functionality. On the other hand, the central element where the privileging of power has an influence lies in the balance between statics and dynamics in legal relationships. Indeed, privileging power moves the dynamics towards the right to use: the right to use is dynamized, with dynamics complemented through usability at the same time. This accordingly adds privilege to power and in this way the overall

combination of power and privilege or privilege and power is complemented. In this way the combination of privilege and power shapes the scope of empowered privilege or, on the other hand, the scope of privileged power.

The rights governance architecture thus lies in the *combination of privilege and power* - statics and the dynamics. Neither of these alone is adequate for constructing the complete view of rights governance in the digital framework; in order to get the complete picture there is a need to complement the static content with dynamic functionality. This complementation further requires that both static privilege and dynamic power are employed *in parallel and harmoniously*. On the other hand, the functional combination of rights is best defined through concentrating on different actors that are then further connected to either the privileged or the empowered position.

A prototype of combined privilege and power is found in the scope of commons, where commons are viewed from two different angles. On the one hand, the core of the static element of commons is constituted of the privileged position and it is essentially devoted to the static rights to be governed. On the other hand, the dynamic element in the scope of commons is based on the power to change the legal status of some other actor. Traditionally this is carried out by granting a right to transfer rights. However, the definition of dynamics in the modernized governance architecture of the digital economy, and likewise in the scope of commons here, is formulated in terms of a relationship that concerns only particular parties. It is relative in the sense that it is focused on only one party or actor at a time.

The dynamics of the modernized architecture of rights governance may not, however, be built on transferring rights. Here, the scope of commons is exemplary, the reason for a novel interpretation of dynamics being obvious. Still considering the commons as a prototypical example, the rights inside the sphere of commons are actually *property of the community* and in this respect there do not exist any external parties. Therefore, dynamics and particularly the *focus of dynamics shift* from an exchange orientation towards more of a function orientation. In this way the dynamics of commons is still relative and concerns only the particular parties involved in operations.

6 IMPLICATIONS FOR THE SYSTEM OF INTELLECTUAL PROPERTY RIGHTS

The system of intellectual property rights is based on inventiveness as a static *point-like occurrence*. This makes the overall system static due to the core of the concept of invention.[377] The concept requires that all the attributes of an invention are defined and accordingly the rest are to be excluded. Those prerequisites, however, fix the core of inventiveness explicitly

[377] On the other hand, property rights are often primarily developed within the framework of the material value chain. See Petrusson 2004, 52 - 53.

linearly to the content itself: the core of content is interpreted and defined through the distinction between included and excluded. This, at the same time, however, causes *inventiveness to remain static* and stable. Sometimes it is even the content as such of an invention that makes the distinction of invention and innovation complicated. An example of this is an idea and its protection, given that an invention is always based on an idea. However, when embedded in an invention, an idea is still slightly more dynamic than the invention. Ideas constitute the core of innovativeness and they are characteristically dynamic. The major problem of the statics of an invention is thus caused by the dynamic idea in the core of a proprietary characteristic of a static invention. This is precisely due to the significance of information as the kernel of invention. Problems in the digital economy are thus mainly related to ideas and their fundamental character in inventions.

Digital inventions are based on information as a flow of ideas, with this dynamic process constituting the core of a digital invention.[378] Defining information precisely is rather complicated, however, and it is accordingly equally complex to force it into a certain pattern, i.e., the one of invention. Thereby, the static pattern of inventiveness may here prevent sufficiently strong protection. Information overall thus seems to be difficult either to define or to stabilize. The problem has two main reasons. There is namely a *lack of both a real protection object* and of a *sufficient amount of subjectivity*. The sharp difference here calls into question the cruciality of a subjective right as one element of invention. The fact that all rights must have a subject is generally rather definitive for constructing any property right. A subjective right, such as property rights, is thus based on certain prerequisites. It is possible to constitute only when three basic prerequisites are fulfilled. At the minimum, there ought to be a clearly defined object, someone who bears the right, and a legal relationship between these two.[379] A digital invention does not, however, necessarily include any of these, whereby the digital environment does not directly rely on the construction of subjective rights. However, in the age of traditional intellectual property rights, an invention was often stable in that it was easy to fit into the pattern of a subjective right.

The statics of an invention are crucial when defining its possession, as possession constitutes the foundation of property. For this reason in order to come into someone's possession, an invention needs to be stabilized and fenced. Stabilization defines the fundamental relationship between possessor and invention, i.e., *who possesses what*. This commitment, however, at the same time actually runs counter to the elasticity of modern legal relationships. It is precisely this commitment that stabilizes and freezes the whole traditional pattern of legal relationships. An invention is similarly fixed through the

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378 In this respect, intellectual property does not have any existence in itself. See Petrusson 2004, 53.

379 Th is the basis of the concept of subjective right. It is defined through three basic axioms: 1) subjective right stands for *being in legal relationships*, 2) legal relationships can prevail *only between persons* and 3) a subjective right does not prevail only inter partes but also *ultra partes*. See Niemi 1999, 291a.

possessors 'engagement with it. Stabilization refers to the assets of the traditional legal system. Those assets are usually best capitalized when they are associated with a strict and well-protected position, i.e., property rights. Stabilization through defining something as an invention does not mean that the asset would cease evolving, although the level of inventiveness is still the minimum prerequisite for any new invention. This, with the continuous development, is basically the main problem with the protection of business method patents through any traditional property right. Business methods are highly innovative but they are still forced to fit into the definition of invention. However, this kind of stabilization prevents the further innovative use of patented business methods. Thereby, the traditional protection of inventions may well be considered as freezing up the whole system.

The dynamized view of intellectual assets is best described by changing the perspective: it is no longer an invention in its static sense that is the focus but rather the *connection between the invention and the environment* where the enterprise operates. The background is found in the statics, with the utilization of inventions traditionally considered static and the static view biding inventiveness tightly to the proprietary horizon. A change in the balance makes the perspective functional, whereby the viewpoint is adjusted and made more functional and dynamic. In this way, dynamics drive frequent change in order to reproduce new and revised knowledge.[380] At the same time, the environment is likewise to be taken into consideration when the whole inventive pattern is dynamized and functionalized. This is exactly why this perspective is justifiably considered a communicative one. The view namely makes communication the essential focus of the overall pattern.

