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Intellectual Commons: The
Normative Perspective

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ABSTRACT

This thesis examines the moral significance of the intellectual commons and proposes appropriate modes for their regulation with the aim of accommodating their social potential. In the course of exploring their normative aspects, the thesis proceeds successively by analysing (i) the ontological characteristics of the intellectual commons, (ii) the relevant literature concerning their potential and interrelation with capital, (iii) the ways that they been shaped by law across history, (iv) their circuits of value, and (iv) their elements which bear moral significance. The thesis concludes by outlining the fundamentals of a normative theory for the intellectual commons.

The thesis offers an overall analysis of the intellectual commons with the aim of grounding a holistic normative theory for their regulation by the law. The ontological part of the thesis examines the elements, characteristics, tendencies and manifestations of the intellectual commons and their potential for society from the perspective of processual ontology. Furthermore, its methodological part presents the main theories of the intellectual commons from the prism of critical epistemology and sketches out their divergent approaches on the relation between the intellectual commons and capital. In addition, its historical part exhibits the historical evolution of the cultural commons and their interrelation with law and society. Accordingly, the thesis features extensive social research concerning the ways that social value is generated, circulated, pooled together and redistributed within and beyond the communities of the intellectual commons and concerning the dialectics between commons-based and monetary values. The final normative part of the thesis analyses the moral dimension of the intellectual commons. Throughout its analysis, the thesis adheres to the methodological choices of critical theory.

The thesis demonstrates that the intellectual commons are a social regime for the regulation of intellectual production, distribution and consumption, which bears moral significance. The contemporary formations of the intellectual

commons feature elements of inherent moral value, have the potential to produce outcomes of net social benefit and underpin freedom, justice and democracy in ways, which justify their protection and promotion by the law. Morality thus requires the enactment of an independent body of statutory rules to protect the intellectual commons from encroachment by private enclosures and to promote commons-based practices in the form of a non-commercial sphere of creativity and innovation in all aspects of intellectual production, distribution and consumption.

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AUTHOR'S DECLARATION

I declare that all the material contained in this thesis is my own work.

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1. INTRODUCTION

1.1 CONTEXT AND MOTIVATION

Nowadays, the epicentre of wealth creation in our societies has rapidly shifted from tangible to intangible assets (Pagano 2014; Zheng, Santaaulalia and Koh 2015). In recent years, technology corporations (in blue colour in the table below) have overtaken “traditional” companies in terms of stock market capitalization.

Table 1.1 Top Companies by Market Capitalisation on a Global Scale

Top	2001	2006	2011	2016	February 2018
1	General Electric (\$406B)	ExxonMobil (\$446B)	ExxonMobil (\$406B)	Apple (\$582B)	Apple (\$905B)
2	Microsoft (\$365B)	General Electric (\$383B)	Apple (\$376B)	Alphabet (\$556B)	Alphabet (\$777.5B)
3	ExxonMobil (\$272B)	Total (\$327B)	Petro China (\$277B)	Microsoft (\$452B)	Microsoft (\$725B)
4	Citi (\$261B)	Microsoft (\$293B)	Shell (\$237B)	Amazon (\$364B)	Amazon (\$731B)
5	Walmart (\$260B)	Citi (\$273B)	ICBC (\$228B)	Facebook (\$359B)	Facebook (\$527B)

Source: Visualcapitalist.com

It is exactly at this cutting edge of wealth creation that people have started to

constitute intellectual commons free for access to all, by devising collaborative peer to peer modes of production and management of intellectual resources. The surge in new intellectual commons, such as open hardware design, open standards, free software, wikis, open scientific publishing, openly accessible user generated content, online content licensed under creative commons licenses, collaborative media, voluntary crowd – sourcing techniques and activities, political mobilization through electronic networks and hacktivism, internet cultures and memes, has revitalised the accumulated knowledge commons of the past, such as language, collective history, tradition, the public domain and past scientific and technological advancements. This kaleidoscope of sharing and collaborative creativity and innovation constitutes our digitized environments not as private enclosures but as shared public space, a social sphere divergent from the one reproduced by the market and the state.

Intellectual commons proliferate at the core of our knowledge – based economies, where capitalist modes of production are supposed to reach their climax of competitiveness and efficiency. This new mode of production, distribution and consumption of intellectual resources emerges in the ruptures and contradictions of capitalist intellectual production and distribution, in all cases that people form self – governed communities of collaborative innovation and produce resources free for access to all. The emergent intellectual commons have the potential to commonify intellectual production and distribution, unleash human creativity through collaboration and democratise innovation with wider positive effects for our societies. The law plays a crucial role in the regulation of the contemporary intellectual commons, either by suppressing or by unleashing their potential.

At present, intellectual property law constitutes the primal social institution framing and regulating the societal production, distribution and consumption of information, knowledge and culture. It confers legally enforceable powers to private persons to exclude the general public from sharing and collaborating over a significant part of the accumulated information, knowledge and culture

of mankind. Backed up by state enforcement, intellectual property rights arise as the social mechanism par excellence for the construction of artificial scarcity over the inherently abundant commons of the intellect. Enclosure through intellectual property law is the foundation of commodity markets inasmuch as sharing constitutes the archetypal practice of the intellectual commons.

The normative approach followed by this study stresses out the moral necessity for a set of institutions protecting and promoting commons-based peer production. According to it, the freedom to take part in science and culture ought to become the rule and private rights of exclusivity upon intellectual works the exception to the regulation of intellectual production, distribution and consumption. In this context, the transformative use of intangible resources for non-commercial purposes would remain unrestricted as essential to the participation of the public in science and culture and relevant forms of private or public non-commercial contractual syndication of sharing, creativity and innovation, such as open licensing, would be recognised and promoted by the law. In addition, the institution of the public domain would be reconstituted in order to include all types of intellectual works considered as fundamental infrastructure for creativity, innovation, social justice and democracy. The protection of the public domain by law would also be proactive, featuring explicit statutory provisions against its encroachment. Finally, exclusive rights upon intellectual works would be granted only for the purpose of providing sufficient remuneration to creators, only to the extent that exclusivity is adequate, relevant and necessary in relation to such purpose and only for time periods deemed necessary for the fulfillment of such purpose.

Contemporary intellectual property laws fail to address the social potential of the intellectual commons. We are, therefore, in pressing need of an institutional alternative beyond the inherent limitations of intellectual property law. The moral significance of the intellectual commons requires the enactment of a distinct and independent body of positive law for their protection and promotion. This law ought to be designed in such a way as to decouple the

current conjunction of intellectual commons and commodity markets under the rule of capital and provide the institutional infrastructure for the exploitation in full of the potential of the intellectual commons for self-development, collective empowerment, social justice and democracy.

1.2. RESEARCH QUESTIONS

The purpose of the current study is to lay down the foundations for the moral justification of the intellectual commons and to provide an integrated normative model for their protection and promotion. In this context, this study's main question is: Why are the intellectual commons morally significant and how should they be regulated so that their social potential is accommodated?

In order to respond to the main question of the study, the intellectual commons are examined across disciplines and perspectives according to the following research questions:

- RQ1: Which are the elements, characteristics, tendencies and manifestations of the intellectual commons and their potential for society?
- RQ2: Which are the main theories regarding the social potential of the intellectual commons and how are the intellectual commons in these theories perceived to be related with the dominant power of capital?
- RQ3: How have the cultural commons been shaped across history and, in turn, have shaped society?
- RQ4: How is social value generated, circulated, pooled together and redistributed within and beyond the communities of the intellectual commons and which are the dialectics between commons-based and monetary values?
- RQ5: Which elements and characteristics of the intellectual commons have moral significance and which ought to be the fundamentals of an

intellectual commons law, which will adequately accommodate their potential?

1.3. STRUCTURE

The current thesis is structured in ten chapters, i.e. the current introductory chapter, eight chapters which constitute the main body of the research and the conclusive chapter of the thesis. Each chapter of the main body examines the intellectual commons from a different discipline and perspective. The second chapter of the thesis analyses the ontology of the intellectual commons. The third chapter introduces the main trends in theory that have been formulated in relation to the analysis of the intellectual commons. The fourth chapter deals with the interrelation between the cultural commons and the law in historical perspective, concentrating mainly on Anglo-American and continental European history. Chapters five to eight formulate together a coherent research project on the circulation and pooling of social value in the context of the intellectual commons. The ninth chapter of the study relies on the ontological, epistemological, historical, and social research conclusions of the previous chapters of the thesis in order to produce a critical normative theory of the intellectual commons.

Overall, the eight chapters of the main body of the thesis are integrally related to each other and together form a consistent analysis of the intellectual commons and their interrelation with morality. The general structure of the study follows a scheme of gradual escalation from the empirical to the normative, starting from the ontological and epistemological analyses of the intellectual commons, proceeding to their historical and sociological examination and concluding with their normative evaluation. The second ontological and third epistemological chapters thus open the way for the historical research in the fourth and the social research in the fifth to eighth chapters and, thus, offer a solid theoretical base for the normative justifications of the ninth chapter.

1.4. KEY CONCEPTS

The reproduction of our societies is fundamentally based on the commons of tangible and intangible resources. Social reproduction is the general process through which society reproduces itself through time (Narotsky 1997: 6). It is also a dual process. It is related, on the one hand, to the circulation and accumulation or pooling of social values and, on the other hand, to the production, distribution and consumption of tangible and intangible resources (De Angelis 2007: 176). Social reproduction is a process unified in its diversity of contending modes of social reproduction, i.e. divergent sets of social practices regarding the circulation of value and the production, distribution and consumption of resources.

The intellectual commons are conceived as sets of social practices pooling together and managing in common intangible resources produced by sharing and collaboration within and among communities. These practices are at the heart of the contemporary wave of openness in intellectual production, which features such diverse phenomena as open science, open standards, open design, open hardware, free software, open databases, community media, open scientific publishing, online content openly accessible and / or licensed under copyleft licenses, alternative cultures, street art and other forms of non-commercial and / or openly accessible forms of art.

In parallel to social reproduction, the intellectual commons are also reproduced according to a dual process, which involves the combination of social activity with both resources and values. First, they are reproduced according to a specific mode of production, distribution and consumption of intangible resources, termed as commons-based peer production¹. This mode is the dialectical unity of forces and relations of commonification, as defined below:

- Subjective Forces of Commonification: Forces of commonification are both subjective and objective. The subjective powers of commonification

are the totality of commoners organised in intellectual commons' communities. In unison, they constitute the productive power of the social intellect (Fuchs 2014: 30; 2016: 15).

- **Social Intellect:** The subjective productive force, producing in community prior and existing information, communication, knowledge and culture through cooperative work and an aggregation of the work of many humans. It consists of our combined and common pooled intelligence, affect, language, skills, experience, creativity, inspiration, inventiveness, ingenuity, talent, insight and imagination, as this is put in action through en masse sharing and collaboration (Marx 1990/1867: 644; 1973: 470).
- **Objective Forces of Commonification:** The means of the practice of commonification, upon which subjective forces work and thus come in dialectical interrelation in the productive process. They are further divided between the objects and the instruments of commonification.
- **Objects of Commonification:** The aggregation of resources, tangible and intangible, used as raw input in the process of commonification, which include raw materials and radio spectrum, prior informational resources in the form of data and information, prior knowledge resources in the form of ideas, concepts, meanings, along with prior cultural resources in the form of shared symbols, ethics and norms (Benkler 2003; Hardt and Negri 2004: 148). The communities of the intellectual commons combine their creative activity with the foregoing resources to produce the outcome of commonification.
- **Instruments of Commonification:** All elements of the infrastructure employed by the subjective forces of the social intellect as means of production in the process of commonification, such as language, social structures, networks, databases, machines, equipment, devices, protocols, standards, software, applications and information / knowledge / cultural structures (Witthof 1999: 42).
- **Relations of Commonification:** The social relations in each historical context, in which the production, distribution and consumption of common pooled intangible resources is organised. Relations of

commonification are manifested in the social relations related to (i) the management of the means of production; (ii) the process of production, and (iii) the process of distribution and consumption of the outcome of production (Bauwens 2005; Benkler 2006; Hess and Ostrom 2007; Rigi 2013; Kostakis & Bauwens 2014; Benkler 2016; De Rosnay 2016).

Second, the intellectual commons are reproduced according to a specific mode of value circulation and value pooling. Concepts related to value, which are utilized throughout the study, are defined as follows:

- **Social Value:** The multiplicity of collectively constructed conceptions of the desirable in each socio-historical context, i.e. dominant and alternative conceptions of the importance people attribute to action (Graeber 2001: 15, 39, 46-47).
- **Commons-Based Value:** The set of alternative conceptions of what constitutes important activity within the communities of the intellectual commons and in society in general (De Angelis 2007: 179). Commons-based values are generated through communal productive practices aimed at certain goals (Graeber 2001: 58-59). Hence, the source of commons-based values is productive communal activity, i.e. inalienated work defined in the widest possible way (De Angelis 2007: 24; Fuchs 2014: 37).

Commons-based values circulate in society and influence dominant perceptions about social value, in particular the dominance of exchange value as the primary, or even exclusive, form of social value and the commodity markets as the primary, or even exclusive, societal value system.

The final set of concepts refers to the pair of commodification and commonification, which are defined in the following manner:

- **Commodification:** The social process of transforming resources valued

for their use into marketable commodities by destroying the communal relations and social values, which underpin such use value and management in common (De Sousa Santos 2002: 484; Mosco 2009: 129). Processes of commodification gradually extend commodity market exchange rationality into both public and private life (Mann 2012: 10).

- Commonification: The countervailing practice of transforming social relations, which generate marketable commodities valued for what they can bring in exchange, into social relations, which generate things produced by multiple creators in communal collaboration, openly accessible to communities or the wider society and valued for their use. Commonification can thus be considered as the actual movement towards commons-based societies.

1.5. ARGUMENTS AND METHODOLOGY

The aim of the second chapter of the study is the formulation of an ontology of the intellectual commons. The research question examined in this chapter inquires about the elements, characteristics, tendencies and manifestations of the intellectual commons and their potential for society. To address this question, the author adopts a processual ontological approach, by examining the intellectual commons as sets of social practices. In particular, the approach followed in this chapter starts from the view that social change is ubiquitous and that social forces, structures and institutions are constantly changing. Therefore, commoners are conceived as capable to produce, reproduce, shape, consume or transform media, culture and society, whereas social structures and institutions are conceived as capable to condition, constrain and enable commoners' subjective action. The first part of the chapter introduces the various definitions of the concept and suggests an integrated ontological approach, which views the intellectual commons as processes of both pooling common intellectual resources and reproducing the communal relations around these productive processes. Its second part focuses on the elements, which constitute the totalities of the intellectual commons. Three main elements are

outlined, which refer to the social practice of pooling a resource, the social cooperation of productive activity among peers and, finally, a community with a collective process governing the (re)production and management of the resource. Its third part emphasises on the structural tendencies of the intellectual commons. These tendencies are dialectically related with forces / relations of power in the social context to produce (i) spheres of commonification, (ii) contested spheres of commonification / commodification, (iii) co-opted spheres of commonification / commodification. Finally, the fourth and last part of the chapter deals with the various manifestations of the intellectual commons in the domains of culture, science and technology. The overall analysis in this chapter shows that intellectual commons provide the core common infrastructures of culture, science and technology. It, furthermore, reveals that the inherent tendencies of the intellectual commons bear moral significance and, therefore, their potential for society ought to be unleashed to its full extent by the law.

