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To Regulate or Not to Regulate: Prevalence and Impact of a Virtual Society *

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1. Introduction

On the eve of a new millennium, interest from different areas is being focused on the arrival of what is called the “virtual society”. Information and communication technology (ICT) increases the opportunities of creating, according to the circumstances at a given time, the right organizational mix. Inflexible ‘physical’ organizations are replaced by dynamic ‘virtual’ organizations. As boundaries of countries and institutions fade or become less relevant and durable, the organization of (government) services, production and commerce will become more global through electronic (paperless) communications which are better structured and can be easily concluded.

Although a real virtual society still seems a situation yet to come, we note that already now, income derived from the generation of information and the processing of information, makes up a large part of our national income. More and more our economic transactions will become computerized. A simple illustration is our payment behaviour: our old-fashioned canvas or leather purse is being replaced by a plastic smartcard. Also the transparency and organization of market structures will be influenced by different kinds of information and communication technology. Customer management and made-to-measure services are the objectives arising from these newly developed technological opportunities. Indeed, with the help of ICT consumer behaviour can be observed more closely. This phenomenon is emphasized through the phrase ICT will ‘intimate’ the economy.¹ We observe that the economy as a whole and particularly those companies operating in economic lines of business have in effect been waiting for the transformation processes of both globalization and intimization.

* This article is based on a study conducted for the Dutch Scientific Council for Government Policy (WRR) published in the report ‘Volatiliseren in de Economie’ (Den Haag, 1997).

It is obvious that the described information-economy and future virtual society will influence other domains. One of these domains is law. We find that the above-mentioned dualistic tendency of 'globalization' and 'intimacy' both exercise a strong influence on fundamental judicial principles. The new dynamic and complex information-economy will make it increasingly difficult for the legislator to get a grip on regulation.

In general, we think the following nine processes provide a broad example of the effects of the introduction of ICT. These are:

- fading geographical boundaries;
- fading organizational boundaries: virtualization;
- diminishing social relationships;
- concentration of information;
- dematerialization;
- reduction of human involvement;
- speed and deadlines;
- scaling-up and scaling-down;
- switch from territory-bound to individually-bound processes.

In this article we intend to describe in what way these processes influence our day-to-day actions and have implications for the legal description of these acts. By looking at the legal consequences of informatization from the perspective of above processes and thus clustering these consequences, we believe that a more clear understanding can be gained as to what the impact on our legal system is really about.

Subsequently, we formulate approaches that may benefit the legislator while deciding whether or not to regulate ICT developments. In general, there is criticism concerning the developments around the ICT regulation. This criticism can be viewed in different ways such as, complaints about too much control, complaints about the complexity of regulations towards companies, organizations and citizens, complaints about the lack of enforceability of regulations and the lack of legitimacy of the law. From the point of view of both the general quality of legislation and from the point of view of facilitating an effective information economy, it is important that ICT regulation is well structured and well thought through. We believe that looking at the impact of ICT on a process-basis rather than on a topic-by-topic basis (e.g. privacy, intellectual property, consumer protection), will leave the legislator with better insights to find the necessary regulatory options.

2. Nine Fundamental Processes Influencing Law

In the following paragraphs we describe the processes referred to in the introduction.

2.1. *The Fading of Geographical Boundaries*

Electronic information tarts geographical boundaries. Computer systems abroad can be as easily consulted as a system in one's own study. It doesn't make any difference to the Dutch Internet surfer whether he obtains his information in his own country or from the USA. All in all, what it really boils down to is that physical contacts between people will increasingly be replaced by electronic contacts. Therefore, several traditional (classical) boundaries will fade. We are on the brink of a new society where three-dimensional areas are losing ground.

The absence of geographical boundaries is noticeable, for instance, through electronic transactions. A person in the United Kingdom can carry out a simple on-line transaction in Germany which is subsequently registered in France and the 'product', for example information resources, can be viewed from the individual's own PC. Another (technical) aspect is that because of the so-called self-routing system, the electronic message is no longer controlled by people. This makes it increasingly more difficult to determine which route and via which country a certain message was sent before it arrived at its destination. From the judicial point of view this means that it is not easy to see which jurisdictions a message passed through.

Fading boundaries will have repercussions on law because physical characteristics form the basis for the application of certain rules. From a judicial standpoint, one of the important developments in this respect is the "statelessness of the law". As known, the concept of the state is, for several reasons, fundamental for the law. Besides the fact that its concept is the foundation of the legitimacy of the law, it also forms the framework for national as well as international rights of law and law enforcement. Because geographical boundaries are being replaced by electronic ones we can state that ICT is exposing the present national establishment. There is, of course, the possibility of applying the international private law (agreements) as a solution but there is growing scepticism as to whether this is the right course to take.