Dynamization of the overall innovative pattern has at least one drastic consequence, namely the *change in the balance of right and power*. In other words, the right to use loses its traditional definitive task as the core element of right as a privilege. This is a direct consequence of dynamization, the mere right to use remaining too static for describing functionality. Instead, dynamization ought fundamentally to be based on power as the ability to affect the legal relationships of the parties involved in operations. At the same time, the empowered position makes the functionality overall dynamic. Further, none of these operations can be examined totally detached from the framework but they remain rather closely linked to it. This is a direct implication of the includability of the dynamic aspect and in this way the framework actually becomes a part of operations. This then constitutes the intersection of privilege and power as well as the essence of the digital economy.

380 See Suarez-Villa 2001, 10.

YHTEENVETO TEOKSEN KESKEISISTÄ AJATUKSISTA

INNOVAATIOT KOMMUNIKAATIOPROSESSEINA. OIKEUDELLINEN ARKKITEHTUURI IDEOIDEN HALLINNOIMISEKSI LIIKETOIMINNASSA

1 LIIKEIDEA KOMMUNIKAATIONA

Liikeidea on kommunikaatiota. Kommunikaationa liikeidea määrittyy toiminnallisista lähtökohdista ja perustuu innovatiivisuuteen. Innovatiivisuus itsessään syntyy tässä yhteydessä usein siten, että liike-elämän perinteisiä *käsitteitä ja määreitä hahmotetaan uudella, innovatiivisella tavalla*. Tämän tutkimuksen näkökulmasta keskeisimpiä näistä uudelleen määriteltäviksi tulevista toiminnallisista käsitteistä ovat nimet, ideat ja raha. Nämä elementit rakentavat liike-elämän toiminnallisuutta kaiken kaikkiaankin. Perinteisessä liiketoiminnassa näitä elementtejä käytetään yksinkertaisesti nimien, ideoiden tai rahan muodossa, mutta digitaalisessa taloudessa ne usein pyritään määrittämään myös hieman dynaamisemmin. Nimi, idea ja raha muodostavat nimittäin eräitä *keskeisiä digitaalitalouden toimintoja*, eivätkä ne siten voi enää määrittyä pelkästään suojattavina objekteina. Toisaalta nämä elementit itsekin muodostavat toiminnan solmukohtia digitaalisen talouden toimintoihin ja ovat osia sen peruskomponenteista. Peruskomponentit muodostavat osaltaan innovatiivista toimintakehystä. Toisaalta innovatiivisuus vaatii pohjakseen ideoita ja informaatioita. Siksi innovatiivisuus olisi pyrittävä rakentamaan informaation vapaalle liikkuvuudelle: vapaasti virtaava informaatio ja esteettömästi käytettävissä olevat ideat nimittäin muodostavat innovatiivisuuden ytimen. Informaation vapaa liikkuvuus on siten innovaatioiden kommunikaation olennainen pohja. Toisin sanoen innovatiivinen kommunikaatio voi toteutua ainoastaan informaation vapaan liikkuvuuden muodossa.

Kommunikatiivinen liikeidea sisältää erilaisia intressejä. Tästä syystä kommunikaatio toteutuu parhaiten siten, että intressit muodostavat yhdessä liikeidean perustan. Esimerkiksi, brandia tai tavaramerkkiä voidaan perustellusti pitää yhteistoiminnallisena yksikkönä, joka yhdistää ainakin liiketoiminnan itsensä, sen omistajien ja asiakkaiden intressit. Tässä mielessä liikeidea on useiden erilaatuisten ja erimääräisten toisiinsa limittyvien intressien yhtymäkohtana *pysyvästi dynaaminen*. Dynamiikka viittaa tässä niihin intresseihin ja intressitahoihin, jotka voidaan määrittää yhteiskunnallisessakin mittakaavassa suurimmiksi toimijoiksi. Näitä ovat tämän tutkimuksen valossa valtio, markkinat ja yhteiskunta, joilla siis kaikilla on liikeideaan liittyviä omia intressejään. Tämä kolmikantainen kommunikaatiorakenne muodostaa perustan liikeidean toiminnallisuudelle, jossa liikeidea rakentuu näiden intressien yhteistoiminnasta. Samalla nämä intressitahot osallistuvat myös immateriaalioikeuksien järjestelmän uudistamiseen. Perinteisessä immateriaalioikeuksien järjestelmässä valtion intressit painottuvat usein voimakkaimmin, markkinoiden ja yhteiskunnallisten intressien jäädessä taka-alalle. Toisaalta kaikkia näitä

intressejä ja intressitahojen keskinäisiä suhteita on painotettu eri tavalla riippuen kulloisestakin toimintaympäristöstä ja intressitahojen toiminnallisesta osuudesta vastaavassa toimintaympäristössä. Valtiopainotteinen lähestymistapa on kuitenkin johtanut näkökulman staattisuuteen.

Toisaalta valtiopainotteisuuden staattisuus tulee parhaiten esiin tarkasteltaessa markkinoita ja markkinoiden intressejä. Markkinat nimittäin pyritään järjestämään niin dynaamisesti kuin mahdollista. Toisaalta markkinat kyllä pyrkivät dynaamisuuteen jo oman määritelmänsäkin kautta. Dynamiikka muodostaa siten markkinoiden ytimen. Ydin kuitenkin kokoaa digitaalisen talouden muutoksen itseensä; tässä ytimessä nimittäin myös statiikan ja dynamiikan keskinäinen vuorovaikutus näkyy selvimmin. Näin on juuri markkinoiden luontaisen dynamiikan vuoksi. Molempien intressitahojen, siis valtion ja markkinoiden, on kuitenkin toimittava yhteistyössä; niiden on kommunikoitava keskenään, mutta kummankaan intressit eivät toisaalta saa painottua liian voimakkaasti. Perinteisessä taloudessa yhteistoiminnallinen kommunikaatio on pyritty järjestämään rakentamalla niin kutusuttuja dynamisoivia instrumentteja. Hyvä esimerkki tästä löytyy lisensoinnista ja muista omaisuuden käyttöön pyrkivistä vastaavista järjestelyistä. Lisensointi mahdollistaa oikeuksien siirron ja on siis siten perinteisessä mielessä dynaaminen instrumentti. Digitaalitalous kuitenkin vaikuttaa myös itse dynamiikkaan: *intressitkin ovat dynamisoituneet*. Tämä on juuri se ydin, johon peruselementtien keskinäinen yhteistoiminta kiinnittyy. Enää ei olekaan riittävää rakentaa dynamiikkaa, joka pohjimmiltaan kuitenkin edelleen perustuu statiikalle. Toisaalta ei ole myöskään riittävää, eikä järkevää, rakentaa statiikkaa, jolla on ainoastaan vähän varsinaisia dynaamisia liittymiä. Riittävässä määrin dynaamisen kuvan luomiseksi eri intressien keskinäisestä kommunikaatiosta on kolmannen intressitahon huomioiminen välttämätöntä. Kolmas intressitaho rakentuu yhteiskunnallisille ja sellaisena vielä tarkemmin yhteisöllisille intresseille (*commons*), ja ne toimivat intressin kokonaiskuvan välittävänä linkkinä. Yhteisölliset intressit muodostavat yhteiskäyttöisiä hyödykkeitä eli toimivat yhteiskäyttöisten hyödykkeiden taustana.