The third chapter aims to examine commons-based peer production from the perspective of contemporary theories of the intellectual commons. It is a literature review of the main trends in theory, which have been formulated in relation to the analysis of the intellectual commons. The chapter investigates the main theories regarding the social potential of the intellectual commons and how the intellectual commons in these theories are perceived to be related with the dominant power of capital. In this context, four families of theories are distinguished. Rational choice theories draw from the work of Elinor Ostrom and deal with the institutional characteristics of the intellectual commons, offering a perspective of complementarity between commons and capital. Neoliberal theories elaborate on the profit-maximising opportunities of the intellectual commons and further highlight their capacities of acting as fix to capital circulation / accumulation in intellectual property-enabled commodity markets. Social democratic theories propose the forging of a partnership between a transformed state and the communities of the commons and put forward specific transition plans for a commons-oriented society. Finally,

critical theories conceptualise the productive patterns encountered within intellectual commons as a proto-mode of production in germinal form, which is a direct expression of the advanced productive forces of the social intellect and has the potential to open alternatives to capital. All the sections of this chapter examine the main ethical tenets of each theoretical family regarding the morality of the intellectual commons. In the conclusion of the chapter, the four theoretical frameworks are compared and their moral arguments are combined with the aim of formulating a strong normative theory of the intellectual commons.

The fourth chapter aims to construct a historical narrative of the regulation of the cultural commons. It deals with the evolution of art and culture in relation to the law from the perspective of sharing and collaboration. It constitutes a more specific case study, concentrating mainly on Anglo-American and continental European history. This chapter examines the ways in which the cultural commons have been shaped across history and, in turn, have shaped society. To respond to this question, it draws from the methodology of critical history of law. From such a perspective, law is conceived as dialectically interrelated with society across history, both being shaped by dominant modes of social reproduction and shaping legal subjects and social practices. Accordingly, legal rules are viewed as advancing normative ideologies in their historical context, which have a transformative effect on the material world. The role of the historian of the law is to unearth the specifics of such dialectics between law and society in each socio-historical formation. The main argument put forward in this chapter is that the evolution of art and culture is an inherently collective and communal process. Furthermore, that modern and post-modern processes of commodification in the domains of art and culture have formed a dialectical relation with the emergence and consolidation of copyright law. The chapter is structured in three main parts, which, in the context of the cultural commons, consecutively examine the history of creativity and the evolution of its regulation from the Renaissance to postmodern times in the context of the Anglosaxon and continental European legal traditions. The first part tracks down the communal elements of artistic and cultural production

and the rise of the master artist during the 14th-17th centuries. The second part narrates the commodification of the cultural commons and the apogee of the promethean artist taking place from the 18th Century until the 1960s. The third part describes the decentralisation of the creative practice and the consolidation of the celebrity artist from the 1970s to the 2010s. The chapter concludes with general observations and findings elicited from the historical tendencies revealed in its main body. Its central argument is that legal institutions have generally neglected the historical prevalence of sharing and collaboration in the evolution of culture across the ages. As a result, positive law has quashed the social potential of the intellectual commons, instead of accommodating it. Hence, this chapter underpins the moral justification of an intellectual commons law with historical evidence showing the repercussions from laws overly tilted in favour of the enclosure of intangible resources. In relation to the overall structure of the thesis, the third chapter projects the moral hypotheses of the first two chapters in historical perspective and, thus, consolidates the theoretical foundations of the normative perspective of the intellectual commons.

Chapters five to eight formulate together a coherent research project on the circulation and pooling of social value in the context of the intellectual commons. They investigate the ways in which social value is generated, circulated, pooled together and redistributed within and beyond the communities of the intellectual commons and the dialectics between commons-based and monetary values. The social research chapters of the study adhere, on the one hand, to a critical realist epistemology and apply, on the other hand, a critical political economic analysis to the alternative mode of social reproduction, based on the commons. The sample of the research project is based on eight communities of the intellectual commons in Greece at the tumultuous times of the economic crisis and restructuring of the country's sovereign debt. The fifth and starting chapter of the research project outlines its methodology and design. Its first section spells out the methodological orientation of the research. In terms of philosophical orientation, the research on the one hand adheres to a critical realist epistemology and, on the other hand,

applies a critical political economic analysis to the alternative mode of social reproduction, based on the commons. In terms of methodology, a twofold iterative method of analysis is employed regarding the dialectical pairs of both theory / research and society / agency. The second section of the fifth chapter also enlists and summarises the variables, questions and hypotheses utilised in the conduct of the research. The third section describes the modes of data coding followed during the research. This methodological chapter is succeeded by the sixth and seventh chapters, which offer the findings of the research. In specific, the sixth chapter exhibits the analysis and interpretation of collected data and offers key findings on the dimensions of commons-based value. The findings reveal that social value circulates within and beyond the intellectual commons in specific sequences and circuits in multiple forms across the economic, social, cultural and political spectrum of social activity. According to the general findings of the chapter, such sequences and circuits can be codified into chain-like formulas, which show that weak forms of commons-based value at lower kettles of the chain result in the absence of commons-based value at upper levels of circulation and pooling of values. In addition, the seventh chapter of the thesis unveils the findings of the research on the dialectics between commons-based and monetary values and offers a comparison between the offline and online communities of the research sample. The eighth and final chapter sets out the conclusions of the research project. Based on the findings, this chapter sketches out the basics of the mode of commons-based value circulation and reveals the existence of crises of value within the intellectual commons due to their dependence on the dominant value system of commodity markets and the structural power of monetary values as the universal equivalent of value in our societies. In overall, these chapters reveal the moral dimension of commons-based value and exhibit which obstacles ought to be removed, so that the net social benefits of commons-based peer production acquire their full extent. Hence, they provide an important empirical basis for the utilitarian justification of commons-oriented legal institutions.

The ninth chapter of the study relies on the ontological, epistemological,

historical, and social research conclusions of the previous chapters of the thesis in order to produce a critical normative theory of the intellectual commons. It examines the elements and characteristics of the intellectual commons, which have moral significance, and sets out the fundamentals of an intellectual commons law, which can adequately accommodate their potential. The chapter is based on the methodological insights of critical jurisprudence. The foundation of critical jurisprudence is that all forms of domination are fundamentally unethical, because they estrange persons from what they could be and, thus, hinder their potential. Within this framework, the role of law as a social institution is to operate towards the abolishment of domination and the promotion of freedom, equality and democracy. By taking the standpoint of the oppressed, critical jurisprudence purports to transform the current discipline of law in all its facets into a science for the negation of the unjust. The first section of the chapter lays down the foundations of the critical normative theory of the intellectual commons on (i) an explicit orientation towards progressive social transformation; (ii) the dialectics between potentiality and actuality; (iii) the interrelation between structure and agency, and (iv) the moral significance of the dimensions of the intellectual commons. The next sections point out the ethical significance of personhood, work, value and community in the context of the intellectual commons. They provide sets of arguments from all lines of moral justification, whether deontological and political or consequentialist and utilitarian. They, thus, formulate in combination, a holistic normative theory of the intellectual commons as a social totality. The conclusive section of the chapter proposes the basic tenets of an intellectual commons law, which basically concern the proactive protection and expansion of the public domain and the recognition of an enhanced freedom to take part in science and culture for non-commercial purposes.

Overall, the study follows a multi-disciplinary approach in order to include in its analysis the multiple forms of the intellectual commons, the wide variations between them and the diversity of their social contexts. Throughout the study, the intellectual commons are viewed as contested terrains of domination and

resistance and modes of regulation are examined to achieve their potential in advancing freedom, equality and democracy. In this context, the fragmentary manifestation of the intellectual commons is considered as the direct effect of their domination by capital. Therefore, this study distances itself from liberal theorisations, which invest on fragmented case studies of social phenomena related to the intellectual commons. Instead, it relies on their conception as social totalities in dialectical interrelation with their societal context.

1.6 CONTRIBUTION TO KNOWLEDGE

This thesis contributes in multiple ways to the current level of knowledge on the intellectual commons and their normative aspects.

The second chapter of the thesis offers a dynamic ontology of the intellectual commons, by conceiving them as communal practices of sharing and collaboration with the potential to become the dominant mode for the regulation of intellectual production, distribution and consumption. The chapter begins by identifying the inherent elements and characteristics of the intellectual commons, building upon relevant work on the field (Ostrom, Lessig 2002b; Boyle 2003; Hess & Ostrom 2003; Benkler 2006; Linebaugh 2008; Bollier and Helfrich 2015). It, then, proceeds by pointing out their tendencies and manifestations in the context of their dialectical interrelation with capital and commodity markets. This chapter is an analysis of the elements of personhood, work, value and community within the intellectual commons, which bear moral significance. It, thus, constitutes the ontological basis for the normative theory of the intellectual commons developed in the study.

The fourth chapter of the thesis narrates the history of culture from the prism of the intellectual commons. It, thus, shifts the focus of analysis from the enclosures of intellectual property law to the significance of intellectual sharing and collaboration across history. Further developing arguments of legal historians over the evolution of copyright (Nesbit 1987; Hesse 1990; Jaszi 1991;

Rose 1993; Woodmansee 1984 and 1994; Drahos and Braithwaite 2002; Bracha 2004 and 2008; Deazley 2004; Coombe 2011), this chapter unfolds the argument that, despite their prominence, socialised creativity and inventiveness in recent historical periods have been framed by copyright laws in a way which has suppressed the social potential of the intellectual commons, instead of accommodating it.

Chapters five to eight unveil an integrated theory of commons-based value. Elaborating on anthropological theories of value (Graeber 2001; De Angelis 2007), this chapter exhibits the pluriversity of value in the realm of intellectual activity. Accordingly, it supports the view that the dominant value system of commodity markets is countered by the alternative mode of common-based value circulation. The sequences and circuits of commons-based value are, then, analysed in detail, codified according to specific formulae of circulation and counter-examined vis-à-vis monetary values. The chapter concludes by pointing out the unsustainability of value flows from commons-based towards monetary value circuits and the need for counter-balancing flows to avert value crises in intellectual commons' communities.

The ninth chapter of the thesis establishes the foundations of a holistic normative theory of the intellectual commons as a social totality. According to such a theory, the intellectual commons are held to be important from a normative perspective, because they bear moral aspects of personhood, work, value and community in their practices. This chapter transforms well-known deontological and consequentialist justifications of the public domain (Hettinger 1989; Litman 1990; Samuelson 2003; Benkler 1999, 2004 and 2006; Drahos 2006; Dussolier 2011; De Rosnay and De Martin 2012; Geiger 2017) into a coherent and integrated normative model for the moral justification of the intellectual commons as a social totality. It, thus, concludes by asserting the morality of the enactment of an intellectual commons law in relative independence from intellectual property law, which should embody statutory rules for the protection and promotion of the intellectual commons.

2. THE ONTOLOGY OF THE INTELLECTUAL COMMONS

2.1. INTRODUCTION

The current chapter examines the elements, characteristics, tendencies and manifestations of the intellectual commons from the standpoint of their positive potential for society. The intellectual commons are social practices of both pooling intangible resources in common and reproducing the communal relations around these productive practices. Intellectual commons are related to terrains of mainly intellectual, as demarcated from those of chiefly manual, human activity. They are constituted as ensembles of power between contending social forces of commodification and commonification. In this respect, intellectual commons are formulated as crystallisations of the sublation of the opposing forces referred to above, subject to correlations of power both within their boundaries and in their wider social context. This chapter formulates a processual ontology of the intellectual commons, by examining the substance, elements, tendencies and manifestations of their being. The first part of the chapter introduces the various definitions of the concept. Its second part focuses on the elements, which constitute the totalities of the intellectual commons. Its third part emphasises on their structural tendencies. Finally, the fourth and last part of the chapter deals with the various manifestations of the intellectual commons in the domains of culture, science and technology.

2.2. DEFINITIONS

The concept of commons is today most commonly defined in connection to resources of a specific nature. In her seminal work Ostrom conceives of the commons as types of resources –or better resource systems–, which feature certain attributes that make it costly (but not impossible) to exclude potential beneficiaries from appropriating them (Ostrom 1990: 30). Hess and Ostrom thus broadly describe a commons as a resource shared by a group of people, which is vulnerable to social dilemmas (Hess & Ostrom 2007a: 4, Hess 2008: 37).

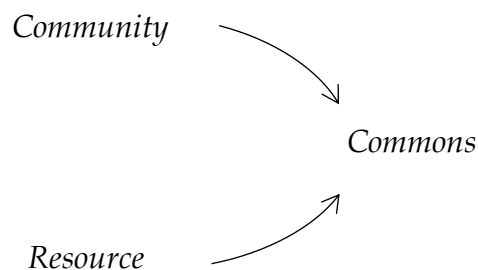
Following the same line of thought in relation to intangible resources, the same authors stress the importance of avoiding the confusion between the nature of the commons as goods and the property regimes related to them (Hess & Ostrom 2003: 119). According to this approach, information and knowledge are socially managed as common-pool resources due to their inherent properties of non-subtractability and relative non-excludability. These two attributes of common-pool resources make them “conducive to the use of communal proprietorship or ownership” (Ostrom 2008: 332). Yet, resource-based approaches run the danger of reifying the commons and downgrading their social dimension¹.

On the other hand, property – based definitions equate the social phenomenon of the commons with collective property in contradistinction with private and public property regimes (Lessig 2002b: 1788, Boyle 2008: 39, Mueller 2012). Indicatively, Derek Wall writes that “[c]ommons can be seen as a particular category of property rights based on collective rather than state or private ownership” (Wall 2014: 6). In the intellectual realm, James Boyle labels the commons of the intellect as “property's outside” or “property's antonym” (Boyle 2003: 66). Along the same lines, Jessica Litman considers that the intellectual commons coincide with the legal concept of the public domain, which he/she juxtaposes to intellectual property: “The concept of the public domain is another import from the realm of real property. In the intellectual property context, the term describes a true commons comprising elements of intellectual property that are ineligible for private ownership. The contents of the public domain may be mined by any member of the public.” (Litman 1990: 975).

Alternatively, relational / institutional approaches define the commons as sets of wider instituted social relationships between communities and resources. As Silke and Haas state, “[c]ommons are not the resources themselves but the set of relationships that are forged among individuals and a resource and individuals with each other” (Silke and Haas 2009). Linebaugh adds that “[c]ommons are not given, they are produced. Though we often say that

commons are all around us – the air we breath and the languages we use being key examples of shared wealth – it is truly only through cooperation in the production of our life that we can create them. This is because commons are not essentially material things but are social relations, constitutive social practices” (Linebaugh 2008: 50-51). Hence, according to relational / institutional approaches, the commons can be defined as “a social regime for managing shared resources and forging a community of shared values and purpose” (Clippinger and Bollier 2005: 263) or even an “institutional arrangement for governing the access to, use and disposition of resources”, in which “no single person has exclusive control over the use and disposition of any particular resource” (Benkler 2006: 60-61). In conclusion, relational / institutional approaches pinpoint that commons refer neither to communities nor to resources, but instead to the social relations and structures which develop between the two.

Figure 2.1 Locating the commons



Source: Author

At an even higher level of complexity, processual definitions pinpoint the dynamic element of the commons. According to processual approaches, commons are defined as fluid ensembles of social relationships and sets of social practices for governing the (re)production, access to and use of resources. In contrast to resource - based or property - based definitions, the commons are not equated with given resources or to the legal status emanating from their

natural attributes, but rather to social relations that are constantly reproduced (Bailey 2012). Furthermore, in contrast to relational / institutional approaches, the commons do not coincide with but are rather co-constituted by their institutional elements. According to the processual approach, the commons are a process, a state of becoming, not a state of being. Therefore, they could best be described as a verb, i.e. the process of “commoning” (Linebaugh 2008: 50-51). Hence, in contrast to analytical definitions, processual approaches refer to the ontology of commoning not as a common pool resource but as the very process of pooling common resources (Bollier and Helfrich 2015: 76).