2.2. *Fading Organizational Boundaries: Virtualization*

Geographical boundaries are not the only ones to be threatened by the arrival of ICT. Other organizational concepts and boundaries to which we are accustomed at present are also under threat. As mentioned, inflexible 'physical' organizations will increasingly be replaced by dynamic 'virtual' organizations. ICT increases the opportunities of creating, according to the circumstances at a given time, the right organizational mix. Government bodies will also not escape these developments. The virtual government counters that are at present being established in several countries will no doubt be the first

step in this direction; a citizen must be able to call on one of these counters for a number of services. At present, the law however does not possess the right tools to be able to provide adequate legislation for such rapidly and in potential ever-changing organizational units.

Not only will virtualization of organizations take place but also virtualization of information complexes will develop. Through the integration of different data files one cannot speak of physical databases but of virtual databases. Integrated databases will be composed ad hoc by the user and will only appear on the user's screen. The question which now arises is, how do these developments affect the present concepts of a 'personal data file', as used in many national acts?

Furthermore, ICT makes it possible for people and companies to identify themselves in different ways and under different 'virtual' identities. This means that not only can one participate under numerous aliases but we have observed that it is impossible to be 100% sure that a legal transaction has indeed taken place with a certain person or company. In a digital environment one can never speak of a *unique* identification.² All in all this means that if we in our information-society want to introduce, in the interest of determining specific judicial implications, a functional equivalent of certain traditional concepts, we must accept that there will be some loop holes as far as *reliability* is concerned.

We can conclude by stating that there is a transition from vertical communication lines (within organizational boundaries) to horizontal communication lines (beyond organizational boundaries). In addition, in an electronic environment organizational boundaries can be temporary and therefore, the identity of an individual or organization can be difficult to trace. In an environment where several ICT applications make it possible for communication and relationship patterns to change depending on which activity one undertakes, physical organizations will no longer need to be the only type of organization with the status of a legal person. This also gives rise to important complications as regards the concepts under which the law is applied at present.

2.3. *Fading Relationships in Society*

Likewise it is becoming apparent that several related developments will lead to the adjustment of many social relationships. One of these developments is ICT. An important relationship which is diminishing due to these developments is that between the public and private sector. The state is aware of ICT's possibilities and is becoming a co-partner on the market, in other words the state becomes an *entrepreneur*. In this respect it is becoming more gainful for government organizations to sell information. Although the market for government information is not in full swing at the moment, recent developments

indicate that the exploitation of government information will experience problems. Problems arise because on the one hand the regulations prescribe that government information must be made available to the public at a small cost but, on the other hand government institutions should be allowed to sell their information to certain commercial publishers, which excludes others from obtaining the information. The question is what limitations should be drawn up for the future development of the government information market taking into account not only the guaranteed constitutional public principle, but also its position as an honest competitor on the market. Increasing social inequality could result in the commercialization of government information.³

Another social relationship which we envisage will diminish under the influence of ICT is that between consumer and producer. In comparison with traditional media, ICT offers new horizons for interaction between sender and receiver. In fact, ICT offers the participants of economic traffic new participation possibilities. Traditionally, the consumer was only considered as an information receiver. However, in future the consumer will be a participant of information traffic. The consumer can determine the selections and combinations and becomes an information producer.⁴ Although, on the one hand extra possibilities have been created, as far as consumer protection is concerned, danger lurks around the corner. This will be discussed in more detail in the sub-paragraph entitled the electronic consumer.

2.4. *The Concentration of Information*

We can state that an important characteristic of the innovations concerning ICT's application is the optimization of the information chain. The possibility of observation, retention, transmission and adaptation of information is ever-increasing and the implications of this are very clear; it enables an enormous quantity of information to be used systematically, reliably, quickly, cheaply and inconspicuously.⁵

The power of obtaining and analysing information can result in important benefits for a company's market position. The first which springs to mind is the use of information to obtain a good profile of the potential market. In this respect we refer to just a few of the possibilities for gathering information such as tele-shopping and loyalty schemes. Another possibility is the introduction of intelligent telephone systems which act as management information systems and can be used to evaluate the productivity of a company's personnel. The use of such telephone systems can also be applied for consumer group call profiles.

Looking at these developments from a legal perspective, the repercussions are not altogether clear. Because of ICT applications, opinions concerning what is admissible in information-traffic are now under discussion.

The restrictions on the use of applications containing personal data will also in the future constantly have to stand up to the pressure of newly created and developed possibilities. In this way, pressure is already building up on the strongly increasing possibilities to match databanks (this creates a sort of virtual registration, see above), raising questions in relation to the Acts on personal data protection.

2.5. *Dematerialization*

ICT has had a dematerializing effect on many processes. Hand-written documents are, for example, being replaced by electronically produced documents, information is no longer provided in writing but delivered electronically and software is no longer presented on a disk but downloaded via the network. In view of the fact that the law is very often based on physical objects, these developments demand revision of this legal concept..