Yhteisölliset intressit muodostavat eräänlaisen varaventtiilin rakennettaessa kommunikatiivista, kaikki kolme intressiä huomioivaa yhteistoimintaa. Yhteisöllisten intressien alue on siinä mielessä keskeinen innovaatiota tarkasteltaessa, että se tukee edellä mainituista intressitahoista parhaiten vapaata informaation virtaa innovatiivisuuden ydinelementtinä. Innovatiivisuuden näkökulmasta informaatio määrittyykin juuri tästä syystä keskeiseksi tekijäksi, joka on syytä säilyttää vapaana. Tässä mielessä informaatio muodostaa myös innovatiivisuuden keskeisen perustan. Samalla informaation vapaus on yksi digitaalisen talouden rakennekomponenteista. Innovatiivisuus on siten kommunikaatiota, ja kommunikatiivisena toimintana se muodostaa innovaatioverkostoja. Näillä innovaatioverkostoilla on oma, yhteisöllisiä toimintoja ja intressejä tukeva arkkitehtuurinsa, jonka keskeiset rakenneosat ovat avoimuus, joustavuus ja hajauttaminen. Nämä ovat siis *avoimen innovaatioarkkitehtuurin* keskeisimmät rakenne-elementit. Lisäksi yhteistoiminta

perustuu innovaatioiden ja toimintojen yhteisöllisyyteen, jonka ydin löytyy toiminnallisesta luovuudesta. Luovuus näyttäytyy usein juuri ideoiden ja informaation vapauttamisena yhteisön käyttöön.

2 YHTEISÖLLISYYS INNOVAATIOVARANTONA

Yhteisölliset intressit ovat kommunikaatiota. Kommunikaatio varmistaa erityisesti informaation vapaan käytön ja muodostaa siten innovatiivisuuden ytimen. Toimivalla kommunikaatiolla toisin sanoen *varmistetaan ja edistetään innovatiivisuutta*. Näistä lähtökohdista innovatiivisuus kuvautuu aika luontevasti yhteisöllisenä intressinä. Tietyssä mielessä innovaatiot ovat jopa mahdottomia, elleivät ne ainakin jossain määrin perustu kommunikaatioon ja yhteistoimintaan. Toisaalta yhteisölliset intressit määrittyvät myös hallinnointirakenteena (*governance structure*), jossa kenelläkään ei ole oikeutta sulkea muita ulkopuolelle. Yhteiskäyttöisten hyödykkeiden alueelle on siten jokaisella vapaa pääsy, eikä niiden toimintaa tai käyttöä kontrolloi *kukaan yksin*. Eräs yhteisöllisten intressien keskeisistä elementeistä onkin juuri nimenomaan niiden *yhteisöllisyys*. Innovatiivisuuden toteuttamiseksi ja jossain määrin jopa sen kasvattamiseksi ideoiden kehittelemisen tulisi tapahtua tiiviissä yhteiskunnallisessa vuorovaikutuksessa. Tässäkin mielessä vapaat resurssit ovat eräs innovatiivisuuden ja luovuuden olennainen osa.

Informaatio vapaana resurssina muodostaa ideoiden ytimen. Ideoiden vapaa kommunikaatio puolestaan muodostaa yhteisöllisten intressien perustan, jolloin yhteisöllisyys muodostaa innovatiivisuuden *vapaimman mahdollisen alueen*. Tällä alueella tapahtuu myös voimakkain perinteisen immateriaalioikeuksien järjestelmän murtuminen. Perinteinen järjestelmähän rakentuu olennaisesti oikeudenhaltijan oikeudelle kontrolloida käytettäviä resursseja, digitaalitaloudessa erityisesti ideoita ja informaatiota. Toisaalta ideat ja informaatio toimivat sopivina kontrollivälineninä perustavanlaatuisuutensa vuoksi. Kontrollivoima näkyy parhaiten immateriaalioikeuksien järjestelmän perusteissa. Ensinnäkin immateriaalioikeuksien rajanvedot ovat aina juridisia, ja niiden rajat määritellään ainoastaan laissa. Tällöin lainsäädäntö oikeastaan toimii yksinomaisena välineenä rajattaessa immateriaalioikeuksien sisältöä. Ilman laissa tapahtuvaa määrittelyä ei olisi myöskään patenttia tai tekijänoikeutta, tai muitakaan immateriaalioikeuksia. Immateriaalinen, aineeton omaisuus, samoin kuin immateriaalioikeudet ovat siten aina laissa luotuja fiktioita. Ne ovat suunnittelijansa vallan mukaisia, ja siten eräs tehokas kontrollin väline. Toiseksi yhteisöllisten intressien alue ja laajuus peilautuvat vastakohtiensa kautta. Yhteisöllisyys näyttäytyy siis vastakohtana tarpeelle kyetä määrittämään suojattavien, ja siten yhteisöllisestä käytöstä poissuljettavien inventioiden rajat. Tästä syystä immateriaalioikeuksien järjestelmästä kuitenkin muodostuu helposti staattinen ja jähmeä.