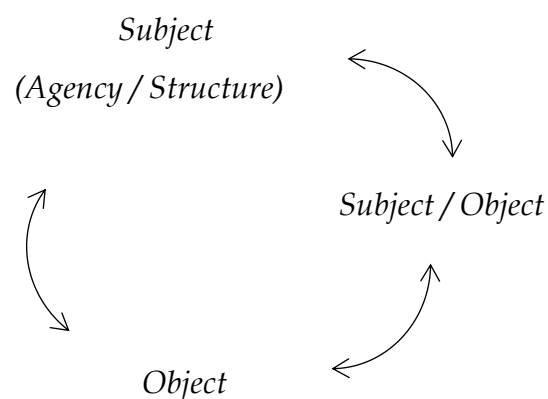
Nonetheless, the process of commoning is not only restricted to the [re]production of the resource. On the contrary, throughout this process the community itself is constantly reproduced, adapting its governance mechanisms and communal relationships in the changing environment within and outside the commons. According to such an “integrated” approach, commoning should be viewed in its totality as a process which produces forms of life in common, a distinct mode of social co-production (Agamben 2000: 9).

The intellectual commons are commons related to intellectual, instead of manual, activity and intangible, instead of tangible, resources. They refer to sets of social practices characterised by sharing and collaboration among peers in community. Such practices extend from the stage of production up to the stages of distribution and consumption. At the stage of production, intangible resources are generated through peer sharing and collaboration and managed in an equipotential manner by communities of producers. At the stage of distribution, intangible resources are shared and used either openly or subject to conditions, which primarily involve share-alike and / or non-commercial licensing. At the stage of consumption, the transformative use of intangible resources results into derivative works, which, depending on the licensing status of the original resource(s), are often shared under the same copyleft provisions, thus closing the virtuous circle of commons-based peer production.

The term “intellectual commons” has been deemed more appropriate to represent the subject matter of this study, instead of other terms, such as “information” or “knowledge commons” or even “commons-based peer production”. On the one hand, terms, such as “information” or “knowledge commons”, imply that the commons are conceived as resources, falling into the fallacy of reifying social relations. On the other hand, commons-based peer production does not refer to the commons themselves, but rather to the mode of how the commons are reproduced through time. The term “commons-based peer production” also implies that distribution and consumption do not fall within the scope of such reproduction. On the contrary, the term “intellectual commons” is grounded on a conception of the commons as social relations, in which human communities interrelate with intangible resources, the latter only being the object of such relationship. Most important, this term implies that intellectual activity is the source of value and the motivating force behind the reproductive cycle of the intellectual commons.

2.3. ELEMENTS & CHARACTERISTICS

Figure 2.2 The Elements of the Intellectual Commons



Source: Author

The intellectual commons are produced by the interrelation between their subjective and objective elements. The subjective element is twofold, consisting

on the one hand of the collective actors and on the other hand of the communal structures of commoning. The objective element consists of the intangible resources that are used as input for commons-based peer production. The products of the sublation between the objective and subjective elements of the intellectual commons are again twofold. Obviously, practices of commoning yield more information, communication, knowledge and culture. Hence, intangible resources are both object of the dialectical process and outcome of the sublation. This characteristic distinguishes the intellectual commons from other types of commoning. Yet, the dialectical process constantly reproduces and evolves itself, its social bonds being both medium and outcome of the process. Rather than being analysed as separate from one another, the objective and subjective elements of the commons should be viewed as forming an inseparable and integrated whole (Bollier and Helfrich 2015: 75).

Table 2.1 The Elements of the Intellectual Commons

	Elements		
Characteristics	Object [Resource]	Subject / Agency [Productive Activity]	Subject / Structure [Community / Institution]
	Non-Excludability	Non-Monetary Incentives	Rules of Self Governance
	Non-Rivalry	Voluntary Participation	Communal Ownership Rules
	Zero Marginal Costs of Sharing	Self-Allocation of Productive Activity / Consensus-Based Coordination	Access Rules
	Cumulative Capacity	Self-Management	Communal Values

Source: Author

As far as their objective element is concerned, intellectual commons are

primarily related to the [re]production of intangible resources, in the form of data, information, communication, knowledge and culture (Benkler 2006, Frischmann, Madison and Strandburg 2014: 3). Practices of commoning in relation to tangible resources are characterised by resource attributes of relative non - excludability and of rivalrousness (Ostrom and Ostrom 1977). In particular, the exclusion of individuals from the use of common pool resources through physical or legal barriers is relatively costly, whereas any resource units subtracted by one individual are deprived from others (Ostrom 1990: 337). As a corollary, such resources are susceptible to problems of congestion and overuse and can even be open to the risk of destruction. Matters which have to be dealt with by commoners through sophisticated and adaptable governance technics, if commons upon these resources are to last and thrive. On the other hand, intangible resources have the status of pure public goods in the strict economic sense (Samuelson 1954). First of all, intangible goods share the attribute of non - excludability with common pool resources, only that in the case of the former such non - excludability is absolute rather than relative (Hess and Ostrom 2007a: 9). Furthermore, they are non - rivalrous in the sense that their consumption does not reduce the amount of the good available to others (Benkler 2006: 35-36). In addition, information, communication, knowledge and culture have been known to bear a cumulative capacity (Foray 2004: 94, Hess and Ostrom 2007a: 8). In the words of Thomas Jefferson, "one new idea leads to another, that to a third, and so on through a course of time until someone, with whom no one of these ideas was original, combines all together, and produces what is justly called a new invention" (Jefferson 1972: 686). According to this approach, the very process of creativity and inventiveness essentially involves standing on the shoulders of the intellectual giants of the past, as Newton famously confessed³. Finally, intangible resources enjoy near zero marginal costs of sharing among peers, in the sense that the cost of their reproduction tends to be negligible (Arrow 1962: 623, Benkler 2006: 36-37). The partly intransitive attributes mentioned above, i.e. non-excludability, non-rivalry, zero marginal costs of sharing and cumulative capacity, which characterise the objective element of the intellectual commons, are not found in types of

commoning based on tangible resources.

Regarding their subjective agency element, intellectual commons are reproduced according to a commons - based peer mode of intellectual reproduction, which significantly differentiates itself from the dominant mode, based on capital and commodity markets (De Angelis 2007: 36). Communal relations between peers are characterized by voluntary participation, the self - allocation of tasks and autonomous contribution to the productive process (Soderberg 2014: 2). Participation in the productive process is motivated less by material incentives and more through bonds of community, trust and reputation (De Angelis 2007: 190, Benkler 2004, 2015). Coordination is ensured “by the utilization of flexible, overlapping, indeterminate systems of negotiating difference and permitting parallel inconsistencies to co-exist until a settlement behavior or outcome emerges” (Benkler 2016: 111-112). Eventually, such relations tend to be based on sharing and collaboration between commoners, who join their productive capacities together as equipotent peers in networked forms of organization (Bauwens 2005: 1). Even though the degree and extent of control may vary, the productive process, available infrastructure and means of production tend to be controlled by the community of commoners (Fuster Morell 2014: 307-308).

In relation to their subjective structural element, the intellectual commons arise whenever a community acquires constituent power by engaging in the [re]production and management of an intangible resource, with special regard for equitable access and use (Bollier 2008: 4). In this sense, there can be no commons without a self - governing community. Rules of self - governance include both rules for the management of the productive process and rules of political decision - making. On the one hand, self - management rules determine the general characteristics of the mode of production / distribution / consumption of the resource, the choices over the design of the resource and the planning of the productive process, the criteria for the allocation of tasks and the division of labour. On the other hand, political decision - making determines

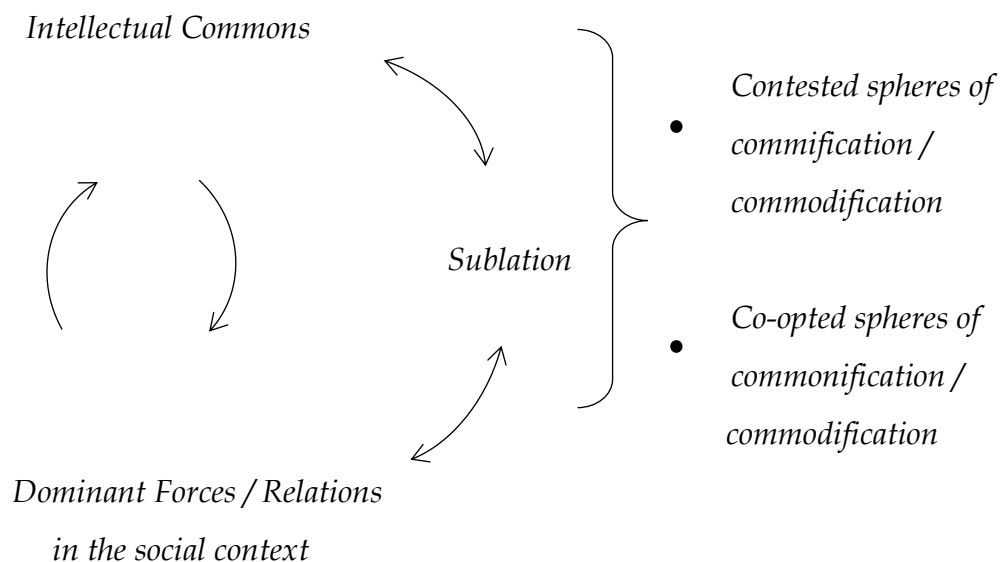
the collective mission or goal of the process, the membership and the boundaries of the community, the constitutional choices over the mode of self – governance, the participation of individual commoners in the decision – making process, the interaction between commoners, the adjudication of disputes and the imposition of sanctions for rule violation. In addition, the intellectual commons are regulated by ownership and access rules. Ownership rules determine the property status of both the means of production and the resources produced. Access rules regulate the appropriation and use of resource units (Ostrom 1990: 32). Access can be open to all or managed and limited to certain individuals or usages (Mueller 2012: 42). Property rights are bundles of access, contribution, extraction, removal, management/participation, exclusion, and alienation rights, thus conferring different types of control over resources vis-a-vis persons and entities other than their right - holder (Hess and Ostrom 2007: 52). Contrary to the monolithic form of private or public property, ownership in the realm of the intellectual commons comes in multiple forms by taking full advantage of the nature of the institution of property as a bundle of rights. Ownership of communally managed and communally produced resources bestows the rights to regulate access and use. Access rules generally aim to sustain and guarantee the communal mode of resource management and to avert exhaustion through commodification. They constitute the constructed boundaries between the realm of the intellectual commons and the sphere of commodity markets. Hence, ownership and access in the intellectual commons are inextricably linked. Furthermore, the intellectual commons are established as communities of shared values, orientated towards communal cohesion and reproduction through time (Clippinger and Bollier 2005: 263). Values, such as reciprocity, trust and mutuality among peers, are not confined to one-to-one relations. Rather, they develop and are set in circulation both within and among commoners' communities. Communal values are very important for the well-being of the intellectual commons, since their circulation and accumulation contribute to the construction of group identities and the consolidation of reciprocal patterns of commoning. Yet, communal values within the sphere of the intellectual commons also function in contradistinction and as alternatives

to circuits of dominant monetary values. There is an underlying confrontation between alternative and dominant value spheres, which is connected with practices of commoning and processes of commodification (De Angelis 2007). Intellectual commons' communities reveal a wide diversity of institutional practices, which evolve through time in correspondence to the vulnerabilities to enclosure or under - production of the relevant resource and the social dilemmas faced by the community during the course of sustaining each specific commons (Hess 2008: 37).

As any other type of social institution, intellectual commons control and, at the same time, empower the activity of their participants. Nevertheless, they significantly differ from state or market regulation of people and resources, since they constitute social spheres, in which institutions are immanent in, rather than separate from, the reproduction of the community.

2.4. TENDENCIES

Figure 2.3 The Dialectics of the Intellectual Commons



Source: Author

The commons of the intellect are fundamentally characterised by their orientation toward self-governance and open access to their productive output. Yet, in societies dominated by capital intellectual commons unfold themselves neither as wholly open nor as entirely self-governed. Instead, openness and self-governance are tendencies, which emerge from the essential properties encountered in the social relations of commoning. In particular, the degree of openness and self-governance in each community of commoners is determined by the specific outcomes of the dialectics between the intellectual commons and dominant forces / relations in each social context. In this view, institutions in the sphere of the intellectual commons are the result of the interaction between the intellectual commons and the objective conditions of their environment. Such a perspective also leaves ground for counter-influencing agency / structure dialectics between the resulting institutions in the sphere of the intellectual commons, their generative elements and their social context. Hence, in capitalism structures of commoning are inherently contested and contradictory terrains of social activity, which are constantly reproduced in a non-linear manner on the basis of the dialectics mentioned above but also counter-influence their environment. Outcomes of the sublation between the intellectual commons and dominant forces / relations in the social context can be classified in two distinct spheres of reproduction, i.e. contested spheres of commonification / commodification and co-opted spheres of commonification / commodification.

Table 2.2 Tendencies and Counter-Tendencies within the Intellectual Commons

Characteristics of Commoning [Commons-Based Peer Production]	Tendencies [Forces of Commonification]	Sublation [Subject/ Object Dialectics]	Counter - Tendencies [Forces of Commodification]	Characteristics of Commodification [Capitalist Mode of Production]

Non-Excludability	Open Access	Commonification ↔ Commodification	Monetized Access	Enclosure
Non-Rivalry / Zero Marginal Costs of Sharing	Sharing	Pooling of Common Resources ↔ Private Accumulation of Resources	Market Allocation	Fixity
Cumulative Capacity / Non-Monetary Incentives / Voluntary Participation	Collaboration	Commons-Oriented Relations of Production ↔ Market Competition and Oligopolies	Antagonism	Monetary Incentives
Self-Allocation of Productive Activity / Consensus-Based Coordination	Self- and Collective Empowerment	Self-Management of the Productive Process ↔ Hierarchical Management of the Productive Process	Alienation	Command

Communal Value Sphere	Circular Reciprocity	Work in Collaboration / Waged Labour	Labour as Commodity / Exploitation	Market Value System
Communal Ownership	Self-Governance	Consensus-based Decision-Making ↔ Hierarchical Decision-Making	Domination	Private / State Ownership

Source: Author

The dialectics within the reproduction of the intellectual commons exhibit certain tendencies and counter tendencies [see

Table 2.2 above], which emanate from their essential characteristics and the essential characteristics of the wider social context. In particular, due to the attribute of non - excludability, intellectual commons are less vulnerable to “crowding effects” and “overuse” problems and relatively immune to risks of depletion (Lessig 2002a: 21). Therefore, practices of commoning in relation to intangible resources have the potential to be structured as open access commons on their demand - side, i.e. “involving no limits on who is authorized to use a resource” (Ostrom 1990: 335-336, Hess and Ostrom 2007b: 48). This of course does not happen in a deterministic manner but only on the condition that the relevant subjective forces of commonification effectively reinforce their corresponding tendencies. In such cases, the consumption of the resource is regulated as openly accessible to anyone. Examples of open access intellectual commons include our common cultural heritage and the public domain. Yet, intellectual commons are also subject to opposing forces in the social context, manifested in legal institutions and technological infrastructures of enclosure, which tend to socially construct information, communication, knowledge and culture as artificially scarce, to monetize access and, eventually, to commodify

them (Hess and Ostrom 2007a: 5). Accordingly, the characteristics of non-rivalry and zero marginal costs of sharing observed in relation to intangible resources tend to encourage patterns of sharing among creators, which may result in the pooling of common resources, on the condition that forces of commonification are also set in motion. Conversely, institutions and technologies in the social context enable the fixation of intellectual works in the form of commodities and, thus, make them susceptible to market allocation and private accumulation (Cohen 2007: 1195). Sharing is a fundamental characteristic, which distinguishes commons from commodity markets or other systems of private resource accumulation (Madison, Frischmann and Strandburg 2010: 841). Therefore, the degree of sharing tolerated by the sublation of the opposing tendencies mentioned above gives evidence about the degree of their relative independence or co-optation by market logic.