In many cases the law demands procedural requisites. Written material such as bills of lading and testaments must comply with certain procedural requisites in order to be considered valid. If these documents were to be replaced by electronic versions, this could mean that, in the event of unabridged procedural requisites being demanded, an electronic version would be absolutely worthless. As it is the present tendency to, for example, send bills of lading electronically steps must now be taken to avoid any unintended effects.

The fact that information is not presented in written form (e.g. a book or magazine) but electronically does create problems for the law. When submitting written information it is considered that this is a commodity (e.g. a book), when electronic information is submitted it is considered a service. This distinction is, for example, important for applicable law (see consequences for tax law below).

This also gives rise to new questions about 'ownership' of non-physical goods. With the introduction of a smartcard with a multi-functional application (e.g. a health-care application in combination with a payment function and public transportation ticket), we see that for the first time differentiated information can be assembled and made available. This heralds important legal consequences. Who is the 'owner' of this multi-functional chipcard on which several application providers have placed valuable information concerning their companies activities? Not only this but the position of owners of numbers, e-mail addresses and Internet domain names are, in this respect, an interesting subject (compare the problems concerning number portability).

2.6. *Declining Human Involvement*

The introduction of ICT-applications has very often made human involvement unnecessary. A supplies management system can order products automatically when the supply figures indicate that a minimum is in store. The status of such an event is unclear. Is it possible for an agreement or more generally, a legal procedure to be generated without human intervention? As known, a legal agreement demands at least the will to effectuate legal consequences which has been made public through a statement. Furthermore, certain behaviour does not have legal consequences in the event of intention or guilt. Through Electronic Data Interchange (EDI) users endeavour to reach an agreement via an electronic offer and an electronic acceptance. The previously mentioned concepts such as 'will', 'intention' and 'guilt' will no longer hold their original meaning in such an environment. What does the 'will' of a computer mean and, can a computer 'deviate' or misconstrue the facts? Indeed, these and other conceptual shortcomings must be looked into and also how such 'classical' concepts ought to be adapted to an electronic world.

2.7. *Speed and Conditions*

The law is based on old-fashioned ideas about speed, time and distance. Processes are thought about in terms of man-hours and physical distances. Now that technological developments have made it possible for information to be exchanged, analyzed and acted upon more quickly, the time has come to review these conditions to see whether they are too lengthy or not. The response to the question as to what, in judicial terms, are acceptable conditions will also have to be reviewed. Reducing the conditions will make a number of processes more dynamic. The economic benefits to be gained by reducing the length of time involved in these processes must not be underestimated.

2.8. *Scaling Up and Scaling Down*

The introduction of ICT leads to both scaling up and scaling down. Scaling up is a result of information distribution which until recently, was restricted to physical boundaries of information distribution through newspapers or by other means of direct (tele)communication. ICT makes it possible to distribute in a matter of seconds a message world-wide to for example news groups, mailing lists or frequently visited world-wide web pages. This means that thanks to ICT, an individual or small company has access to the same opportunities to distribute information as a multi-national. As a result local or

national problems (for example, the distribution of racial remarks) can turn quite simply into world issues.

These new technologies not only offer new opportunities for scaling up but also promise far-reaching possibilities for scaling down. Our information society is changing into a tailor-made society: a society which is aimed at involving the individual in production and service processes. An opportunity is created in which a choice can be made as to which service (packages) one really wants to use. Thus there is a switch from broadcast to narrow cast information. This is also true for the standards involved in physical and organizational principles. The transience to a tailor-made society should also be carefully studied to determine whether standardizations involved in this shift should be adopted. A careful eye should be kept on scaling down so that there is no unacceptable adulteration of solidarity; the availability of some services and products must remain guaranteed even though on the basis of solidarity, some means must be allocated.

We further mention the relativity concerning the scale of organizations. In various countries, the law contains principles which, depending on the size of a company or organization offering consumer services, regulate the level of consumer protection. It is apparent that because of ICT the scale of organizations is becoming less relevant. Since the introduction of networks and databases the scale of information which can be gathered and processed has explosively increased. The fact is, information is easy to distribute and is universally (commonly) used. As a result the legal concepts as traditionally applied in relation to the organizational capacity of a company no longer suffice. ICT allows for a situation where an organization may be very small in size, but has through their large-scale information and technological communication activities a large scale impact on the market.⁶ Small and medium scale enterprises can also be active world-wide. This raises the question from the regulation point of view (e.g. the eligibility to compete with one another) how does one define a 'small or medium enterprise'? In any case, the criterium regarding scale should, it appears, be strongly put into perspective as far as the law is concerned.