Digitaalitalous saa voimansa luovuudesta, jolloin vasta *informaation ja ideoiden järkevä hyväksikäyttö* muuttaa digitaalisen talouden perustoiminnot tehokkaiksi. Siksi digitaalitalous perustuu pääasiassa juuri innovatiivisuuteen, mikä usein määrittyy myös tietotaidon vaihdoksi. Innovatiivisuus on siten kiinteästi sidoksissa *luovuuteen ja dynaamisuuteen* luovuuden ytimenä, jolloin dynamiikka määrittyy erääksi kilpailukykyisen liiketoiminnan tärkeimmistä tekijöistä. Vastaavasti luovuuteen perustuva pääoma toimii usein innovatiivisen yrityksen funktionaalisuuden keskiönä. Luovuudella on toisaalta myös oma vaikutuksensa ympäröivään kulttuuriin, jolloin luovuus ja sen vaikutus kulttuuriseen kehitykseen samalla muotoaa toimintaympäristöä. Innovatiivisuus toteutuu siten parhaiten ympäristössä, jossa ei ole, tai on mahdollisimman vähän, esteitä informaation välittämiselle, kommunikaatiolle ja jakelulle. Informaation vapaa kulku ja yhteisöllisyys muodostavat tällä tavoin tehokkaimman innovaatiomoottorin, ja toimintaympäristön rajoittamattomuus tukee vielä omasta puolestaan innovaatiovalmiutta. Esteetön innovatiivisuus vaatii siten *todellista pääsyä informaatioon*, mikä taas puolestaan edelleenkin korostaa yhteisöllisten intressien keskeisyyttä innovatiivisuuden ytimessä.

3 INNOVATIIVISUUDEN DYNAMIIKKA

Innovatiivisuus on kommunikaatiota. Kommunikatiivisuudestaan huolimatta innovaatiot nähdään usein lineaarisena prosessina siten, että niiden näkyvä tulos, inventio (*invention*), määrittyy pelkästään staattiseksi. Invention staattisuus vastaavasti palautuu itsensä käsitteen ytimeen, joka määrittyy samoin staattiseksi. Staattisuutensa vuoksi inventio käsitteenä edellyttää, että sen sisältämät elementit on määriteltävä, ja vastaavasti sen ulkopuolelle jäävät elementit on suljettava määritelmän ulkopuolelle. Määritelmälliset lähtökohdat kuitenkin samalla vaikuttavat suoraan invention ytimeen; inventiosta tulee eksplisiittisesti lineaarinen suhteessa sisältöönsä. Toisin sanoen mitä helpompi sisältö on määritellä, sitä helpompi on myös vastaavasti määrittää sisältöön kuuluvan ja siitä poissuljetuin keskinäinen suhde. Sisältöön kuuluvan ja siitä poissuljetun välinen rajapinta muodostaa edelleen perustan *pysyvälle pääsylle inventioon*, jolloin pääsyn turvaamisesta syntyy perusta perinteiselle oikeuksienhallinta-arkkitehtuurille. Tässä mielessä perinteinen arkkitehtuuri tukee inventiota; inventioon kuuluvan ja siitä poissuljetun välinen rajanveto on eräs perinteisen järjestelmän olennaisimmista elementeistä, vaikkakin se samalla tekee järjestelmästä staattisen. Perinteisessä järjestelmässä vastaavasti myös inventio jää määritelmällisesti staattiseksi.

Invention staattisuus kyseenalaistuu voimakkaasti uuden talouden inventioiden digitaalisuuden vuoksi. Nämä inventiot tuotetaan pääasiassa digitaalisin välinen ja digitaalisiksi sisällöiksi, ja siksi ne myös pääasiallisesti esiintyvät digitaalisessa toimintaympäristössä. Tämän tyyppisiä inventioita on usein mahdotonta kuvata tai edes luoda yksinkertaisen invention muodossa; ne perustuvat mieluummin muuttuvaan informaati-

oon *ideoiden vapaana kulkuna*. Tästä syystä ideoiden ja informaation sisältöä on hankala määritellä tarkasti, tai edes niiden pakottaminen tiettyyn muottiin on vaikeaa. Vapaat ideat muodostavat siten digitaalisten inventioiden perusytimen. Toisaalta muuttuvassa muodossa olevien ideoiden pakottaminen invention staattiseen muotoon saattaa jopa rajoittaa tai estää riittävän vahvan suojan saavuttamista. Tässä mielessä informaatio siis näyttää olevan hankala sekä määrittää että stabiloida. Määrittelyn vaikeus johtuu pääasiassa puutteista kahdessa suhteessa: informaatiolta puuttuu sekä konkreettinen suojakohde että riittävä subjektiivisuus silloin, kun informaatio ei määrity tiedoksi, joka jo onkin subjektiivista. Siten informaatio vaikuttaa olevan suhteellisen hankalasti pakotettavissa invention muotoon: digitaalisen talouden luomukset ovat luonnostaan muuttuvia ja kehittyviä. Tässä näyttäytyy siten jälleen eräs perinteisen immateriaalioikeuksien järjestelmän ja digitaaliajan tuomien muutospaineiden rajapinta. Perinteisessä järjestelmässä inventio oli/on yleensä mahdollista määrittää 'jähmettyneessä muodossa" ja samalla siten, että se oli/on sovitettavissa subjektiivisten oikeuksien järjestelmään.

Innovaatio (*innovation*) on inventiota selkeästi dynaamisempi käsite. Siitä huolimatta innovaatiot, samoin kuin innovaatioprosessit nykyisin usein kuitenkin määritellään perinteisin instrumentein. Tämä näyttää muodostavan perustavanlaatuisen vääristymän innovaatiokäsitteen sisälle. Innovaatioprosessien keskeisen dynamiikan esiin saaminen nimittäin välttämättä vaatii *dynaamisia tutkimusvälineitä*. Innovatiivisuus on dynaaminen prosessi, eikä sitä siten inventiosta poiketen voida kuvata pelkästään yksittäisistä vaiheista koostuvana kehityksenä. Siksi innovaatioprosessit yhä enenevässä määrin kuvataankin kommunikatiivisina prosesseina, joissa erilaiset, keskenään yhdessä toimivat tahot muodostavat tiiviin kokonaisuuden. Tästä syystä sopivan dynaaminen lähestymistapa siirryttäessä staattisesta inventiosta kohti dynaamista innovaatiota näyttääkin yleensä helposti löytyvän tavoista hyödyntää uusia resursseja. Uudet resurssit ja niiden tutkiminen voi siten toimia eräänä tekijänä siirrettäessä tasapainoa statiikasta kohti dynaamista toiminnallisuutta. Innovatiivisuus korreloi yleensä dramaattista muutosta ja liittyy siksi läheisesti uuteen ja kokeelliseen kehitykseen. Toisaalta tiivis liittymä uusiin resursseihin, samoin kuin kyky löytää muuttuvia perusteita on innovatiivisuudelle jopa luonteenomaista. Innovatiivisuus siis voidaan kuvata tavaksi tehdä jotakin täysin uudella tavalla, vaikkakin innovatiivisuus usein myös viittaa uusiin tuotteisiin, prosesseihin tai järjestelmiin. Tällöin innovatiivisuus usein myös linkittyy kyykyyn jäsentää ja *identifioida erilaisia elementtejä*. Juuri tämä näyttäytyy yleensä uuden luomisena; yhdistetään ja tuodaan esiin jotakin, jota ei ole esitetty yhdessä koskaan aiemmin. Tätä kutsutaan *innovoimiseksi*, ja eräs sen malliesimerkki löytyy juuri uusien yhdistelmien muotoilemisesta.