The dialectics, which give birth to the sphere of the intellectual commons, are framed by additional characteristics and tendencies, the social determination of which is even more extensive than the partly intransitive attributes of intangible resources. In specific, the importance of non-monetary incentives within the realm of the commons and the participation of commoners on a voluntary basis combined with the partly intransitive characteristic of the cumulative capacity of intangible resources weave relations within the productive process, which generate collaborative tendencies among peers. Contrarywise, the dominance of monetary incentives in the wider social context reproduces antagonistic relations. The countervailing tendencies mentioned above impact both the patterns of commoning within intellectual commons' communities and the relations among them, pushing towards either commons-oriented peer relations of production or market competition, accumulation of market power and oligopolies. Furthermore, the characteristics of self-allocating tasks and consensus-based coordination in the productive practices of commoning promote the self- and collective empowerment of commoners. On the contrary, hierarchical command of labour in the productive practices, which dominate the social context, generates alienation of creative individual workers. The sublation

between the two juxtaposing spheres shifts the productive practices of the intellectual commons either towards self-management or towards hierarchical management. Intellectual commons should also be examined as alternative communal value spheres reproduced at the margins of dominant market value systems. Whereas markets circulate social power in the form of monetary values and labour in the form of commodity through decentralised bilateral transactions, communities of commoning are based on circuits of circular reciprocity among peers. Interrelations between the two value spheres generate relations of production within the intellectual commons, which may widely range between the two extremes of collaborative work among peers and exploited waged labour. Finally, the communal or private / state ownership of the infrastructure and means of commoning is critical for the degree of self-governance and domination encountered in each intellectual commons' community and eventually determines its mechanisms of political decision-making, i.e. whether such mechanisms shall be consensus-based or hierarchical. In conclusion, intellectual commons generally share the characteristics mentioned in the preceding section above. Nonetheless, the extent and quality of those characteristics in each case of commoning is ultimately determined by the dialectics between forces and relations of commonification / commodification. Hence, the more an intellectual commons' community dynamically transforms its practices and orients itself from the sphere of commonification, to the contested sphere of commonification / commodification, to the co-opted sphere of commonification / commodification, the less extensive and qualitative its characteristics of open access, self-management and self-governance will be and vice versa.

In corollary, the intellectual commons feature certain tendencies, which are attributed to their inherent characteristics, both objective and subjective. Compared to other types of commoning based on tangible resources, the tendencies of the intellectual commons towards open access, sharing and collaboration are also supported by partly intransitive characteristics. Hence, whereas in the general category of the commons these tendencies are produced

solely on the basis of the subjective element, in the context of the intellectual commons they arise from a combination of their objective and subjective characteristics. Nevertheless, the establishment of either open access commons-based on sharing and collaboration or commodified spheres of intellectual activity based on private monopolies and antagonism or hybrid commonified / commodified social forms are ultimately socially constructed outcomes. These outcomes are determined by the dialectics constituting the sphere of the intellectual commons vis-a-vis the sphere of commodity markets. They are related to tendencies and counter-tendencies which may be realised or remain unrealised. The intellectual commons embody the potential to unleash in full the creative and innovative powers of the social intellect, yet their future remains open, subject to struggles for social change within their sphere and in the wider social context.

2.5. MANIFESTATIONS

Intellectual commons ascribe to practices of social reproduction in relation to primarily intellectual human activity. Intellectual work manifests itself in the form of data, information, communication, knowledge and culture.

Information refers to collections of data meaningfully assembled “according to the rules (syntax) that govern the chosen system, code or language being used” (Floridi 2010: 20). It is a combination of data and intellectual work, which embodies human interpretation. Therefore, in order to be accessible and comprehensible, any assemblage and transformation of data into information must comply with a socially constructed and shared system of semantics. Furthermore, the process of assembling information by the pooling together of data is in itself based on patterns of sharing and collaboration. Since the accumulation of factual data and its collaborative assimilation into information constitute the foundation for knowledge production, robust commons of information are a precondition for all modes of intellectual production, distribution and consumption. The information commons include the vast

realm of non-aggregated data and information, which has been collected, processed, accumulated and stored across history by humanity as a result of sharing and collaboration among many individuals. It also includes aggregated data and information about nature, human history and contemporary society, which has not been enclosed either directly or indirectly by virtue of patent, copyright and database laws or by technological means and, therefore, lies in the public domain ⁴.

Knowledge is the assimilation of information into shared structures of common understanding (Machlup 1983). It is a social product generated on the basis of objects of a transitive dimension, i.e. prior knowledge produced by society, and objects of an intransitive dimension, i.e. structures or mechanisms of nature that exist and act quite independently of humans (Bhaskar 2008: 16). By the term social reference is given to the fact that the production of knowledge is essentially a process of cooperation among several individuals (Marx 1998: 50), which is structured in dynamic sub-processes of cognition, communication and cooperation (Fuchs and Hofkirchner 2005). The accumulated knowledge of mankind constitutes the intellectual basis of social life. The building blocks of human knowledge are produced and managed as commons, according to socially constructed rules, which prohibit any kind of exclusionary conduct ⁵. Hence, discoveries about physical phenomena and laws of nature, abstract ideas, principles and theories, mathematical symbols, methods and formulae are managed as open access commons pooled together by the co-operative activity of the scientific community, past and present. All in all, the core of scientific knowledge is generally managed as commons, advanced through sharing and collaboration among peers in community⁶. The knowledge commons also consist of technological inventions, which fall short of patentability, because they do not fulfill the criteria of novelty, non-obviousness / involvement of an inventive step, social utility / susceptibility of industrial application. Broadly speaking, this includes the accumulated technological advancements of the greatest part of human history, i.e. inventions which (i) have been conceived before the existence of patent laws, (ii) have been

communicated to the public but have not been filed for patent protection by their inventors, (iii) had their patent rights expired, (iv) have been invalidated by litigation. Furthermore, technologies in use, whether protected by private monopolies or not, lead to further innovation and invention through practices of maintenance, repair and modification shared among the communities of their users (Edgerton 1999: 120, Von Hippel 2005). In addition, the knowledge commons include all types of “traditional knowledge”. The latter refers among others to the know-how, practices, skills, and innovations developed within and among communities through patterns of sharing and collaboration in a wide variety of contexts, such as governance, agriculture, science, technology, architecture, arts and crafts, ecology, medicine and biodiversity (WIPO 2012). Finally, the development of packet-based electronic communication systems and advanced information technologies in the form of the internet and the world wide web have greatly facilitated the sharing of knowledge between peers along with commons-based peer modes of production based on collaboration.

Communication refers to a socialised process of symbolic interaction between human subjects, through which meaning is exchanged. Therefore, being more than the transmission of data, communication is in essence the social production of meaning that constitutes social relationships (Mosco 2009: 6, 67). The communication commons primarily consist of the assemblage of linguistic elements, which constitute our common code of communication. They also comprise of any other form for the transmission of meaning between individuals, such as body techniques and patterns of behavior (Mauss 1973, Williams 1983: 90, Sahlins 2013). Furthermore, the contemporary commons of communication include the natural and techno-logical infrastructure of electronic communication networks, such as open spectrum and open standards. In overall, the common infrastructure of communication functions as the basis for the development of culture, which is also in itself a system of symbols.

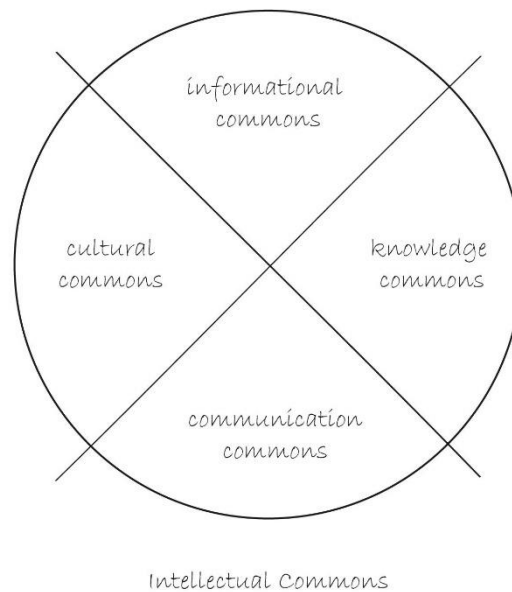
Cultures are unities of symbolic systems reproduced by means of interpersonal

human communication (Cuche 2001: 87). Culture includes the fundamental elements of socialisation, which are necessary for life in common, i.e. the a priori of human society. It is essentially a socialised process based on sharing and collaboration and a collective project in constant flux. The cultural commons refer to shared ethical, moral, religious and other value systems (Mauss 1973, Williams 1983: 90, Sahlins 2013). They also include common traditions, habits and customs, religious or secular belief systems, interacting worldviews and shared conceptions about social life in general. In addition, the cultural commons consist of common aesthetic systems and styles, artistic and cultural techniques, practices, skills and innovations along with artistic and cultural expressions of folklore, such as folk art, arts and crafts, architectural forms, dance, performances, ceremonies, handicrafts, games, myths, memes, folktales, signs and symbols. Last but not least, when we talk about culture, we do not only refer to its contemporary form but also to cultural heritage and collective historical narratives handed down from one generation to the next (Burke 2008: 25). The cultural commons therefore include the public domain. Intellectual works in the public domain, i.e. not protected by copyright or unbundled from exclusionary private rights, include works created before the existence of copyright, those of insufficient originality for copyright protection, works the copyright of which has expired or is otherwise inapplicable due to invalidation by litigation along with government works, works dedicated by their authors to the public domain and works which are licensed by their authors under conditions which are orientated towards open access⁷. De facto cultural commons, which develop beyond the boundaries of law, have also been facilitated by contemporary information and communication technologies through the unauthorised sharing or mixing of copyright – protected works in digitised environments.

Regardless of their form, data, information, communication or culture are manifestations of intellectual activity. In all cases that they are subject to communal modes of governance and shared access or lie in the public domain, such intangible resources fall within the intellectual commons. The latter

encompass the totality of information, communication, knowledge and cultural commons of our societies. The intellectual commons are thus the general category of the commons, which embodies our collective and shared, past and present, intellectual activity in all its forms and manifestations.

Figure 2.4 The Manifestations of the Intellectual Commons



Source: Author

2.6. CONCLUSION

Intellectual commons are the great other of intellectual property-enabled markets. They constitute non-commercial spheres of intellectual production, distribution and consumption, which are reproduced outside the circulation of intangible commodities and money (Caffentzis 2013: 253). Yet, intellectual commons are not just an alternative to the dominant capitalist mode of intellectual production. On the contrary, they provide the core common infrastructures of intellectual production, such as language, non-aggregated data and information, prior knowledge and culture. In addition, they constantly

reproduce a vast amount of information, communication, knowledge and cultural artifacts as common pool resources. It is the compilation of these intellectual infrastructures and resources with the productive force of the social intellect, subjected to the rule of capital, which constitute the foundation of the capitalist mode of intellectual production. As De Angelis pinpoints, “every mode of doing needs commons” (De Angelis 2007: 243). Capitalist modes of producing intellectual goods are inescapably dependent on the commons. Nonetheless, such dependence is not mutual. Forces of commonification can materialize their potential to unleash socialized creativity and inventiveness without the restraints of capital.

The current chapter has offered a processual ontology of the intellectual commons, not only by focusing on the essential elements and characteristics, which constitute their being, but also by elaborating on the tendencies and manifestations, which form their becoming and reveal their social potential. The next chapter continues with the epistemological perspective of the intellectual commons. It elaborates on the main theories of the intellectual commons and their relation with capital. In combination, both chapters have the purpose of providing an integrated perspective of the subject matter of the thesis. Furthermore, the conclusions of these chapters are inextricably linked with the normative perspective of the intellectual commons, because they provide sufficient bases to ethically justify their protection and promotion as institutions with inherent moral value and beneficial outcomes for society.

3. THEORIES OF THE INTELLECTUAL COMMONS

3.1. INTRODUCTION

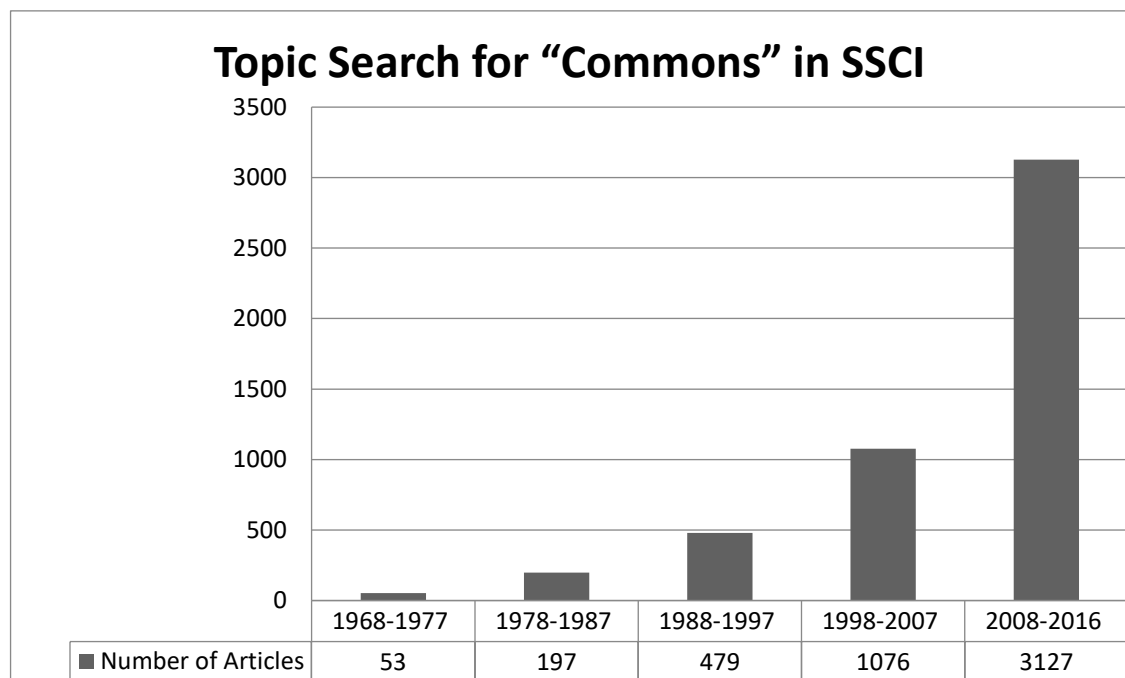
Over the past twenty years theorizing about the intellectual commons has undeniably become a popular activity not only among scholars that deal with the dialectics between information / communication technologies and society but also among the wider scientific community. This chapter introduces the main theoretical trends that have been formulated in relation to the analysis of the intellectual commons and their relation with capital.

In this context, four families of theories are distinguished on the grounds of their epistemological foundations, their analytical tools in regard to social actors, social structures and the dynamics between them, their normative criteria and, finally, their perspectives on social change. Rational choice theories draw from the work of Elinor Ostrom and deal with the institutional characteristics of the intellectual commons, offering a perspective of complementarity between commons and capital. Furthermore, neoliberal theories elaborate on the profit-maximising opportunities of the intellectual commons and further highlight their capacities of acting as fix to capital circulation / accumulation in intellectual property-enabled commodity markets. In addition, social democratic theories propose the forging of a partnership between a transformed state and the communities of the commons and put forward specific transition plans for a commons-oriented society. Last but not least, critical theories conceptualise the productive patterns encountered within intellectual commons as a proto-mode of production in germinal form, which is a direct expression of the advanced productive forces of the social intellect and has the potential to open alternatives to capital. In conclusion, the four theoretical frameworks are compared with the aim of formulating a strong theory of the intellectual commons.