2.9. The Shift from Territory Bound to Individually Confined Processes

The previously indicated declining influence of space division is one of the main reasons for the shift from territory bound to individually confined processes bringing about a need for the shift from territory bound to individually confined steering. In future, it will be even more difficult to carry out steering processes within one's national borders. ICT regulations which cover only one territory will be very easy to evade (see criminal law enforcement and taxation below). In view of the decreasing number of possibilities for

territory bound steering a solution must be found. A possibility might be to work with steering concepts based on individuals: it makes individuals the key figure on determining what law or regulation applies. A nation can, for example, enforce rules on every individual who holds the nationality of that country. This could provide a solution for certain problems pertaining to the use of ICT. At the same time this approach also means that sovereignty must be partially surrendered. For example, a person with a certain nationality can be prosecuted in that country only whereas he cannot be prosecuted in the country of the *locus delicti*.

Another reason for the basis of the necessity to rescind territory bound steering and regulation is the world interdependency between markets and states which is stimulated by the use of ICT.

3. Changing Characteristics

As a result of the processes pinpointed above, we note that several characteristics that structure both our society and the manner in which people act in society, disappear. We mention here: transparency, territorialism, singularity and identity. Underneath, they will be highlighted through the following legal issues: privacy, criminal law enforcement, taxation, the notary act, trusted third parties, encryption and the electronic consumer.

3.1. *Transparency*

ICT has a strong influence on the aspect of transparency. This has important consequences especially regarding the concept of privacy. The consequences are, however, ambiguous. On the one hand ICT puts pressure on the transparency of a citizen with respect to the control over his/her data. On the other, ICT provides an opportunity to create transparency for a citizen or organization. It can be said that it is a technological annexation of the privacy sphere. From an economic point of view important opportunities arise. From the privacy angle there are clearly certain dangers.

3.1.1. *Privacy of Individuals: Personal Data*

With the emergence of new technologies the privacy-concept is constantly under revision.⁷ These technologies primarily result in the expansion of the concept of privacy. The line of division between personal data and anonymous data or for example object data is becoming less important, for example in case of profiles of target groups. Principally the possibilities which new information and communication technology provide to convert specific data to personal data can create new problems. Methods of reidentification can

be: response knowledge, coupling or databank comparison and spontaneous identification. Response identification occurs for example, when someone learns from an anonymous file whether a certain individual has participated in a survey. Through coupling or comparing files two or more data files can, with computerized help, be compared with each other resulting in the identification of the individual. Spontaneous identification is possible when an individual is considered to be 'unique' in a certain aspect, such as Her Majesty the Queen or the Minister of Justice. This can sometimes be avoided by carrying out certain technical measures to ensure that data cannot be traced to individuals and that the appropriate legal rules are applied.

Besides the possibility of reidentifying anonymous data, an individual's object data can also be traced. An example of 'object data' is the data which, within the framework of the National Car Identity Card, is registered or information regarding the sales price of houses as in the case of a unique building where it is possible to determine the identity of the owner by consulting the land registry.

ICT is economically valuable but from a privacy point of view, its development also hides a threat and that is the possibility of manipulating data. The expansion of data-analysis methods such as knowledge discovery in databases (also referred to as data mining) has also far-reaching consequences for privacy and the privacy-concept. These methods stimulate for instance, the birth of so-called data-warehouses which can act as a basis for building a profile. The tolerance of these data-warehouses must be questioned if these can be used for all kinds of means and ends. To date the use of profiles has received little attention in privacy literature. Finally, we draw attention to the subject of internationalization of privacy which has been boosted by the arrival of ICT. The opportunities to use data internationally and for international data exchange are enormous thanks to the emergence of ICT. However, the problem recurs because although these developments provide important economic opportunities, the informational privacy of citizens at an international level is under threat. All in all the situation demands a balanced protection regime which in an international context can be accepted and maintained.

The afore-mentioned developments prompt the reconceptualization of the issue of privacy. The emphasis in the discussion about privacy no longer lies in seeking the definition of an absolute right to privacy but rather the protection of a citizen's right to a certain degree of control over his/her personal data. The European Council Directive on the protection of personal data is a first step in this direction. As a result of the Directive, all member-states should, as far as possible, adjust their national privacy law according to the level set by the European Union. The objective being to banish all regulation differences between member-states and thereby removing any kind

of commercial restrictions (in as far as a prohibition of personal data export) which might be in force. To a certain extent these privacy rules also provide a point of departure for the reconceptualization of the privacy issue; being the conditions under which the processing of personal data is carried out. Many of the present laws in the member-states are based on an out-dated concept of regulating the files in which personal data are kept, instead of regulating the processing of personal data.

3.1.2. *Privacy of Legal Persons*

Companies are becoming more transparent for the government. Since the introduction of ICT in public administration, improvement of objectivity and effectiveness both in the development and in the application of policy programmes is already noticeable. We can see from these developments that the government to a growing extent bases its decisions on information obtained from ICT (profiles, etc.) and no longer relies on information given by the legal persons. In addition, ICT developments increase the possibility of tracing individuals through company data. In general, it is becoming more and more difficult for legal persons to keep an eye on what is registered about them and the consequences this has on the decisions taken by the government. Therefore, it must be considered whether the right of privacy must also be introduced for legal persons.