Innovatiivisuus perustuu tällä tavoin uusien resurssien hyödyntämiseen tai vanhojen, jo olemassa olevien käyttämiseen uusin, innovatiivisin tavoin. Siten inventio ja innovaatio yhdessä muodostavat yhtenäisen kokonaisuuden, jossa niiden liittymät muodostavat täydennetyn kuvan ideoista liiketoiminnassa. Ideat perustuvat jatkuvalle invention ja innovaation yhteistoiminnalle. Molemmat on siis otettava huomioon,

vaikkakaan kumpikaan ei yksin kykene muodostamaan vastaavanlaista täydentynyttä kuvaa ideoiden rakenteesta. Tällaisena invention ja innovaation sidos kuvaa myös yrityksen perusresursseja. *Perusresurssit ovat siis yleensä kommunikatiivisia*, ja siksi yrityksen sisäisten resurssien ja sen ulkoisen toimintaympäristön täytyy kyetä keskinäiseen kommunikaatioon. Inventiot itsessään ovat suhteellisen tiukasti kiinni jo olemassa olevissa resursseissa ja yritykseen sulautuneessa piilevässä tiedossa. Nämäkin resurssit tulisi pyrkiä hyödyntämään niin kattavasti kuin mahdollista. Resurssien hyödyntäminen tällä tavoin kuitenkin samalla vaikuttaa koko kommunikaatioarkkitehtuuriin ja sen kautta suoraan innovatiivisuuteenkin. *Inventiotkin dynamisoituvat*, jolloin ne jo painottuvat edellä kuvatuin tavoin innovatiivisuuden suuntaan. Tällä tavoin innovatiivisuus perustuu jatkuvaan resurssien hyödyntämiseen ja määrittyy siten dynaamiseksi ja funktionaaliseksi kokonaisuudeksi. Joka tapauksessa innovatiivisuus vaatii onnistuakseen jatkuvaa, fragmentoitumatonta kommunikaatioketjua.

4 INNOVATIIVISUUDEN ARKKITEHTUURINEN PERUSTA

Invention ja innovaation sidos on kommunikaatiota. Tämä sidos muodostaa innovaatio-arkkitehtuurin ytimen ja on luonteeltaan *kompakti, mutta samalla muuntuva*. Muuntuvuus perustuu arkkitehtuurisen mallin pohjana olevaan kommunikaatioprosessiin. Tällöin jopa inventio- ja innovaatioprosessien väliset eroavaisuudet perustuvat nekin viime kädessä jatkuvaan prosessiin. Toisaalta tämä prosessi yhdessä arkkitehtuuristen lisärakenteiden kanssa määrittää myös invention ja innovaation välistä eroa. Molempien prosessien toiminta nimittäin perustuu omajärjestelmäiselle vaiheisuudelle, jolloin kummallakin on myös omia, kokonaisprosessin kannalta olennaisia tavoitteita toteutettavana.

Innovatiivisuus linkittyy toisaalta *yksilölliseen luovuuteen*, mikä puolestaan rakentaa sekä jo inventioita että myös kehittyneempiä innovaatioprosesseja. Juuri tästä syystä näiden elementtien saattaminen keskinäiseen kommunikaatioon on olennaista. Toisaalta kommunikatiivinen sidos muodostetaan yhdistävien ja kokoavien rakenteiden kautta ja sisällytetään oikeudelliseen arkkitehtuuriin (*legal architecture*). Digitaalitaloudessa tällaiselle rakenteelle on olemassa kehys jo toimintaympäristössä itsessään; digitaalisen talouden innovatiivisuus tapahtuu pääasiassa avoimissa tietoverkoissa, jotka taas puolestaan yleensä perustuvat tietyille olemassa oleville, usein keinotekoisille rakenteille. Tästä pohjarakenteesta voidaan puhua myös oikeudellisena arkkitehtuurina, ja sillä on tietty oma sisäinen kaavansa. Toisaalta arkkitehtuuri muodostaa perustan kaikille yleisille toimintaedellytyksille, joita yhteisöllinen toiminta pitää välttämättöminä. Siten arkkitehtuuri muodostaa *perustan kaikelle kommunikaatiolle* ja yhteiskunnalliselle yhteistoiminnalle. Arkkitehtuuri määrittyy siten yhteiskunnallisen toiminnallisuuden ytimeksi, toisin sanoen tietyksi toiminnalliseksi rakennekehykseksi.

Arkkitehtuuri on dynaaminen, kommunikatiivinen kehys. Oikeuksien hallinnointijärjestelmänä se rakentuu kahdelle erilliselle, mutta samalla kuitenkin toisiinsa limittyville edellytyksille, nimittäin digitaalitalouden perustoiminnoille ja koko toiminnan heijastuspintana näyttäytyvälle toimintaympäristölle. Lähtökohta oikeuksienhallinta-arkkitehtuuria rakennettaessa löytyy perinteisestä dynamiikasta, jonka ydinajatus on kyetä siirtämään oikeuksia ja saada oikeudellista suojaa silloin, kun oikeuksien siirto on tapahtunut lain edellytysten mukaisesti. Perinteisen järjestelmän pääpaino on vaihdannan tasapainottamisessa ja joustavoittamisessa. Siksi perinteinen järjestelmä on myös painottunut hieman voimakkaammin markkinoiden intressien suuntaan. Tämä on toisaalta juuri se leikkauspiste, jossa funktionaalinen dynamiikka eroaa perinteisestä dynamiikasta ja toisaalta se ydin, jolle oikeuksienhallinta-arkkitehtuuri rakentaa lähtökohtansa. Funktionaalistuessaan dynamiikka muuttuu sekä määritelmällisesti että sisällöllisesti. Funktionaalinen *dynamiikka perustuu siten ennemmin puhtaalle toiminnallisuudelle* yhteistoimintana, kuin staattisuuteen pohjaavalle oikeuksien siirtelylle etupiiristä toiseen. Valta vaikuttaa oikeussuhteisiin ei siten välttämättä määritykään enää vallaksi siirtää oikeuksia. Paremminkin se määrittyy oikeuksien siirtomahdollisuuden lisäksi myös vallaksi osallistua relevanttiin toimintaan ja vaikuttaa muiden siihen osallistuvien tahojen toimiin.