3.2. THE GROWTH OF ACADEMIC INTEREST ON THE CONCEPT OF THE COMMONS

A search for the topic “commons” in articles indexed in the Social Sciences Citation Index (SSCI) from 1968⁸ until today shows a huge rise of academic interest about the commons in social sciences in recent years⁹. In the Figure below, one can observe that there was a relatively low academic article output about the commons in the period 1968–1987 (250). Yet, the years 1988–1997, when Elinor Ostrom published her seminal work “Governing the Commons” (Ostrom 1990), constitute a turning point, in which theoretical analysis of the commons begins to gather attention (479). Then, from 1998 to 2016, the number of articles on the topic rises exponentially (4203). Especially in the period 2008–2016, the article output about the commons reaches an average of 347 per year.

Figure 3.1 Development of the number of published articles on the topic of the Commons



Source: Social Science Citation Index

Commons and their theorisations have not come coincidentally at the forefront of academic attention. This circumstance is an empirical indicator of a rising

interest in social sciences for sets of social relations for the management of resources, which develop beyond the state and / or the commodity markets. Most likely, such a rise may be an effect of the social and ecological crises, which are in themselves repercussions of the deep contradictions encountered in these two prevalent institutions governing our lives in common.

Yet, in relation to the intellectual commons, other factors may also apply. Today, the epicentre of wealth creation in our societies has rapidly shifted from tangible to intangible assets. Intellectual production is more than ever considered to be the engine of social progress. As a result, the focus of business, policy - making and civil society has accordingly shifted to the regulation of intellectual production / distribution / consumption. Moreover, rapid techno-social developments have led to the convergence of media and communications in a single network of networks based on packet switching technologies, making the internet the archetypal communication medium of our times. It is exactly at this cutting edge of technological progress and wealth creation that people have started to constitute intellectual commons free for access to all, by devising collaborative peer to peer modes of production and management of intellectual resources (Bollier and Helfrich 2015: 76).

3.3. RATIONAL CHOICE THEORIES OF THE INTELLECTUAL COMMONS: THE COMMONS AS PATCH TO CAPITAL

3.3.1. Main Question and Methodology

Rational choice theories of the intellectual commons deal with the ways that individuals come together, establish communities and institute rules for the sustenance of intellectual resources or for the pursuit of desired outcomes on the basis of sharing and equality (Ostrom 1998, Hess and Ostrom 2007b: 42). In this light, rational choice theorists also examine how stakeholders in an interdependent situation self - organize in order to avoid social-dilemma situations within intellectual commons' communities, such as phenomena of free - riding, shirking or opportunistic behaviour (Ostrom 1990: 29). Ultimately,

they search for the reasons that lead to the success or failure of resource production / management systems within the sphere of the intellectual commons in order to synthesize appropriate frameworks which will ensure long - term viability (Frischmann, Madison and Strandburg 2014: 11). Even though they belong to the field of collective action theory, in contrast to other traditions in the field, rational choice theories pay tribute to the previously neglected social phenomena of the commons as institutional sets for the governance of resources that are distinct from market- or state- based institutions (Ostrom 1990: 1, 40-41).

In relation to methodology, such theories emphasise on the clarity and precision of definitions, concepts and arguments used, whereas they establish connections between them through rules of formal logic (Russell 1945: 834). Clarity is underpinned by strong empirical research, which interrelates to theoretical abstraction through a dialectical back and forth process between theory and practice (Costanza 2014). Overall, rational choice theories tend to evaluate the intellectual commons according to consequential criteria, focusing on the degree of efficiency that the institutions of the intellectual commons exhibit in regard to the provision of positive outcomes for general social utility (Ostrom 1990: 193, 195-205, Frischmann, Madison and Strandburg 2014: 36-37). In terms of agency, rational choice theorists commence from a rational individualistic conception of human actors. Nevertheless, they consider individuals as having complex motivations, which cannot be reduced to monetary incentives, whereas their productive activity is expected to be shaped both by economic and social factors (Ostrom 1990: 183). Rational choice theorists thus arrive at the conclusion that innovators are essentially placed in interdependent situations, in which they are able to develop inclinations to reciprocity through the use of reason, as long as they have faith that their contribution will be reciprocated (Benkler 2002: 369)¹⁰. In this context, homo reciprocans is considered as being the productive unit of the commons, who, while still serving her own interests, chooses to cooperate with the other members of the community in order to collectively pursue common long - term

interests (De Moor 2013: 94). Hence, social structures emerge from the bottom-up in the form of patterns of interactions, often crystallized in social norms.

3.3.2. The Institutional Analysis and Development Framework

Rational choice theories have initially been developed by Ostrom and her collaborators for the scientific analysis of the natural commons. These theories have been consolidated in a detailed theoretical framework, termed as Institutional Analysis and Development (IAD). The method of research followed by IAD scholars progressively escalates from the thorough analysis of empirical phenomena to clear – cut theoretical conceptions about their qualities and causal interrelations. In particular, as a first step, the resource characteristics, community attributes and communal rules of the commons under investigation are examined. Next, the focus of analysis shifts to the action arena of the commons, along with its actors and action situations. Then, patterns of interaction among actors and the outcomes of commoning are elicited. Finally, abstract evaluative criteria are extracted in order to draw more general conclusions about the elements that contribute to the equity, efficiency, sustainability of commons' institutions (Hess and Ostrom 2007a: 6).

In relation to the natural commons, Elinor Ostrom has distilled eight design principles as evaluative criteria for robust, long enduring, common-pool resource institutions on the basis of a large set of empirical studies (Ostrom 1990: 90-102):

1. Clearly defined boundaries in place.
2. Rules in use, well matched to local needs and conditions.
3. Participation of individuals affected by rules in the modification of these rules.
4. Respect of the right of community members to devise their own rules by external authorities.
5. A system for self-monitoring members' behavior in place.

6. A graduated system of sanctions in force.
7. Access of community members to low-cost conflict-resolution mechanisms.
8. Nested enterprises, i.e. appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities organized in a nested structure with multiple layers of activities.

In the process of bringing intellectual commons under the lens of the IAD framework, rational choice theorists commence their argumentation by establishing an analogy between the natural environment and the public domain (Boyle 1997, 2008). According to this analogy, just as ecosystems are shared resources necessary for our sustenance and well-being, intellectual resources in the public domain constitute our commonwealth and the basis for our future cultural and scientific advancement. Therefore, it is important to preserve the public domain from enclosure in a manner similar as we strive to protect the natural environment from degradation. Yet, unlike ecosystems, which are given by nature, intellectual commons are created from scratch. Hence, social arrangements within the intellectual commons are not only dedicated to the “preservation” of the resource through egalitarian sharing mechanisms but also purport to establish the appropriate social terrain for its sustainable reproduction (Frischmann, Madison and Strandburg 2014: 16).

3.3.3. Core Concepts

Intellectual resources are as a rule non-rivalrous and non-excludable, feature zero marginal costs of sharing and bear a cumulative and aggregate capacity. Yet, intellectual resources are not produced out of thin air. Depending on the type of the resource, their production presupposes the existence of an appropriate material infrastructure, such as construction facilities, electronic communication networks and micro-electronics based equipment in the case of the digital commons (Hess and Ostrom 2007b: 47). The ownership status and mode of governance of these secondary material resources often heavily

influences the architecture of the intellectual commons as a whole (Fuster Morell 2014: 285).

Intellectual commons are also formulated around communities of commoners, who contribute to, use and manage the resource, govern its infrastructure and its productive process. The main building blocks of these communities are on the one hand a commonality between their members, which relates either to their cultural or scientific interests or their expertise (Frischmann, Madison and Strandburg 2014: 16), and, on the other hand, the spur to contribute to a commonly shared goal of creative / innovative content. The capacity of the producer, consumer and/or decision-maker may be either dispersed to all the members of the community or concentrated to distinct groups within the community (Hess and Ostrom 2007: 48). Consumers in their own capacity play a significantly less important role than producers in the realm of the intellectual commons and normally have limited or no direct rights in the decision-making mechanisms of the community. Alternatively, decision-makers come as a rule from the group of producers, without meaning that these two groups necessarily coincide. Finally, participation in intellectual commons' communities is contributed on a voluntary basis. This characteristic may result in hierarchical relations between resource-poor and resource-rich participants or even the de facto exclusion of the former from the community (Fuster Morell 2014: 286).

Governance arrangements within the intellectual commons are imprinted on the applicable rules - in - use of the community. Rules - in - use are conceived as shared normative understandings between commoners, which shape the behaviour of the latter in the action arena and have the capacity to produce specific patterns of interaction and outcomes through monitoring and sanctioning mechanisms in cases of noncompliance (Crawford and Ostrom 2005). Depending on their importance and hierarchical relation with each other, rules - in - use are categorised in three levels of regulation: operational [day-to-day level], collective choice [policy level] and constitutional [allocation of power

level] (Hess and Ostrom 2007b: 49). Rational choice theorists generally tend to apply Ostrom's eight design factors in order to evaluate the robustness of different cases of intellectual commons (Fuster – Morell 2010, Frischmann, Schweik and English 2012). In relation to the first of these factors, i.e. boundary setting rules, it has been persuasively argued that boundaries in the information environment are necessarily social and cultural, rather than spatial, constructs (Madison 2003). On the one hand, access to common-pool-produced intellectual resources is regulated by communal norms or legal rules or a combination of the two. Copyleft licensing is the most common example of such types of rules. On the other hand, communally enacted licenses also determine the boundaries of the community, as assent to them constitutes the main prerequisite for participation (Frischmann, Madison and Strandburg 2014: 34). Accordingly, other design factors, such as participatory decision-making arrangements, monitoring mechanisms, conflict resolution processes and nestled enterprises, are found in many robust, long – enduring intellectual commons' communities, showing that the central suppositions of the IAD framework are also applicable to a certain extent to the realm of creativity and innovation (Madison, Frischmann and Strandburg 2010).

Rules-in-use are in dialectical relationship with action arenas, as both interrelate, act and counter-act, and, eventually, shape one another. Incentives of participants in action situations are particularly important for the determination of patterns of interaction (Hess and Ostrom 2007: 54). Outcomes of commons-based peer production are proposed to be classified according to the binary logic of enclosure / access to produced resources (Hess and Ostrom 2007b: 58). Finally, Hess and Ostrom suggest the following criteria for the evaluation of registered outcomes, which apparently enrich the strictly consequentialist cost / benefit approach of the IAD framework with deontological evaluations of the common good (Hess and Ostrom 2007b: 62):

- (1) increase of scientific knowledge,
- (2) sustainability and preservation of resources,

- (3) participation standards,
- (4) economic efficiency,
- (5) equity through fiscal equivalence, and
- (6) redistributive equity.

3.3.4. Critical Evaluation: The Intellectual Commons as Patch to Capital

Table 3.1 The Intellectual Commons as Patch to Capital

Epistemology	Rational Choice Institutionalism
Agency	Individual(s) in Interdependent Relations
Structure	Patterns of Interactions
Internal Dynamics	Bottom-Up Emergence
External Dynamics	n/a
Normative Criteria	Consequential
Social Change	The Commons as Patch to Capital

Source: Author

The main argument of rational choice theorists is the thesis that intellectual commons are relevant today as objects of research, because they significantly contribute under certain conditions of institutional efficiency to the advancement of art and science and should, therefore, be utilised by policy - makers as a complement to state and/or market regulation of intellectual production, distribution and consumption.

A critical approach of rational choice theories of the intellectual commons should first start from their methodology and, then, extend to their content and outcomes. The quest for objective and value - free knowledge through inductive methods of research, which characterises rational choice theories, inevitably bears the shortcomings of positivism. As far as the goal of objectivity is concerned, observations of the empirical reality of the intellectual commons are fatally theory-laden and, as a result, framed from the given social context, in terms of both the socially pre-constructed meanings of the semantics used to

describe them and the theoretical presuppositions and motivations of the observer. As far as the ideology of value-free science is concerned, the choices of rational choice theorists regarding the objects of their analysis, their core elements and interrelations and, finally, the stated goals of their theoretical endeavours, are also laden with specific values that correspond to or contend with dominant or subversive value systems in our societies. Finally, the persistence on an analysis of the intellectual commons as precisely defined, with clear-cut boundaries, internally consistent, reduced to their components and interconnected with iron causal laws may end up with a static and fragmentary perception of reality, subjugated to the incapacity of grasping processes of becoming.

These methodological choices have an impact on the form and content of rational choice theories. In terms of the internal dynamics of the intellectual commons, rational choice theorists fail to recognise that the public goods' character of intellectual resources is not only based on their intangible traits but is also in part socially determined, being nowadays more and more under pressure by legal and technological enclosures. Furthermore, they disregard the fact that commons ultimately refer to social relations in the context of communities and that the formulation of commons in history has not been confined to non - rival resources. Accordingly, human agency within the rational choice framework remains inescapably confined to a methodological individualism and to a transaction cost-based approach, which conceives individuals as engaging with the intellectual commons in order to maximise their personal benefits, even if such benefit is recognised to relate with the establishment of relations of reciprocity (Bardhan and Ray 2006: 655, 660-1, Macey 2010: 763). Thus, the IAD framework fails to fully grasp the shared ethics, values, goals, narratives and meanings, which hold communities of the intellectual commons together, tending to reduce them to their functionalist, procedural and consequential aspects (Bailey 2013: 109). By focusing on individual action as the means to explain how social institutions develop and how social change takes place, rational choice scholars inevitably conceive

commoners primarily as extractors of resource units or free-riders of the efforts of others, whereas competition is again elevated at central stage. As a result, the institutional forms of the commons are mainly conceived by rational choice theorists as shaping behavioral patterns more by putting fetters on and less by empowering social action and enabling sharing and collaboration.

Yet, the main shortcoming of rational choice theories is their reluctance to place the social phenomena of the intellectual commons within social tendencies, contradictions and antagonisms, which determine the contemporary assemblage of social totality (Macey 2010: 772-774). Such theories diminish the interrelation of the intellectual commons with capital to a simplistic conception of either co-existence or complementarity. By approaching the intellectual commons from a utilitarian perspective, rational choice theorists evaluate these social phenomena in comparison to state intervention or intellectual property – enabled markets solely according to the criterion of utility maximisation (Wright 2008: 236). Hence, intellectual commons are held as more effective modes of organisation in social contexts where they out-compete the state or the market. In this theoretical exercise asymmetries of power between the dominant capitalist mode of intellectual production / distribution / consumption and the insurgent sphere of the intellectual commons, along with the consequent asymmetries of access to investments, income, infrastructure and of favourable or inimical frameworks of law / litigation are not taken into account. In addition, the impact of commodification over commons-based peer production and the public domain and the clash and struggles within intellectual commons' communities and in wider social groups between opposing value practices are generally neglected in favour of a more conciliatory ideological conception of society free from contradictions and antagonisms (De Angelis and Harvie 2014: 287). Most important, the utilitarian perspective of rational choice theories falls prey to the dominant perspective over the common good, which inextricably connects the maximisation of social utility with the proliferation of private property, capitalist markets and private monetary incentives. Inevitably, values proliferating within and through the sphere of the intellectual commons that are

found at the margins of the current state of social reproduction, such as access, sharing, collaboration, self-government, individual and collective empowerment, will tend to be ranked lower in the utilitarian calculus of rational choice theories and their positive social outcomes will tend to be downgraded in comparison to dominant conceptions of the common good.