A tendency which ICT has also uncovered or at least in our view, has strengthened, is that the government has imposed 'gentlemen's services' on companies. The introduction of ICT has provided the government with important opportunities by enabling them to use information gathered by companies to implement laws and regulations. In the future, we foresee the government utilizing this electronic doorway to companies even more frequently to gain easy access to information. As a result of the growing stream of information of company relevant data towards the government, people have called for a discussion to establish the circumstances under which the government may extract company-relevant information. The absence of the right to privacy of legal persons leads to the undermining of the privacy concept; in order to obtain information concerning the credibility of legal persons, data on individual persons must be used.⁸ We feel that precisely because of the *effect* of the absence of privacy protection for legal persons, a discussion should be started on the pro's and con's of providing legal persons with a certain level of protection.

3.2. *Territorialism*

We previously established that as a result of the effects of ICT, territorialism is questionable. This has important consequences for the law. We will explain

this from the viewpoint of criminal law enforcement and taxation in the following paragraph.

3.2.1. *Criminal Law Enforcement*

Traditionally, only the persons who live within the state territory are bound by the law of that state. The possibility of upholding criminal law strongly depends on the territory within which a criminal act has taken place: the *locus delicti*. With the introduction of ICT it has become more difficult to determine where a criminal offence has taken place. Suppose for instance, a Dutch organization like CP'86 made racial discriminatory remarks via Internet, however, these remarks were not transmitted through a Dutch service-provider but through a service-provider in the USA. In order to complicate matters further and to escape prosecution, at least in the first instance, the organization did not place the information from the Netherlands on the server of the service provider, but, for example, from Belgium or Germany. In principle, we may conclude that a criminal offence was committed (under the Dutch Penal Code: article 137 – insulting an ethnic group; article 137d – provocation of hate, discrimination and violence, and article 137e – publication of discriminatory remarks). However, it is questionable where exactly this offence was committed and whether the prosecution can be carried out in The Netherlands. In addition, there is not only the question whether CP'86 can be prosecuted and penalized but the same question arises regarding the service-provider. Problems also occur with respect to established theories about when and by whom sanctions can be imposed. Similar problems will be encountered with games of chance through Internet (virtual gambling).

3.2.2. *Levying of Taxes*

The present system for levying taxes is based on the existence of states and geographical boundaries. For example, income tax and turnover tax are levied in respectively the country in which the income was gained and the country in which the goods were sold. ICT has important consequences for the possibilities and impossibilities of levying taxes.⁹ Transactions which are carried out via computer networks are difficult to trace and occur so quickly that the tax authorities have little control over these transactions. In addition, territorial boundaries between states disappear in the maze of transactions within the network. As soon as transactions are carried out over cross-borders conflicts can arise regarding who should levy the authorized tax. Each state which is involved in (profits of) a transaction can, in principle, stake its claim to the right of tax. This leads to questions such as: where should the earned income or profit be taxed and where should the turnover tax be levied? It would appear that through the introduction of ICT, fiscal sovereignty could seriously become affected.

These problems become clearer when there is talk of a levy on taxation for delivered goods or services carried out. The arrival of electronic transactions makes it difficult to tell the difference between goods and services. For example, can in some cases the delivery of data in the fiscal-technical sense, be considered the same as the delivery of goods or does this always refer to services? The distinction is very important for turnover tax purposes. In principle, turnover tax on goods is levied from their place of dispatch at that moment. In the case of turnover tax on services this is levied in the place of residence of the service provider. In both cases profit and income tax are levied on respectively the place where the deliverer of goods or provider of services lodges or resides. If a company also has a permanent address or place of residence abroad, then part of the profit from income can also be allocated to another fiscal territory.

In the event of furnishing goods and providing services, the rules regarding tax levies are also based on the physical location where the goods are held at the time of delivery or from the address where the services have been rendered. When dealing with transactions via computer networks there are problems because physical locations and frontiers no longer play an (important) role. To illustrate: providing access to general data through an on-line database can be regarded as providing services. The value of the service is reflected in the way the data is organized and access is made possible. If the provider of the services controls database servers at a distance in different countries, one can query where the services originate from. From the country where the provider maintains the database, from the country where the database service is physically located or from the country where the user of the services resides?

A similar problem arises by the provision of so-called shareware. In this instance, a user can download software usually from a large number of different locations. As soon as the evaluation period has elapsed, the user must register and pay for the use of the software. Upon payment the user becomes, for tax purposes, the economic owner of the software and the transfer of software is, for tax purposes, registered as the delivery of non-physical goods. In such cases, the question is "where were the goods at the time of delivery"? At one of the many service providers of software on a server or in the country where the company which developed the software is located or operates from and from where payment is finally made to? Furthermore, there is also the question of royalties and taxation in the country from which payment is made.