Oikeudellisessa arkkitehtuurissa vapaa osallistumismahdollisuus turvataan *rakentamalla toimintaverkosta hajautettu*, jolloin siitä samalla muodostuu kontrolloimaton. Eräs hajautetun verkon eduista liittyykin juuri siihen tapaan, jolla informaatiota välitetään ja jaetaan verkossa. Hajautettuun tiedonsiirtoon viitataan usein myös verkon neutraalisuutena. *Neutraalisuuden voima* saadaan erityisesti juuri verkon kyvyttömyydestä kontrolloida informaation sisältöä tai verkon toimijoita ja näiden toimia. Neutraalisuus stabiloituu edelleen toimintaverkon *yksinkertaisuuden* kautta, jolloin neutraalisuuden ja yksinkertaisuuden arkkitehtuurinen yhdistelmä viittaa erityisesti juuri verkon kyvyttömyyteen kontrolloida välitettäviä sisältöjä tai kommunikaatiosovellutuksia. Innovaatiot ovat vapaita syntymään ja kehittymään tämänkaltaisessa avoimessa verkossa. Vapaus puolestaan on omiaan lisäämään innovatiivisuutta. Lisäksi kuvatunlainen verkko vaikuttaa sekä *informaation laatuun* että *valtaan ilmaista* ideoita. Siksi innovaatioverkon tulisi rakentua edellä mainituille elementeille, erityisesti neutraalisuudelle ja yksinkertaisuudelle. Lisäksi sen tulisi muodostua hajautetuksi.

5 VALTAKYLLÄSTETTY YKSINOIKEUS - YKSINOIKEUTETTU VALTA

Digitaalitalous on kommunikaatioita. Eräs sen keskeisistä rakenne-elementeistä on juuri toiminnallisuus. Toiminnallisuus *ei siten perustu ainoastaan yksittäisille toiminnoille*, vaan nämä toiminnot täydentyvät niiden heijastuspintana näyttäytyvällä toimintaympäristöllä. Tämä toimintojen ja ympäristön vuorovaikutus muodostaa erään niistä rajapinnoista, joilla digitaalitalouden kommunikatiivisuus tulee esiin. Toimintojen ja toimintaympäristön

kokonaisuutta ei siksi voi kuvata pelkästään staattisena, vaan sitä on välttämättä täydennettävä dynaamisilla komponenteilla. Dynamiikkaa tarvitaan erityisesti rakennettaessa toimintaympäristöä. Toimintaympäristö rakentuu siten toiminnoista ja niiden toteuttamiseksi tehdyistä säännöistä, jolloin toiminnallisuus on mahdollista ulottaa suoraan toimintaympäristön ytimeen. Hohfeldin käsittein (tässä vapaasti suomennettuna): valta sitoutetaan staattiseen sisältöön, toisin sanoen yksinoikeuteen perustuva oikeuden sisältö valtakyllästetään. Vallan kyllästäminen tapahtuu karkeasti kuvaten siten, että oikeudenhaltijan yksinoikeus (*privilege*) säilytetään staattisen aspektin pääkäsitteenä muodostaen samalla vallasta *(power*) yksinoikeutta määrittävä elementti perinteisen (vaade)oikeuden sijaan.

Yksinoikeuden ja vallan yhdistelmä toimii *funktionaalisuuden heijastuspintana*. Nämä kaksi toisiinsa limittyvää elementtiä muodostavat yhdessä digitaalisen talouden oikeudellisen arkkitehtuurin perustan. Toiminnot ja perusteet saatetaan keskinäiseen vuorovaikutukseen, jotta kyettäisiin kuvaamaan dynaamista toiminnallisuutta riittävän selkeästi. Toisaalta keskeisin elementti, johon vallan yksinomaistamisella on vaikutuksensa, löytyy statiikan ja dynamiikan keskinäisestä tasapainosta oikeussuhteissa. Vallan yksinomaistaminen siirtää nimittäin dynamiikkaa kohti käyttöoikeutta: käyttöoikeus dynamisoidaan, mutta samalla dynamiikkakin täydentyy oikeuden käytettävyydellä. Tämä siis yksinomaistaa vallan, ja tällä tavoin koko vallan ja yksinoikeuden - tai yksinoikeuden ja vallan - yhdistelmä täydentyy. Tällä tavoin konstruoitu yhdistelmä muotoaa valtakyllästetyn yksinoikeuden - tai yksinoikeutetun vallan - keskeistä alaa.

Oikeuksienhallinta-arkkitehtuuri lepää siten *yksinoikeuden ja vallan yhdistelmän varassa*, siis statiikan ja dynamiikan varassa. Näistä kumpikaan ei yksin ole täysin adekvaatti muodostamaan tai edes kuvaamaan digitaalisen toimintaympäristön oikeuksienhallinta-arkkitehtuuria. Täydellisen kuvan saamiseksi tarvitaan sekä statiikkaa että dynamiikkaa, jolloin staattinen, sisältöä määrittävä puoli täydennetään dynaamisella, toimintaa määrittävällä aspektilla. Toisaalta tällaisen arkkitehtuurin lopullinen malli edellyttää, että molemmat, sekä staattinen yksinoikeus, että dynaaminen valta saadaan toimimaan *harmonisesti ja rinnakkain*. Toisaalta oikeuksien funktionaalinen yhdistelmä määrittyy parhaiten ottamalla huomioon myös erilaiset toiminnassa mukanaolevat tahot, jotka liittyvät sitten joko yksinoikeutettuun tai valtakyllästettyyn oikeusasemaan.