3.4. NEOLIBERAL THEORIES OF THE INTELLECTUAL COMMONS: THE COMMONS AS FIX TO CAPITAL

3.4.1. Main Question and Methodology

Neoliberal theories of the intellectual commons have as their foundation the orthodoxy that markets are the most appropriate mechanisms to maximise net social benefits (Mankiw 2014: 150-151). From this perspective, neoliberal theorists examine the ways in which the intellectual commons are accommodated by the capitalist mode of intellectual production, with the aim to provide proposals that best serve market needs. Along these lines, they engage into an analysis of the alternative organisational patterns and value systems of the intellectual commons and research their potential for creativity and innovation in order to provide useful tools for their monetisation. Finally, they search for appropriate restructuring policies for business patterns, capitalist markets and for-profit corporations, which will efficiently exploit this potential. In dealing with their object of analysis, neoliberal thinkers mainly draw from neoclassical economics and other disciplines that are compatible with its basic tenets, such as law and economics and public choice theory. In relation to methodology, neoliberal theories are strongly inclined to evaluate the intellectual commons according either to a pragmatic consequentialism or an openly utilitarian cost / benefit analysis in strong connection with the promotion of markets and the accumulation of capital.

The philosophical anthropology of neoliberal theories generally implies a conception of commoners that is methodologically individualistic (MacPherson

1964, 1973). In relation to social structures, neoliberal theorists opt for a reductionist methodology. According to this perspective, explanations about the intellectual commons are reduced to explanations in terms of facts about the individuals composing them (Bentham 1948: 126, Mill 1858: 550, Hayek 1948: 6, Hayek 1955: 37-38, Popper 1961: 135). Social order emerges in spontaneous form from the bottom-up through the autonomous and decentralized matching of individual intentions and expectations (Hayek 2013: 34-52). The most efficient mechanism of such a spontaneous order of allocating resources is the invisible hand of the free and competitive commodity market (Stiglitz 1991: 1). Within markets the pursuit of individual private interests leads to greater wealth for all and a more effective distribution of labour (Botsman and Rogers 2010: 41).

Projecting this methodology to the realm of the intellectual commons, neoliberal theorists consider the ensemble of social relations within the communities of the intellectual commons as collections of individuals who exercise their freedom of creativity and innovation according to their own preferences and without external interference. In the process of commons-based peer production commoners are pooling together their private property rights over their individual intellectual works through private contracts in order to extract pleasure or other forms of personal utility (Benkler 2010: 230). As a result, neoliberal thinkers tend to conceive the structures of the intellectual commons as markets, wherein individuals meet and earn social capital and/or personal pleasure in exchange of putting their skills to work for a mutually agreed cause (Raymond 1999). In general, the arrangements within the intellectual commons and in their relation with the market are framed in terms of individual free choice and business opportunities. In this context, an efficient social order emerges by spontaneity from the bottom-up, as long as the state does not interfere to unsettle the balance.

3.4.2. The Intellectual Commons as Component to Capital Accumulation

Neoliberal theorists have been quick to grasp the potential of the re-surg-ing

intellectual commons for human creativity and business profitability. In their business manifesto, Don Tapscott and Anthony Williams enthusiastically welcome us “to the world of Wikinomics where collaboration on a mass scale is set to change every institution in society” (Tapscott and Williams 2006: 10). In a similar manner, in an earlier online version of his own book-length call to the brave new world Charles Leadbeater again greet us “to the world of We-Think”, where “(w)e are developing new ways to innovate and be creative en masse. We can be organised without an organisation. People can combine ideas and skills without a hierarchy” (Leadbeater 2008). Even the Time magazine confirmed this rising new fashion in 2006 by naming as its “Person of the Year” the creative “You”.

New terms have been coined to describe the exciting dynamics of the digital era. Already from 2004, at the O'Reilly Media Web 2.0 Conference, Tim O'Reilly and Dale Dougherty talked about the emergence of Web 2.0, a second phase of the world wide web, which is characterized by the abundance of user-generated content and online content platforms that facilitate peer to peer sharing and collaboration and, ultimately, empower the internet users (O'Reilly 2005). In its relation to the market, O'Reilly has later clarified that the whole idea and the success of Web 2.0 is based on “customers [...] building your business for you”¹¹. Inspired by Alvin Toffler's idea that the information age will blur the boundaries between production and consumption and give rise to the “prosumer” (Toffler 1980: 265), Tapscott and Williams have elaborated on the model of prosumption as an important new way through which businesses are putting consumers to work and have called it “the lifeblood of the business”, which leaves entrepreneurs with no choice but to “harness the new collaboration or perish” (Tapscott and Williams 2006: 13, 43, 125-127). In their vision about prosumption, they have further explained that “leisure becomes a form of work. A huge amount of creative work is done in spite or perhaps because, of people not being paid” (Tapscott and Williams 2006: 6). Hence, prosumers are included in the productive process as fundamental component, whereas the market is no longer a space where supply and demand meet but

has rather become inseparable from the productive process as the actual “locus of co-creation (and co-extraction) of value” (Prahalad and Ramaswamy 2004: 5).

Other commentators have added an even more insightful dimension in the debate, claiming that the business technique of prosumption reconstructs the very agency of consuming masses in ways more prone to exploitation by exchanging new consumer freedoms and a feeling of empowerment with the right of corporations to expropriate consumer creativity and innovation (Zwick, Bonsu and Darmody 2008: 185). Along these lines, it has been argued that by invoking the personal autonomy of commoners to freely share ideas and collaborate together corporations become capable of overcoming their hierarchical top-down and inflexibly bureaucratic structures of organization, of transcending their boundaries and of developing more appropriate means to unleash collective capacities for creativity and innovation. In this context, for-profit entities, which grasp the zeitgeist of the information age, do not only become leaders of the new mode of intellectual production, but also renew the fractured social contract, upon which conventional modes of work and production are established (Leadbeater 2008: 88-90). Therefore, Charles Leadbeater rightly pinpoints that commons-based peer production has the potential to offer “a way for capitalism to recover a social – even a communal – dimension that people are yearning for” (Leadbeater 2008: 91).

The proliferation in the networked information economy of social and business patterns relative to the productive processes described above have led Botsman and Rogers to introduce the term “collaborative consumption” so as to describe social arrangements in which communities of individuals pool together and share privately owned products and services with the help of contemporary information and communication technologies (Botsman and Rogers 2010). Drawing from the concept of crowdsourcing, defined by Jeff Howe as the “act of taking a job traditionally performed by a designated agent (usually an employee) and outsourcing it to an undefined, generally large group of people in the form of an open call” (Howe 2006), Botsman and Rogers have coherently

demonstrated the potential of emerging patterns of online collaboration for the satisfaction of individual needs and the promotion of collective goals, as diverse as co-sharing scarce resources, producing intellectual goods in commons-based peer mode, building business models upon the intellectual commons and even acting together for the resolution of social problems as important as climate change (Botsman and Rogers 2010: 59). From such a perspective, engagement with collaborative consumption not only secures a small income but also transforms participants into “microentrepreneurs” and has a positive cumulative effect on their social capital (Botsman and Rogers 2010: xvii, 180). Businesses, which base their profitability on communities of collaborative consumption, are successful on the condition that they view themselves not as rulers “but more as hosts of a party helping to integrate new members with the rest of the community” (Botsman and Rogers 2010: 204). Acting as the definite community builders of the information age, such corporations actually own and architect the online platforms and tools, which both facilitate the horizontal peer transactions of collaborative consumption and encourage relations of trust and reciprocity among participants (Botsman and Rogers 2010: 91).

In this nexus of social relations, corporations are not just looking for unpaid work to be exploited. Instead, they invest in the construction and management of entire communities of resource sharing, sociality, collaborative creativity and innovation (Botsman and Rogers 2010: 204). The main object of profit extraction is the information and communication produced by the matrix of social relationships continuously weaved within online communities¹². Ownership of the platform and the related infrastructure, which underpins the community, bestows access and control over the data produced by the networked social exchange of its users. Sociality itself in the fixation of data becomes a form of commodity and a source of profit. “Prosumption”, “value co-creation”, “collaborative consumption”, the “sharing economy” are concepts that illuminate the emerging mutations in the relations of intellectual production. Hence, the most important technique for business ventures to develop in order to surpass the profitability of competitors in this context is how to monetise the

community and embed the powers of the social intellect into the structures of the capitalist market (Bollier 2008: 238).

The exploitation of the free labour of prosumers and the monetization of online collaborative communities are two significant elements, which synthesize the dynamic relation between the intellectual commons and capital. A third mode, in which the intellectual commons are employed as component to capital accumulation, is in market competition between corporations. Neoliberal theorists have pointed out two main ways, in which such instrumentalisation of the intellectual commons takes place. First of all, the intellectual commons are utilised as a tool by single enterprises to leverage their position in market competition. The most famous example of this type of relationship between the intellectual commons and a for-profit corporation is the relationship between IBM and the free software community (Lessig 2002: 71). In 1998, IBM began supporting the apache and linux free software communities and granting to the latter compatibility with its hardware. As this collaboration gained momentum, IBM reaped the benefits, by gradually improving its position vis-a-vis its main competitors (Tapscott and Williams 2006: 79 - 83).

The utilization of the intellectual commons as a means to alter the competitive structure of markets has also taken a more collective form. In various recorded cases, alliances of non-dominant actors have pooled together and shared resources for their industries in order to pre-empt the ability of competitors to control assets of strategic importance for the development of the market (Merges 2004). According to this view, the development of many market consortia and patent pools, especially in biotechnology and open source software, where pooled intellectual resources are managed as commons between the members of the market alliance, is the outcome of this process (Madison, Frischmann and Strandburg 2010: 692). This has led Milton Mueller to claim that “[t]he commons as an institutional option is rarely implemented as the product of communitarian compacts or a sharing ethic. It is more likely to be an outcome of interest group contention (Mueller 2012: 40-41). Neutralisation of strategic

assets might even take place in relation to a single market actor. Indicatively, Tapscott and Williams report that with the release of 15,000 human gene sequences into the public domain in 1995 the pharmaceutical giant Merck “pre-empted the ability of biotech firms to encumber one of its key inputs with licensing fees and transaction costs” (Tapscott and Williams 2006: 166-167).

3.4.3. Intellectual Commons and the Restructuring of the Corporation and the Market

Since monopolisation is in the nature of intellectual property, its contentious relationship with market competition has been a well recorded issue of interest both in theory and in policy planning (WIPO 2012, OECD 2013). It has been claimed that intellectual property-enabled markets encounter static inefficiencies in the allocation of information, knowledge and culture. In the long run, they may also generate dynamic inefficiencies in the production of new information, knowledge and culture (David 1993: 28). In particular, monopolies over prior art and knowledge give rights' holders the power to tax innovative competitors for gaining access to them (Kapczynski 2010: 28). When such private monopolies are instituted as extensively broad, they essentially raise significantly high barriers to entry for new entrants in markets (Greenwald and Stiglitz 2015: 276). In addition, saturation of knowledge-based sectors of the economy by the proliferation of private enclosures increases the costs of examining the prior level of knowledge and art and may also stifle innovation by transforming inventiveness into a process of walking in a minefield (Heller 2008: 66). Yet, the multiplication and increased breadth of intellectual property rights may even have long run repercussions in the structures of markets. Intellectual resources of strategic importance for sectors of the economy acquire the significance that the means of production have in the production of material goods. Ownership of crucial means of production in a market ultimately determines its structure. Private control by incumbent stakeholders over intellectual resources of strategic importance may effectively hinder or even foreclose newcomers from entering and acquiring competitive position in a

market (Levin et al 1987: 788). The powers conferred by such monopolies may also lead to a gradual displacement of competitors and to market concentration.

By expanding the public domain and facilitating access to prior information, knowledge and culture, vibrant intellectual commons' communities are a social force, which has the potential to counter the dynamic inefficiencies produced by the unbalanced enclosures of intellectual property-enabled markets over competition (Lessig 2002: 6-7, Boyle 2003: 63-4). Hence, a commons-oriented regime of governance at the cutting edge of technology and in the new modes of cultural production may be required as a fix to the rigidity of dominant intellectual property regimes in order for corporations to take full advantage of the rapidly shifting conditions in intellectual production / distribution / consumption.

Apart from lowering barriers to entry and facilitating access to prior intellectual assets in knowledge-based sectors of the economy the intellectual commons are also implemented as a strategic tool for the aversion of market failures that have been characterized as tragedies of the anti-commons (Heller 1998). Such conjunctures occur when too many market players hold and exert partly or wholly overlapping rights of exclusion against each other over a strategic resource, so that no party finally acquires an effective right of use (Hunter 2003: 506). These failures in the optimisation of social utility constitute the tipping point where the social relation of property becomes a fetter to forces of production (Mueller 2012: 45). They are regularly encountered in the networked information economy, where productivity depends on prior art and knowledge and operates in a cumulative manner (Lemley 1997, Heller and Eisenberg 1998, Heller 2008). The proliferation and excess of intellectual property rights tends to fragment control over existing intellectual resources (Hess and Ostrom 2007a: 11). In this light, fixing the failures of monopolies through the construction of intellectual commons over strategic assets, whereas keeping market competition around them, is viewed as a method to combine the best of both worlds and achieve optimum social utility (Mueller 2012: 60). Examples where state and

market institutions co-ordinate to produce intellectual commons in order to avert tragedies of the anti-commons over strategic intellectual assets include standard-setting entities, joint ventures for research and development, informational databases and patent pools (Tapscott and Williams 2006: 178-179, Madison, Frischmann and Strandburg 2010: 692, OECD 2013: 22).

As far back as 1945, Friedrich von Hayek has claimed that knowledge is a resource unevenly distributed in society (Hayek 1945). In the context of the collective intelligence of post-industrial intellectual commons' communities, Pierre Levy wrote: “[n]o one knows everything, everyone knows something, all knowledge resides in humanity” (Levy 1997: 20). To make matters even more complicated, the distributed force of the social intellect does not exist in static form within the individual minds of creators / innovators, instead it is unleashed by a dynamic process of intellectual sharing and collaboration. In order to correspond to the challenges mentioned above, commercial enterprises in knowledge-based sectors of the economy restructure their organisational patterns in order to co-ordinate and pool together the productive forces of the social intellect. This ambitious aim has a corrosive effect not only on the hierarchical top-down structures of the corporation but also on its boundaries with society. As Tapscott and Williams put it, “[i]n an age where mass collaboration can reshape an industry overnight, the old hierarchical ways of organizing work and innovation do not afford the level of agility, creativity, and connectivity that companies require to remain competitive in today's environment. Every individual now has a role to play in the economy, and every company has a choice – commoditize or get connected” (Tapscott and Williams 2006: 31). Permeability vis-a-vis the distributed innovative powers of society is achieved by various means, all of them involving the engagement of actors located outside the organisational structures of the corporation (Chesbrough 2003: XXIV). Outsourcing creative work to the crowd is one among the many corporate methods of capturing the productive value of the social intellect, which cannot be supplied in-house. The aggregation of distributed individual talent and knowledge is conducted on privately owned project platforms, which

are focused on the management of creative labour supply. The platform design enables open recruitment, meritocratic ranking and self-selection of tasks (Lakhani and Panetta 2007). Commercial innovation management platforms also borrow the organisational patterns of task modularity, granularity and diversity, which are observed in the institutions of intellectual commons communities. Such platforms have grown enough to influence well established practices of conventional corporate research and development and press managers to open up their business models to the innovative power of the crowd. Innocentive, one of the most prominent examples, boasts for its 365.000+ workforce from nearly 200 countries, the number of scientific problems solved reaching up to 40.000 and its \$ 40 million posted awards¹³.