In view of the fact that tax authorities decide independently from one another whether taxation should be levied a difference in interpretation can arise between the different states. It can arise that a certain state regards a server managed from a distance as a company with a permanent residence

or abode and therefore determines that the company falls within the fiscal territory of that state, whereas another state can decide the opposite. Because of this difference in interpretation it can occur that either double or indeed no taxation is levied which, from an economic perspective, can have significant consequences.

3.3. *Unity*

As a result of the application of ICT and the consequent lack of physical contact, unique identification of persons or institutions can no longer be guaranteed at least this can only be guaranteed by using certain services and techniques (Trusted Third Parties, encryption, digital signatures). We explain this by means of the instrument of a notary act and continue by discussing the judicial problems concerning the use of such techniques.

3.3.1. *The Notary Act*

There are two important aspects involving the legal value of a Notary Act: i) the validity of the notary agreement¹⁰ and ii) the own observations and tasks of a notary.

ad i) In principle, the signature on an notary agreement could be replaced by a digital one. The notary furnishes an electronic act with an electronic signature. However, the problem which arises here is that it cannot be 100% verified whether the electronic signature was in fact that of the notary who dealt with the document. It can also not be ascertained whether the declaration by the notary in his capacity as such was carried out. Since, for all purposes it is not certain that the notary had in fact ascertained whether the relevant parties were those they purported to be during the signing of the act. It could be that the deputy notary had signed the electronic act provisionally.¹¹

ad ii) The condition that the absolute evidentiary value of the notary act is restricted to his/her own observations and authorization as notary can, because of the introduction of a functional electronic equivalent of the notary act give rise to several problems. The fact is that an electronic environment can restrict the possibilities of a notary being able to carry out his own observations. For instance, the notary must in the case of execution of acts which contain last testaments and require witnesses, ensure that the witness understands the contents of the act. A notary will no longer be able to perform this duty if witnesses submit their declaration digitally. Although there are several safeguard techniques (such as the encryption of messages and digital signatures) which can guarantee the contents of a declaration of parties has not been altered during transmission on the network, the problem still remains that the circumstances under which the parties submitted their declarations cannot be validated by the notary through an electronic medium. These were

not made in his/her physical presence. The extension of the guarantee is, from this point of view, limited to the observations of the notary which depend upon the way in which the electronic declaration was received.

The notary act is therefore an example of the fact that out-dated concepts (written notary act) are no longer valid, while, at the same time new concepts can (for the time being) not replace the essential value and rationale of the traditional notary act. Nevertheless, we can conclude from the above that from a legal evidence point of view, the electronic version of the notary act cannot be compared with the notary act as we know it. Sole identification cannot, as yet, be guaranteed.

3.3.2. *Trusted Third Party*

A solution to this problem can be found in the so-called trusted third party (TTP). An independent third party can guarantee the confidentiality, integrity and authenticity of messages sent by means of certifying a public key with the use of an asymmetric cryptosystem (also called public-key cryptosystem). The TTP fulfils the role of certification authority.

We believe that the instrument of an independent (trusted) third party will play an ever-increasing and bigger role in the information society (not only for the above-mentioned functions but also for functions such as the time stamping of documents, the filing of and possible issue of certain information, escrow,¹² and the provision of electronic evidence). There is a growing demand for these new kinds of services which of course, also develop legal issues. For example, if the TTP's are to adequately fulfil their necessary role, the liability and qualification of such services requires that under the law, such as the telecommunication rules, the position of TTP's is specified and made clear. Furthermore, guarantees must be given regarding the reliability of TTP's (for example by issuing a certificate by a super or top-level TTP).

3.3.3. *Encryption*

The arrival of ICT has made it possible for us to communicate with each other on a large scale through electronic communication media. These technological developments also mean that our traditional methods of protecting data no longer suffice. It goes without saying that our need to protect often valuable data has not diminished. To solve this problem advanced mathematical techniques and automatic processing of data has been developed in the form of encryption.

The reason why encryption is chosen is not only to keep data secret but to guarantee the integrity of data and protection of privacy. In an environment where orders are electronically processed and sent data integrity is essential. Secrecy plays an important role when sending company details and making

designs in a virtual environment like for example new cars at Ford Motors. Privacy is the key issue when sending medical data electronically.

However, as in many cases, new techniques will not only be applied for good purposes but also for bad ones. We are now being warned about criminals who can no longer be 'tapped' effectively. This has led to the view that encryption should be prohibited or at least strictly controlled. In March 1997, the OECD issued Guidelines and the (European) legislator is said to study yet again, the regulations. It is quite possible that if too tight restrictions are placed on the application of encryption for economic development it could mean electronic transactions will be somewhat restricted.

3.4. *Identity*

The last aspect which we want to discuss is identity. ICT offers on the one hand, more possibilities of finding out the identity of an individual (see paragraph 3.1). On the other hand, ICT provides important opportunities to develop anonymity. A 'digitally shopping consumer' who no longer has direct physical contact with the shop where he purchased his compact disc or book could be barely identifiable and therefore untraceable for the salesman.