Yksinoikeuden ja vallan yhdistelmän prototyyppi löytyy yhteisöllisten intressien alueelta, jossa yhteiskäyttöisiä hyödykkeitä voidaan tarkastella kahdesta erilaisesta näkökulmasta. Ensinnäkin yhteiskäyttöisten hyödykkeiden staattisen elementin ydin koostuu yksinoikeuteen pohjautuvasta oikeusasemasta, ja se on rakennettu staattisessa tilassa olevien oikeuksien hallinnointia varten. Toiseksi yhteisöllisten hyödykkeiden dynaaminen elementti perustuu valtaan vaikuttaa toisen toimijan oikeusasemaan. Perinteisesti tämä on toteutettu siirtämällä oikeuksia, mutta dynamiikan määrittely uudistuneessa digitaalitalouden arkkitehtuurissa, esimerkiksi yhteiskäyttöisten hyödykkeiden kohdalla, tapahtuukin käyttämällä hyväksi suhteita, jotka koskevat vain joitakin

toimintaan osallistuvia tahoja kerrallaan. Tässä mielessä oikeuksienhallinta on relatiivista. Tällä tavoin käyttö ja toiminta eli valtakyllästetty yksinoikeus ja yksinoikeutettu valta muodostavat yhteiskäyttöisten hyödykkeiden hallinnoinnin ytimen.

Uudella tavalla rakennettu ja tulkittu oikeuksienhallinta-arkkitehtuuri ei siis rakennu pelkästään sen varaan, että oikeuksia kyettäisiin siirtämään etupiiristä toiseen. Juuri tässä suhteessa yhteiskäyttöiset hyödykkeet tarjoavat malliesimerkin. Yhteisöllisten intressien muodostama alue ei nimittäin edes toimi ilman että dynamiikka määritellään perinteisestä poikkeavalla tavalla; uuden tulkinnan tarve on ilmeinen. Yhteiskäyttöiset hyödykkeet nimittäin kuuluvat oikeastaan yhteisölle, ei yksilölle. Nämä hyödykkeet ovat siis *yhteisön omaisuutta*, ja tässä mielessä niiden käyttö ei erottele henkilötahoja siten, että osa määrittyisi sisä- ja osa ulkopuolisiksi. Juuri tästä syystä dynamiikka ja erityisesti *dynamiikan ydin siirtyy* yhteisöllisten intressien osalta vaihdantaan painottuneesta dynamiikasta *toimintaan painottuvan dynamiikan* suuntaan. Tällä tavoin yhteiskäyttöisten hyödykkeiden käytön dynamiikka silti säilyy relatiivisena ja koskee ainoastaan toimintaan osallisia.

6 VAIKUTUS IMMATERIAALIOIKEUKSIEN JÄRJESTELMÄÄN

Immateriaalioikeudet ovat kommunikaatiota. Kommunikatiivisuus asettuu kuitenkin kyseenalaiseen valoon perinteisessä immateriaalioikeuksien järjestelmässä. Perinteinen järjestelmä perustuu inventioille staattisina *pistemäisinä tapahtumina*. Samalla koko järjestelmästä muodostuu staattinen. Staattisuus johtuu välttämättä invention käsitteestä ja sen staattisuudesta. Käsite nimittäin itsessään edellyttää, että kaikille siihen sisältyville elementeille on löydettävä tiukat määritelmät, jolloin käsitteen ulkopuolelle jäävät elementit kyetään rajaamaan pois. Invention määreet tulevat siten suoraan osaksi sen sisältöä, jolloin sisältö muodostuu lineaariseksi. Käsitteen ydin siis määritellään kahtiajaon sisällytetty/poissuljettu nojalla. Samalla tämä kuitenkin *tekee inventiosta staattisen ja stabiilin.* Inventiosta muodostuu siten perinteisen järjestelmän prototyyppi. Invention staattisista lähtökohdista on kuitenkin hankala tarkastella digitaaliajan innovaatioita - ja inventioitakin. Siten toisinaan jo pelkästään invention määritelmä ja sen sisältö tekee invention ja innovaation keskinäisten erojen näkemisen hankalaksi tai jopa mahdottomaksi. Hyvänä esimerkkinä on idea ja sen suojaaminen. Inventio nimittäin perustuu aina ideaan. Kuitenkin tultuaan osaksi inventiota idea jää aina ytimeltään inventiota itseään dynaamisemmaksi. Ideat taas puolestaan muodostavat innovatiivisuuden perustan ja ovat siis siksikin luonteeltaan olennaisesti dynaamisia. Sen vuoksi suurin ongelma invention staattisuudessa syntyy juuri idean dynaamisuudesta suhteessa invention omistukselliseen, staattiseen luonteeseen. Ideat ja informaatio digitaaliajan invention ytimenä aiheuttavat perinteiselle järjestelmälle siten suurimmat muutospaineet. Digitaalitalouden tuomat

muutospaineet kiinnittyvätkin erityisesti juuri ideoihin ja niiden keskeiseen rooliin inventioiden synnyssä.

Digitaaliset inventiot perustuvat informaation vapaaseen saatavuuteen ja ideoiden vapaaseen kulkuun. Tämä prosessi on keskeisesti dynaaminen ja se muodostaa digitaalisten inventioiden ytimen. Informaatio on kuitenkin suhteellisen hankala määritellä tiukoin edellytyksin, samoin kuin sitä on vaikea pakottaa tiettyyn valmiiseen muottiin, siis perinteisellä tavalla määritellyksi inventioksi. Siksi invention staattinen malli saattaa osaltaan jopa rajoittaa riittävän vahvaa suojaa. Informaatio siis kaiken kaikkiaan näyttäisi olevan hankala sekä määrittää että stabiloida. Ongelma jakautuu kahdelle perusteelle: harkittaessa informaatiolle sopivaa suojamuotoa kuviosta *puuttuu usein varsinainen suojan kohde*. Toisaalta informaation suojaamisessa *puutteita esiintyy myös riittävässä subjektiivisuudessa*. Tällainen eroavuus kyseenalaistaa subjektiivisen oikeuden keskeisyyden invention eräänä keskeiselementtinä. Vaade kaikilla oikeuksilla olevasta subjektista muodostaa erään varallisuusoikeuden kantavista rakenteista. Subjektiivinen oikeus, kuten juuri esimerkiksi jokin varallisuusoikeus, rakentuu tietyille perusedellytyksille. Toisaalta subjektiivinen oikeus on konstruoitavissa ainoastaan silloin, kun nämä edellytykset täyttyvät. Vähintään on siis täytyttävä vaatimus tarkasti määrätystä oikeusobjektista. Lisäksi on oltava joku, jolle oikeudet voidaan kohdistaa eli oikeussubjekti, ja kolmanneksi on oltava näitä yhdistävä side, oikeussuhde. Digitaalinen inventio ei kuitenkaan välttämättä täytä näitä kaikkia kolmea vaadetta, eikä se siten välttämättä myöskään voi aina palautua subjektiivisen oikeuden konstruktioon. Vastakohtana digitaaliselle inventiolle toimii siis perinteinen inventio, joka on/oli usein tarkasti määritelty kaikissa edelle kuvatuissa suhteissa ja täyttää/täytti siten myös subjektiivisen oikeuden edellytykset.