The impact of the intellectual commons on corporate structures has not been confined to the elaborated ways of outsourcing innovation to the crowd. A deeper corporate restructuring seeks to embrace the potential of the intellectual commons by combining the market with the community. In Leadbeater's vision, "[t]he most exciting business models of the future will be hybrids that blend elements of the company and the community, of commerce and collaboration: open in some respects, closed in others; giving some content away and charging for some services; serving people as consumers and encouraging them, when it is relevant, to become participants" (Leadbeater 2008: 91). In this peculiar hybrid, the engine of "collaborative consumption" and the "sharing economy" is the community and the lifeblood flowing within its circuits is trust (Botsman 2012). The mere role of the corporation is to enable and empower "decentralized, and transparent communities to form and build trust between strangers" (Botsman and Rogers 2010: 91). In practice, this contribution usually concerns the provision of material infrastructure, which requires an expensive and concentrated capital base to be produced and can rarely be provisioned by communities themselves (Benkler 2016: 102). According to another less materialistic view, market mechanisms and commercial enterprises generally provide to intellectual commons' communities the instruments of regulation and management that are necessary for their well-being and cannot be provided

internally (Ghosh 2007: 231). This type of management is however relatively “soft” to leave enough space to individuals to decide for themselves the terms of interacting and collaborating with each other and, thus, become innovative through individual empowerment (Lakhani and Panetta 2007).

Hence, corporations and markets have the unique opportunity to embrace and harness the potential of the intellectual commons for collaborative creativity and innovation by orchestrating the forces of self-organization thriving within their communities (Tapscott and Williams 2006: 44). In this market / commons hybrid scheme, social power is not only circulated and accumulated via the monetisation of the community. Ownership of the communal infrastructure on the one hand separates commoners from the means of reproducing their sociability and controlling their collaborative productivity and, on the other hand, gives owners the power to govern production and determine its final goals (Andrejevic 2011: 87-88).

3.4.4. Critical Evaluation: A Commons Fix for Capital

Table 3.2 A Commons Fix for Capital

Epistemology	Methodological Individualism
Agency	Isolated Individual(s)
Structure	Market
Internal Dynamics	Bottom-Up Emergence
External Dynamics	Co-optation of Commons by Capital
Normative Criteria	Utilitarian
Social Change	The Commons as Fix to Capital

Source: Author

Neoliberal theorists conceive of the intellectual commons not as human communities but as networked markets of exchange among self-interested individuals and between individuals and corporations. According to the neoliberal view, their decentralised structure and capacity for individual self-empowerment renders the intellectual commons an ideal terrain for human

creativity and innovation. What attributes value to the intellectual commons is their potential for intellectual productivity, which under certain circumstances may even supersede the innovative capacities of the corporation (Benkler 2002: 377). First, commercial enterprises can benefit by capturing their social value with various business techniques. Furthermore, they can be utilised as a vehicle to restructure markets in order to make them more competitive and well-functioning, whereas, on the other hand, they can be employed as a tool to avert serious market failures and gridlock effects. Therefore, neoliberal theorists recommend that the positive organisational aspects of commons-based peer production be either assimilated by the dominant mode of capitalist intellectual production or appended as component to it.

The main contribution of neoliberal theories in relation to the analysis of the intellectual commons is the fact that they bring to our attention the various ways through which capital dialectically relates with the intellectual commons. Nevertheless, the neoliberal theoretical endeavour projects this dialectical relation in a simplistic and ideologically biased manner, which tends to obfuscate or even neglect more critical aspects of the whole process. In this respect, the alleged co-existence between the intellectual commons and capital is emptied from its obvious contradictions. Even though it illuminates the manifold ways through which the circuits of capital extract value from the sphere of the commons, it fails to pinpoint that such a subsumption of the intellectual commons is not without repercussions, as communal resources, values and their systems, which are consumed by private for-profit activities, constantly undercut the energy and dynamics of intellectual commons' communities and degrade their potential for creativity and innovation. Ultimately, neoliberal thinkers do not pose the question of who holds the power within the sphere of the intellectual commons. Hence, asymmetries of power between commoners and corporations are concealed by the use of terms such as "co-creation" and "co-existence". Control over infrastructure and the powers it confers to its owners is considered either as benevolent contribution or as a new type of social corporate responsibility or even as another proof that private

profit motivation and market mechanisms maximise social utility. And the governance of the intellectual commons by capital is apprehended as necessary regulation, which cannot be supplied internally.

To sum up, neoliberal perspectives approach the intellectual commons as a fix to capital, both by exploiting commons-based peer production as a component to capital accumulation and by utilising the productive force and organisational capacity of intellectual commons' communities as a means to restructure commodity markets and corporate forms and avert their failures. Critical theorists have generalised this tendency in the contentious relation between capital and the commons, claiming that the commons are nowadays employed in manifold ways as fix to the failure of capital to ensure social reproduction (De Angelis 2012) and that they constitute neoliberalism's "plan B" to re-organise and expand capital accumulation in order to overcome its inherent crises of social and ecological devastation (Caffentzis 2010).

3.5. SOCIAL DEMOCRATIC THEORIES OF THE INTELLECTUAL COMMONS: THE COMMONS AS SUBSTITUTE TO THE WELFARE STATE

3.5.1. Main Question and Methodology

Social democratic approaches of the intellectual commons employ political economic methodologies to analyze the dynamic relations that unfold between the commons, the market and the state with the aim to propose reconfigurations of these relations, which will best serve social welfare (Kostakis and Bauwens 2015). Social democratic theorists believe that the intellectual commons have the potential to bring us to freer and more egalitarian societies, characterised by an abundance of intellectual resources (Rifkin 2014). Nevertheless, according to their views, existing institutional arrangements suppress this potential and should be changed (Arvidsson and Peitersen 2013: 136-137), in particular by the deliberate transformation of the state into a state in partnership with the commons (Restakis 2015). In relation to methodology, such theories follow a

relational analysis of social structures. Emphasis is thus given to the revelation of the dialectical interrelations that develop between the institutions of the intellectual commons and the mechanisms of intellectual property-enabled markets. Overall, social democratic theorists tend to employ deontological criteria for the evaluation of the intellectual commons by examining the possibilities for positive reforms within the framework of existing social arrangements (Bauwens 2015: 13).

Contrary to individualistic perceptions of agency, the main presupposition for social democratic theories is that individuals are to a major extent constituted by the various communal relations of which they are part (Chang 2014: 193). It follows that individual agency is shaped by social structures, which at the same time frame and empower individual activity (Giddens 1984). Commoners construct and constantly reproduce and evolve the productive communities of the intellectual commons, whereas at the same time these communal structures and institutions constrain and enable sharing and collaboration, leading to the emergence of new properties. Whereas they share the view of rational choice theorists of the intellectual commons that human behaviour is determined by a multiplicity of incentives (Benkler 2002: 369, 2006: 462, Kostakis and Bauwens 2014: 40), social democratic theorists claim that the element of reciprocity is the foundation of social life, emerging within the social matrix as the determinant characteristic of the behaviour of socially integrated individuals (Bauwens 2015: 67-69). Embedding norms of reciprocity and cooperation in social systems and structures hence creates a virtuous cycle of self-reinforcing the behaviours that need to be promoted and plays a major role in achieving intended social changes (Benkler 2011: 161-162).

According to social democratic perceptions, the gradual accumulation of commons-oriented reforms, primarily through state intervention, is the most appropriate road to commons-based societies. In Michel Bauwens' words, the social democratic set of proposals "is the next great reform of the system, the wise course of action, awaiting its P2P "neo-Keynes", a collective able to

translate the needs of the cooperative ethos in a set of political and ethical measures. Paradoxically, it will strengthen cognitive capitalism, and strengthen cooperation, allowing the two logics to co-exist, in cooperation, and in relative independence from one another, installing a true competition in solving world problems” (Bauwens 2005).

3.5.2. The Intellectual Commons and their Potential for an Alternative Non-Market Economy

Social democratic intellectuals stress the potential of the intellectual commons for individual and collective empowerment, the democratisation of intellectual production, the decentralisation of social power and the enrichment of the public sphere. They are thus keen on highlighting the fundamental role of public institutions in social reproduction and the connection of the idea of the public with the intellectual commons. Even though the modern idea of the public is strongly connected with the state, social democratic thinkers are quick to identify the sphere of the commons as a public realm, which is not owned by the state. As Tommaso Fattori describes it, fundamental goods for social reproduction should “not belong to market actors nor are they at the disposal of governments or the state-as-person, because they belong to the collectivity and above all, to future generations, who cannot be expropriated of their rights” (Fattori 2013: 260-261). In relation to intellectual resources, social democratic thinkers re-imagine the information networks, the public domain, fair use rights and the intellectual commons primarily as a space free from unwarranted interventions by the market and the state (Lessig 2006, Wu 2010: 306). Unencumbered access to such an intellectual public space is considered as fundamental for exercising individual freedoms crucial for self-empowerment and democracy, primarily the freedom of expression (Netanel 2008). Freedom in this space in the sense of freedom to create and innovate also entails that its building blocks are unsusceptible to excessive control by powerful market players, thus safeguarding its public character from concentrated powers, i.e. a public character not in the sense of state ownership and provision but in the

sense of the commons (Wu 2002, 2010). Hence, the intervention of law in this context is to “protect the integrity of individual and social autonomies” against the power of the market or the state (Teubner 2013: 114).

Apart from policies that protect and safeguard the sphere of the intellectual commons, social democratic theorists advocate the deliberate promotion of a distinct non-commercial commons sector in the networked information economy, alongside the private and the public sector. According to their views, in contradistinction to private monopoly rights, centralisation and competition characterising intellectual property-enabled markets, the non-commercial commons sector propels the freedom and autonomy of participants “by operating on principles of access, decentralisation and collaboration” (Fuster Morell 2014: 280). Furthermore, the sets of practices thriving within the intellectual commons have already constructed an economy parallel to the corporate one, which allegedly generates culture, innovation and, generally, social wealth in ways based on sharing and collaboration which are not encountered in corporate environments (Benkler 2004). Based on self – production and self – management of resources by both formal and informal communal institutions, this mode of economic organisation out-competes market- or state- based modes in terms of democratic participation and decision-making in the economy (Benkler 2002, 2006). Simultaneously, it gives the opportunity to overcome, at least to a certain extent, power inequalities between order-givers and order-takers observed in corporate forms of organisation (Benkler 2003: 1249). Furthermore, certain theorists maintain that the mutualization of intellectual resources within the commons-based mode of peer production comes along with processes of mutualization of material resources and the rise of a distinct co-operative economy of material resources (Restakis 2010, 2015). Finally, the intellectual commons provide information and communication infrastructures vital for the exercise of democratic rights and liberties in a self-governing and transparent manner. Hence, the more the building blocks of our networked information environment are reproduced by commons-based peer production, the better it is ensured that the power of

citizens in this sphere of activity is not overcome by the power of corporations and states (MacKinnon 2012: xxi).

Overall, social democratic thinkers favour the consolidation of a commons sector in the networked information economy on normative grounds, claiming that such a power shift will promote individual and collective empowerment, democratise the economy and society, contribute to social justice and increase overall social welfare. Nevertheless, social democratic theories fork in regard to the interrelation between the intellectual commons and capital. On the one hand, liberal-minded thinkers believe that a synergistic symbiosis between the sectors of the commons and the market is attainable, on the condition that an equitable balance is struck between the two (Bollier 2007: 38). On the other hand, political economists believe that such a harmonious symbiosis is not possible, proposing instead the implementation of commons-oriented policies on behalf of the state so as to establish a level playing field for the alternative non-market economy of the commons (Bauwens and Kostakis 2015). According to their views, the relation between netarchical capital and the intellectual commons is not viable in the long term, because the value captured from commoners is not redistributed to them, as is the case, no matter how unevenly, with wage labour.

3.5.3. The Intellectual Commons and their Potential for an Alternative Culture and Public Sphere

Social democratic intellectuals believe that the intellectual commons have the potential to become part of the solution to the current crisis of liberal representative democracies, by reconfiguring power relations and, correspondingly, by democratising our culture, public sphere and polity. The political potential of the intellectual commons lies to a large extent on their capacity to empower “decentralised individual action” (Benkler 2006: 3). In this context, a more participative and transparent process of making culture has a democratising impact on the world of ideas and symbols, which constitutes the cultural base of our societies, whereas at the same time it encourages critical

thinking and creativity (Fisher 2001: 193).

In the networked information environment, individual and collective participation in cultural production is enabled by (a) the lower cost of engaging in cultural production, which has led to wide social diffusion of the means of such production, in terms of both equipment and software, (b) the provision of easier, wider and more equal access to the mass of prior cultural achievements archived at the world wide web on a non-commercial openly accessible basis, (c) the facilitation of knowledge sharing, cultural exchange and collaboration between creators through contemporary information and communication infrastructures, and (d) the increased technical capacity of remixing prior art into new forms of cultural expression (Benkler 2006, Lessig 2008, Broumas 2013: 430). On this basis, Benkler has proposed that commons-based peer production gives birth to a new folk culture, which is not only more open, participatory and transparent than industrial cultural production but also has the potential to acquire critical mass and challenge dominant norms, standards and patterns of the industrial cultural production system (Benkler 2006: 277).

Apart from the cultural domain, political implications of the intellectual commons also extend to the transformation of both the public sphere and the modes of social mobilisation and political organisation. In the industrial era, the public sphere has been characterized by the accumulation of communication power in the hands of powerful commercial corporations (Habermas 1989). In the informational era, an alternate mode is emerging alongside the dominant relations of managing communication, which is based on mass self-communication (Castells 2009: 55). Widespread social practices in the networked media environment are organised in the form of decentralized and horizontal information dissemination and deliberation among individuals (Benkler 2006: 215-219). Furthermore, horizontal communication networks formulate nodes around participatory media structures, which facilitate and coordinate the dissemination of alternative messages and meanings (Lievrouw 2011). Even though the asymmetries of communication power between

corporate mass-media and horizontal networks of communication persevere, these two distinct poles in the contemporary public sphere are dialectically interconnected (Castells 2008: 90), with the latter having developed the capacity to circulate news, opinions and ideas at the social base, to contribute to social awareness over the exertion of arbitrary state / corporate power and to counter-influence dominant agenda-setting patterns.

Accordingly, the properties of contemporary information and communication technologies are re-shaping the political mobilisation, organisation and action of the 21st century at the grass-roots. In regard to the interrelation between communication processes and social movements, Manuel Castells claims that “the characteristics of communication processes between individuals engaged in the social movement determine the organizational characteristics of the social movement itself: the more interactive and self-configurable communication is, the less hierarchical is the organization and the more participatory is the movement” (Castells 2012: 15). The dialectics between contemporary information and communication technologies and grass-roots political activity influence both social mobilisation and political organisation. On the one hand, such technologies constitute an important element of the information and communication infrastructure, which enables and, simultaneously, frames horizontal political coordination, mobilisation and physical aggregation of protestors through the decentralised dissemination of messages across mobilised masses. On the other hand, they empower and, at the same time, condition networked forms of organisation inside the social movements within and beyond borders (Juris 2008).

3.5.4. The Partner State to the Intellectual Commons: Planning the Transition

Social democratic thinkers argue that the present configuration between the state, the market and civil society works only at the service of capital and to the detriment of the intellectual commons (Bauwens and Kostakis 2015). Hence, the consolidation of a commons sector in the economy and, subsequently, the

transition to a commons-oriented society is claimed to be only possible under the establishment of a partnership between the state and the social sphere of the intellectual commons and the commons in general (Bauwens and Kostakis 2014, 2015, Bauwens, Restakis and Dafermos 2015).

Elaborating on Cosma Orsi's approach (Orsi 2005, 2009), Bauwens and Kostakis define the partner state as “a state form for the transition period towards a social knowledge economy, in which the resources and functions of the state are primarily used to enable and empower autonomous social production” (Bauwens and Kostakis 2015). Unlike the market state, the partner state form has the mission of both safeguarding the sphere of the intellectual commons and facilitating the mode of commons-based peer production, whereas, at the same time, promoting social entrepreneurship and participatory politics (Bauwens and Kostakis 2015). Hence, whereas the present market state is only at the service of property owners and profit-oriented economic activities, the partner state also empowers the commons-oriented social forces of civil society and the social solidarity economy (Orsi 2009: 42, Bauwens and Kostakis 2015). In the dialectic relationship between the state and the intellectual commons, the strengthening of civil society is expected to initiate a reversal of the current tendency to shift power from nation-states to the forces of capital and an exodus from the socially and ecologically unsustainable political economy of globalised capitalism (Restakis 2015: 99). In the partner state framework, relations between the state, the market and the commons are re-configured in order to produce a “triarchy”, which preserves and combines the positive aspects of each sector for social welfare and ecological sustainability (Bollier and Weston 2013: 262). In this context, the partner state acquires the role of the arbiter, who ensures “an optimal mix amongst government regulation, private-market freedom and autonomous civil-society projects” (Bauwens and Kostakis 2015).