3.4.1. *The Electronic Consumer*

The provision of goods and services through electronic media offers important economic opportunities but puts the 'electronic consumer' in a delicate position. By using ICT for electronic consumer services there are specific risks involved regarding the reliability of data exchange. Electronic data can be sent unauthorized or twice. In addition, data can get lost or damaged. It is not legally clear which party the consumer can approach for damages in the event of such mistakes. The consumer faces these problems because electronic messages often involve a large number of parties and because cross-border consumer services parties are regularly located in different countries, which means that regulations also differ from country-to-country. The question which arises is whether these problems can be adapted to traditional ways of thinking and legislation frameworks. Electronic consumer services no longer involve traditional transactions but paperless ones. This raises many legal questions. A few examples are: is the present legislation adequate as to allow contract transactions to be arranged per computer or do we need a new law? Should the present approach to liability be reviewed? What is the situation regarding electronic identification, and, is there any danger of the consumer's privacy being infringed? The answers to these questions are, without doubt, of importance if effective use of the new advantages of ICT is to be implemented.

4. Steps Towards an Integrated (Regulatory) Policy

ICT offers such a large and ever-expanding range of possibilities that it is impossible to regulate all its facets. A more juridical-strategic insight into the use of ICT is required which goes beyond mere facets of regulation. This means that steps towards a future integrated - mainly technically independent-type of regulation should be made. A number of these steps is highlighted below.

4.1. *Convergence and Divergence*

On the one hand we observe that convergence of law and regulations are necessary. As territories we mention the present distinction between broadcasting and telecommunication and the integration of copyright regulations concerning pictures, text and sound. It is important that such closely related territories are not approached from different angles. The first regulation tendency is therefore convergence which demands not only a cross-border but world-wide approach. We previously observed that the relevance of regulation in respect of geographical borders is not stable.

On the other hand, there will be a greater demand for diversity of norms: the second regulation tendency. It is almost certain that a division must be made between the production of information and its transmission. An increasing specialization of regulation is also necessary because the influence of informatization is approached differently in each sector. An adequate regulation of rights and obligations is required more than ever so that norms can be applied to specific information relations and information patterns.

The information society will be increasingly characterized by strong differences in sectors, processes and activities. This means that different norms and values will be applicable for different cases and at different times. Just as the implementation of digital medical technologies cannot be compared with the use of intelligent software used in determining a direct-marketing policy. Although at a technological level, such developments are comparable, the results of these developments within specific contexts and within the certain relationships and relevant interests are very different.

Also, functional division between different parts of the transportation chain (infrastructure, network services, additional value added services) each with an independent licence or general authorisation regime should be considered.

4.2. *Co-production*

It can be queried whether summarized and clear regulations can be created, especially where divergence¹³ of regulations is required. The question which

then arises is how should the necessary dual regulations¹⁴ be made effective? We could propose that within an informational society there is a greater need for rules which normalize and make things more flexible than a framework of laws that dictates and stabilizes.

First and foremost it must be stated that the regulation of certain developments in a society can be pursued and accomplished in more ways than by laws and regulations with a view to steering these practically and directly. Law and regulations in most situations do not necessarily have to be the best type of policy intervention. The present regulation of certain developments shows that the increasing diversity and variety of information implementation processes cannot be approached by a universal regime. At the legislative level this implies that merely generalized norms and guarantees should be set. In this way the government enables actors from different social sectors to be self-regulating. Furthermore, it is possible for the government to participate in such a regulation practice as an actor. The government can also function as a director of a self-regulating process; vital sections, points of view and conditions must be detailed and clearly formulated. Through this approach the role of the government shifts somewhat but remains important. This approach can be called a co-production. By relying on the – flexible – opportunities of self-regulation, it can be avoided that legislation has to work with too many technologically dependent norms. The call for more technology independent norms is closely related to the call for (flexible) context-bound norms and policy instrumentation.

4.3. *Technology Instead of Legislation*

We refer to a third steering possibility besides legislation and self-regulation. Technological innovations can be seen as important opportunities for the effective implementation of law regulations. To a certain extent the use of certain technical facilities may even make it no longer necessary to legislate on certain developments. One can think in this respect of the terrain of maintaining intellectual ownership (digital watermark) and privacy, integrity-checking, auditing and admission control). Attention can also be paid to the possibility of reloadable chipcards which can be used for anonymous services. On the one hand this means a relief from (financial) tasks for companies and, on the other, a more effective protection of the consumer's privacy.