Invention staattisuus muodostaa olennaisen tekijän silloin, kun määritellään, kenellä on invention hallinta. Hallinta on toisaalta omistuksen ydin. Myös tästä syystä, ollakseen jonkun hallinnassa, invention tulee olla stabiloitu, määritelty ja rajattu. Stabilointi määrittää siten sen perussuhteen, jonka varassa tehdään arvio hallinnanhaltijan ja invention keskinäissuhteesta, siis *kuka hallitsee mitä*. Tämä määritelmä ja sidos kuitenkin samanaikaisesti heikentää oikeussuhteiden elastisuutta. Tämä sidos juuri stabiloi ja jähmettää koko perinteisen oikeussuhteiden järjestelmän. Näistä lähtökohdista inventio siis määritellään hallinnanhaltijan sidonnaisuutena suhteessa inventioon. Siksi stabilointi viittaakin juuri perinteiseen oikeusjärjestelmään, missä varallisuus usein kapitalisoituu parhaiten silloin, kun se asettuu tiukan ja hyvin suojatun hallinnan piiriin. Jonkin määrittäminen inventioksi, ja sen stabiloiminen tällä tavoin ei kuitenkaan perinteisessäkään järjestelmässä tarkoita sitä, että kohde itsessään lakkasi kehittymästä, vaikkakin sen on saavutettava riittävä taso, jotta voidaan ylipäätään puhua inventiosta. Uusien inventioiden asettaminen tähän tarkasti määrättyyn kehykseen yhdessä inventoiden jatkuvan kehityksen kanssa onkin pääasiallisin ongelma esimerkiksi liiketoimintamallien patentoinnissa. Liiketoimintamallit ovat erittäin innovatiivisia, ja sellaisena vahvasti dynaamisia, mutta siitä huolimatta nekin pyritään sovittamaan invention staattiseen

määritelmään. Stabilointi tässä mielessä ja tässä yhteydessä kuitenkin estää patentoitujen liiketoimintamallien myöhemmän innovatiivisen käytön. Siten voidaan perinteisen suojan sanoa jäädyttävän koko järjestelmän.

Dynamisoitu näkökulma immateriaaliseen varallisuuteen kuvautuu parhaiten näkökulmaa vaihtamalla: polttopisteessä ei siten enää olekaan inventio staattisessa mielessä, vaan ennemminkin *invention ja sitä määrittävän ympäristön välinen suhde*. Tausta löytyy statiikasta; inventioiden käyttöä pidetään perinteisesti staattisena, jolloin staattinen näkökulma sitoo inventiot tiukasti varallisuuteen ja edellytyksiin sen käytöstä. Statiikan perustavanlaatuisuutta horjuttaa kuitenkin muutos statiikan itsensä ja dynamiikan välisessä tasapainossa, jolloin koko näkökulmasta muodostuu funktionaalinen. Samalla itse näkökulmaakin uudistetaan ja dynamisoidaan. Tällä tavoin juuri dynamiikka toimii tässä jatkuvan muutoksen moottorina. Vastaavasti invention dynamisoinnissa ja funktionalisoinnissa on huomioitava se toimintaympäristö, jossa inventioita tuotetaan ja käytetään; myös toimintaympäristö hahmotetaan tällöin dynaamisena. Juuri tästä syystä tätä uuteen selitystapaan pyrkivää näkökulmaa voidaan kutsua kommunikatiiviseksi vuorovaikutuksen muodostaessa näkökulman keskeisimmän osan.

Invention dynamisoitunut malli voidaan nähdä jo innovaationa. Koko innovaatiomallin dynamisoinnilla on ainakin yksi vakava seuraus; se nimittäin muuttaa välttämättä *oikeuden ja vallan välistä keskinäissuhdetta*. Käyttöoikeus perinteisesti käsitettynä yksinoikeutena toisin sanoen menettää sille kuuluneen keskeisen aseman. Tämä on järjestelmän dynamisoinnin suora vaikutus silloin, kun pelkkä käyttöoikeus jää välttämättä liian staattiseksi, jotta sen avulla voitaisiin kuvata dynaamisia oikeusilmiöitä. Staattisuuden sijaan järjestelmä tulisikin perustaa dynamiikalle, jolloin keskeisimmäksi käsitteeksi nousee käyttöoikeuden sijasta valta kykynä vaikuttaa toiminnassa aktiivisina näyttäytyvien tahojen toiminnallisiin positioihin. Samalla tällainen valtakyllästetty asema muuttaa koko toiminnan dynaamiseksi. Edelleen, yhtäkään toiminnallisista kokonaisuuksista ei voida tarkastella kokonaan irrallaan ympäristöstään, vaan ne toimivat tiiviissä yhteistyössä ympäristönsä kanssa. Toimintaympäristön tuleminen osaksi toimintojen kokonaisuutta on siten suora seuraus dynaamisen aspektin nostamisesta keskeiseen asemaan. Samalla myös siis toimintaympäristöstä tulee yksi arkkitehtuurin toiminnallisista osista. Vastaavasti toiminnassa aktiivisena näyttäytyviä tahoja tarkastellaan toimintaympäristön muodostamaa kehikkoa vasten, jolloin siis kyetään kuvaavasti tuomaan esiin yksinoikeuden ja vallan keskinäinen leikkauskohta, samoin kuin digitaalisen talouden keskeiselementit.

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