5. Conclusions

The dynamics of society increase through the implementation of ICT. Connections become weaker, changes take place quicker and innovations appear

one after another. Traditionally the law is not an instrument which can be applied for the regulation of dynamic processes and rapid (technological) changes. The concept of a 'malleable society' where the government from a central point by means of a law and legislation controls and provides solutions for social problems becomes relative immediately. It is more likely that the government will play a facilitating role in the future certainly in the case of diverse legislation processes. Furthermore, the disappearance of geographical frontiers will also present the possibility that effective steering will rapidly decline within its own territory.

Developments which will affect the foundations of law most strongly are that of the fading or disappearance of territorial borders, the process of dematerialization and the decline in human intervention. These developments touch the very core of the law; law is very often territory bound, focused on more or less concrete physical objects and considers only (legal) persons as possible actors (and not the computer). We also refer to the changing societal relationships which involve important consequences for the law. The relationship employee-employer changes through tele-working, by tele-information the relationship government-citizen changes and through tele-shopping the relationship between producer-consumer is altered. From the social law, public administration law and private law angle, new points of view and concepts ought to be considered.

In addition, there is a number of developments which influence the law but less fundamentally so. To name a few: the disappearance of organizational boundaries (virtualization), the fading of social structures, the concentration of information, the changing of ideas about speed and deadlines and the processes of scaling-up and scaling-down.

An important problem lies in the fact that the problems which these developments bring about cannot be resolved by or within one state. The fading of geographical borders means that making new regulations which can only be applied to one territory is comparable to building a dam which cannot be closed. In other words, the possibilities provided by foreign law are gates which cannot be closed. This could probably mean that in the future, computer havens will be created (an analogue of tax havens). What is needed is an international approach. In our opinion, this approach should be the application of regulations which should no longer be bound to territories but to individuals.

The process of dematerialization and the declining human intervention make it necessary that numerous concepts within the law should be revised. For example, form requisites (written document, personal signature) should be revised so that they can be replaced by their electronic equivalent, and

room should be created so that it is possible to reach a consensus ad idem without human intervention.

In conclusion, we mention that the indicated inappropriateness of the law to adapt quickly to changes requires that the development of new (international) legislation is restricted to basic concepts and rules and does not deal with numerous technical details.¹⁵ In such cases, the government's role as problem-solver is relative; it is only one of the actors. In new types of steering emphasis must also be focused on stimulating and organizing interactions between relatively autonomous actors. The formation and implementation of policy and the creation of normative frameworks in such a concept are the result of co-production; actors from different social domains jointly search for a strategic compromise. In that event the government can act as either an actor in or a director of the social network. We believe that such an approach will make our legal system appropriately equipped and flexible for dealing with the challenges of the following century.

Notes

1. N. Negroponte, *Being Digital*. New York, 1995.
2. Nevertheless it is a fact that the 'new' identification methods such as biometrics (voice recognition, recognition of handpalm geometry, etc.) do make it possible to advance in the right direction.
3. The amount of information produced by the government is so overwhelming that (effective) access to this information is only possible by using an index of search system. Because this system is expensive this mars the access especially for those who are financially less well off.
4. There can even be an important additional value in combining information. This additional value can be made available to third parties through for example, a world wide web page.
5. In this respect, consider the electronic (consumer) files which can easily be compiled by monitoring the payment and savings patterns of an individual (e.g. by means of loyalty schemes).
6. See for example the big impact the small company Netscape Communications Corporation had in its first phase.
7. C. Hine, S. Shapiro, S. Woolgar, *Privacy in the Information Era*. CRICT Discussion Paper No. 53. Centre for Research into Innovation, Culture and Technology, Brunel University, May 1995.
8. See already in 1988: I. Walden, R.N. Savage, Data Protection and privacy laws: should organizations be protected? *International Comparative Law Quarterly*, April 1988, pp. 341-344.
9. For a more detailed description of this issue see: C.B. van der Net 'Locus delicti op het Internet', *Computerrecht*, no. 3, 1996.
10. By signing the agreement, the notary guarantees the identity of the persons appearing before him and thereby the authenticity of their signatures. This guarantee is not only binding between the involved parties but also to any third parties.
11. The ruling theory is however, that a deputy notary is not authorized to pass acts in the name of the substituted notary. Whoever contests the authenticity of the agreement must produce evidence that the signed agreement is not true and legal.

12. An escrow construction is one by which a third party (for e.g. a TTP or notary) keeps information to safely ensure the relationship of the two as agreed. Such security can be important in, for instance, cases of bankruptcy of a software producer or in cases of contract disputes.
13. In those cases where the convergence of regulations is required, a centralized (supranational) body can play an important role by setting an example through drawing up the regulations (although not as yet included in the legislation).
14. Dualism of regulation is also connected to the dual development of, on the one hand the increasing importance of standardization (if we want to communicate optimally on a world-wide level, abstract and border-crossing agreements concerning the structure and layout of messages, as well as the filing of data elements are essential) and, on the other increasing small-scale standardization.
15. It must be stated that the role of government intervention in the event of convergent legislation processes can possibly be of more importance than that of divergent legislation processes (see paragraph 4).