According to social democratic theories, the partner state becomes the central planner for the transition to a commons-oriented society. In this respect, specific sets of policies have to be carved out with the core aim to establish institutions,

which guarantee that the social value produced and circulated by practices of commoning is not appropriated by capital but rather accumulated again in the sphere of the intellectual commons (Bauwens 2015: 53). This virtuous cycle of value circulation / accumulation is expected to make an alternative political economy possible and pull intellectual commons' communities out of the margins and to the center of the economy (Bauwens and Kostakis 2015). A commons-oriented political economy of the social intellect consists of interrelated layers of economic activity, all of which are underpinned by positive state policies. At its core are the intellectual commons' communities and their co-ordinating institutions, which usually take the form of special purpose foundations and other non-profit entities (Bauwens 2015: 32). Its periphery, where capital-intensive activities take place, especially in relation to the production of material goods or labour-intensive services, is occupied by social and solidarity co-operatives, which are connected together by bonds of reciprocity and mutuality. Finally, its relation with the market is configured by the rise of an ethical entrepreneurship, which is mobilized by "generative forms of ownership" and "open, commons-oriented ethical company formats" (Bauwens and Kostakis 2015). The partner state facilitates and co-funds this ecosystem of ethical economy (Restakis 2015: 113).

3.5.5. Critical Evaluation: Partnering with the State for the Transition to a Commons - Based Society

Table 3.3 Partnering with the State for the Transition to a Commons - Based Society

Epistemology	Political Economy
Agency	Social Individual(s)
Structure	Productive Community
Internal Dynamics	Bottom-Up / Top-Down Emergence
External Dynamics	Co-existence of Commons with Capital
Normative Criteria	Deontological [reformist]
Social Change	The Commons as Substitute to the

	Welfare State
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Source: Author

Overall, social democratic approaches employ political economic tools for the examination of the intellectual commons, emphasise on their interrelations with the political economic totality and its structures and merge on affirmative reformist proposals for the restructuring of existing social institutions [see Table 3.3 above]. In specific, such theories are characterised by their transcendent perspective towards existing arrangements of the networked information society and by their transitive approach in favour of emancipatory and ecologically sustainable social change. Their basic tenet is that the mode of commons-based peer production has deeply influenced the evolution of the networked information economy and can also be implemented in wider sectors of social reproduction. Therefore, the intellectual commons have the potential to bring about significant changes to society as a whole in favour of social justice, individual / collective empowerment and democracy. As a result, social democratic theorists strive to delineate specific plans for a transition to a commons-based society. In their approach, they call for a shift beyond the classic discourse over the power balance between the state and the market and, instead, focus on the ways that the state and the market can enable, facilitate and empower civil society arrangements, which are reproduced around and within the intellectual commons.

Social democratic theories, especially when founded on liberal philosophical premises and rational choice methodologies, often cross the thin line that separates dialectical thinking over the interrelation between society and technology from one-dimensional techno-deterministic approaches of the intellectual commons. Nevertheless, the tense relation between the intellectual commons and capital cannot be obfuscated by ideologically laden perspectives about the alleged inevitability of the technological revolutions. As Yochai Benkler has aptly commented about the potential of the intellectual commons and the social forces, which obstruct its realisation, “[t]he technology will not

overcome [the industrial giants'] resistance through an insurmountable progressive impulse. The reorganization of production and the advances it can bring in freedom and justice will emerge, therefore, only as a result of social and political action aimed at protecting the new social patterns from the incumbents' assaults" (Benkler 2006: 15). Apart from straightforward technological determinism, certain strands of social democratic theory are also criticized on the basis of over-emphasising the realm of the networked information environment and the digital commons in regard to transformative politics (De Angelis and Harvie 2014: 288-289). By disregarding the interdependencies between the intellectual commons and the material realm, social democratic theorists fall in certain cases prey to cyber-optimism and underestimate the wider power shifts that need to take place for a commons-based society to emerge.

Yet, a more penetrating critique of social democratic theories should reveal the deep contradictions regarding their idea about the essence of the bourgeois state and its dialectics with capital and the intellectual commons. The social democratic proposal for the possibility of co-existence between the sphere of the commons and capitalist markets through the establishment of cycles of additive value between the two fails to grasp the deeply contested nature of the relation between commons and capital. In its current phase of development, capital operates as a voracious colonising force, which constantly invades realms of life in common for the purpose of growing and reproducing its monetary value (De Angelis 2007: 6). Capitalist penetration in previously untouched fields of cultural and communicational activity takes the form of a surging commodification, as is evident in the various genres of postmodern culture (Jameson 1991). In a social terrain dominated by commodity markets, social value is primarily circulated and accumulated in the form of money and through the exploitation of labour. In such a terrain, forces of intellectual commoning are incapable of outcompeting forces of commodification, due to the fact that the former base their sustainable reproduction on non-monetary values. Therefore, no matter how extensively the intellectual commons counter-

influence the processes of capital circulation / accumulation in the networked information economy, commons-based peer production is constantly co-opted in multiple ways as component to the dominant mode of capitalist intellectual production / distribution / consumption.

Apart from the vulnerabilities and failures of the notion of the intellectual commons as co-existing with capital, the social democratic conception of the partner state is also in itself a contradiction. The contradictory essence of the state as the condensation of competing social forces precludes the materialisation of a specific socio-historical state form that will partner with the commons. Instead, state policies regarding the commons are and will in the future be the specific contradictory outcome of the contention between the dominated social force of the commons and the dominant social force of capital each time at work. The ideal-type of the partner state obscures the contradictory and antagonistic elements of the process towards a commons-oriented society, the latter being a possibility dependent ultimately on social struggles rather than technocratic solutions. The concept of a state in partnership with the commons and, hence, deliberately promoting decommodification strategies collides with the contemporary transformation of the state into a “competition state”, which acts within the golden straightjacket of neoliberal globalisation as a “collective commodifying agent” of social life (Cerny 1997: 267). By claiming that this market-enabling role of the state to the detriment of the commons can be completely reversed, without revealing the complex dialectics within social antagonism, which can render this colossal reversal possible, social democratic theorists of the partner state obfuscate more than they illuminate.

3.6. CRITICAL THEORIES OF THE INTELLECTUAL COMMONS: THE COMMONS AS ALTERNATIVE TO CAPITAL

3.6.1. Main Question and Methodology

Critical approaches search for the elements of the intellectual commons that

have the potential to abolish all forms of domination and exploitation and exhibit tendencies towards a state of non – domination, a stateless and classless society. Critical theorists posit commons-based peer production within the wider social antagonism between the dominant force of capital and the countervailing forces of commoning. Furthermore, following Marx, they consider the intellectual commons as part of the real movement of communism constantly at work at the base of contemporary capitalist society, which abolishes dominant social relations and creates the new world (Marx 1845). Without any ground for conciliation between the two opposing forces, the mission of critical intellectuals is to elaborate on the ways that the intellectual commons and the commons in general can be armoured in their dialectic relation with capital, so as to acquire anti-capitalist dynamics and transcend the current ensemble of social relations.

In relation to methodology, critical theories follow a critical political economic approach of the commons as systems of social forces / relations embedded into the antagonisms of capitalism. Dialectical relations between the intellectual commons and capital are considered to develop as internalisations of characteristics of one element to the unity of the other. The unity in diversity of such elements and their interrelations constitutes an interconnected social totality, which is replete with inherent contradictory tendencies (Fuchs 2011: 21). Furthermore, critical theories are materialistic in the sense that they analyze the processes of resource distribution, circulation and accumulation taking place within the dynamic interrelation between the intellectual commons and capital. Holding that in this context social change is ubiquitous and that the understanding of its processes plays a key role for shaping the future, critical theories engage in a processual ontology of social structures, viewing the latter as sets of processes of social [re]production (Mosco 2009: 127 – 128).

From a critical perspective, agency is an analytical category posited in the wider context of antagonism between social forces and classes. In this context, commoners do not confine themselves in one-to-one relations of reciprocity but

circulate dominant or alternative social values along wide cycles of reciprocity formed around communities (Hyde 2007: 19). In this respect, existing societal objects frame subjective action, enabling dominant patterns of social activity and suppressing alternative potentialities, whereas individuals and collectivities choose to reproduce existing structures or go against the current and establish alternative structures, keeping history perpetually open to change (Bhaskar 2008: 144, Fuchs 2011: 61). Within the intellectual commons, there are both knowledge structures and social relations/organisations/institutions as structures, which constrain and, at the same time, enable commoners in specific ways, aligned either to dominant or subversive orientations. In this context, commons-based peer production is considered as a mode of intellectual production, through which meanings, perceptions, truths, knowledge and culture are produced as alternatives to their hegemonic counterparts. Therefore, the intellectual commons are conceptualised as having properties which attribute to them the potential to provide intellectual and cultural bases for social reproduction against and beyond capital.

3.6.2. The Social Intellect as a Direct Force of Production and the Death Knell of Capital

In the third volume of *Capital*, Marx characterises the intellectual commons as the end product of universal labour, on the basis that “[all scientific labour, all discovery and all invention] depends partly on the co-operation of the living, and partly on the utilisation of the labours of those who have gone before” (Marx 1992: 199). In the *Grundrisse* Marx describes that in the apogee of its development capital articulates fixed capital (machines) and living labor (workers) in such a way, so that it gives birth to the general intellect as a direct force of production. Marx defines the general intellect as the “universal labor of the human spirit” (Marx 1991: 114), “general social knowledge”, “the power of knowledge, objectified” or “the general productive forces of the social brain” (Marx 1973: 705, 706, 709). According to the Marxian approach, machines are conceptualised as “alien labour merely appropriated by capital” (Marx 1973:

701), whereas their constituting technologies are the outcome of work of the human brain (Marx 1973: 706). In this phase, capital gradually dispenses of direct human labour by means of machination and transforms the entire production process into “the technological application of science” (Marx 1973: 699). What then capital appropriates is “[the individual worker’s] general productive power, his understanding of nature and his mastery over it by virtue of his presence as a social body - it is, in a word, the development of the social individual which appears as the great foundation-stone of production and of wealth” (Marx 1973: 701). Hence, in the age of the general intellect the intellectual commons become the ultimate source of capital's profit (Marx 1993: 114).

The emergence of the general intellect is a social transformation, which takes place within capitalism and in the direction of totally subsuming the creative powers of the human brain and body under the processes of capital circulation / accumulation. Nonetheless, in one of his unexpected dialectical twists of thought, Marx alleges that the same transformation, which brings capital to the apex of its social power, also “works towards its own dissolution” in four ways (Marx 1973: 700). On the one hand, the replacement of living labour by machines is expected to decrease profit rates, since only human labour is perceived to have the capacity to produce value (Caffentzis 2013: 139-163). On the other hand, the diminishing dependence of capital on workers sets on fire the relation of wage labour, which holds capitalist societies together. “Post-operaist” thinkers go so far as to elicit from Marx's writings the idea that value produced by “immaterial labour” is by its nature beyond measure, rendering the Marxian law of value redundant and forcing capitalist markets into severe crisis (Hardt and Negri 1994: 9, 175; 2000: 209, 355-359; 2004: 140-153). Finally, the necessity of human supervision over the objective dimension of the general intellect, i.e. the technoscientific systems at work in production, gives rise to a subjective social force, which has the potential to transcend private property relations through sharing and collaboration. Hence, the rise of the general intellect gives birth, albeit still in spermatic form, to an alternative commons-based proto-mode of

production (Fuchs 2014: 170). The new society begins to form itself within the shell of the old¹⁴.

Critical theorists believe that the advent of the networked information society induces transformations in the relations of production, which contribute to the emergence of the general intellect as the principal productive force of our age (Fuchs 2014: 151). The exponentially increasing usage of information and communication technologies and their machinery in the process of production indicate the extent to which general social knowledge has become a direct force of production, having significant spill-over effects to most terrains of social [re]production (Witheford 1999: 221). Focusing on the subjective pole of Marx's concept of the general intellect, i.e. living labour, certain intellectuals of the autonomist marxist camp claim that the generation of the productive force of the general intellect and the generalisation of "immaterial labour" in the global workforce has led to the emergence of "mass intellectuality". The latter is a set of cognitive, technical, cultural and affective competencies and organisational capacities widely dispersed in the workforce, which constitutes the "know-how" for the operation of post-fordist production (Virno 1996: 265). By reaching the stage of the general intellect, the development of productive forces thus unveils an anti-capitalist subjectivity of labour, which autonomously constructs alternative processes of "self-valorization", i.e production of use value, which escapes its commodifying cycle into exchange value and, at the same time, production of proletarian class consciousness and organization (Hardt and Negri 1994: 282).

To sum up, "post-operaist" thinkers, such as Hardt and Negri, assert that the emergence of the general intellect in capitalist production gives birth to a new revolutionary vanguard. Instead of the industrial proletariat of the leninist era, the subversive subjectivity of our times is the social cyborg workers' association, which supervises the techno-scientific bases of post-fordist production. As the degree of the socialisation of labour at the core of high-tech capitalism is exponentially increased, "post-operaist" thinkers believe that a "a kind of

spontaneous and elementary communism” at the base of society unfolds itself (Hardt and Negri 2000: 294). Hence, we potentially enter an era, in which, as Marx vividly described, “[t]he death knell of capitalist private property sounds. The expropriators are expropriated” (Marx 1990: 929).

3.6.3. The Anti-Capitalist Commons: Commoning Beyond Capital and the State

From a critical perspective, the intellectual commons constitute “a sublation of the mode of the organization of the productive forces” within capitalism, rather than a proper full-fledged post-capitalist mode of production (Fuchs 2014: 170). The emerging contradiction between the forces and relations of production clearly observed today in the form of the resurgent commons may, as has happened repeatedly in the past, just as well lead to the sublation of capital to a superior level of organisation and the consolidation of its powers over societies, instead of pointing towards an exodus from its domination (Tronti 1972). Therefore, not only in relation to the particular case of the intellectual commons but also to wider social change, the opportunity to move beyond capitalist societies is ultimately determined by the shift of co-relations of power brought about through social struggles and political organization (Hardt and Negri 2009: 150). In Nick Dyer-Witthof's words, the radical potentials of the commons “can be actualised, not according to any automatic technology determinist progression, but only via struggles about not just the ownership but the most basic design and architecture of networks, struggles that have to be not only fought, but fought out in detail, with great particularity” (Witthof 2006).

By holding that capital has subsumed social reproduction in its entirety, certain “post-operaist” thinkers inescapably view patterns of commoning as exclusively reproduced by the antinomies of the capitalist mode of production. It suffices to discover and promote the subversive tendencies unleashed by such contradictions in order to fully grasp and mobilize the revolutionary potential of the commons. From this perspective, capital is perceived to produce its

opposition within its own sphere of reproduction, by socialising immaterial labour and, consequently, generalising “communism” at the social base. Following such a reasoning, it should not come as a surprise that the forces of anti-capitalist commoning are exhorted to “push through Empire to come out the other side” (Hardt and Negri 2000: 218). In this context, a distinct line of critical theorists has been claiming that the commons are generated “outside” and against the capitalist system, albeit facing internal contradictions due to the dialectical relation between the forces of commoning and the dominant force of capital. For Massimo De Angelis, the commons constitute spheres of social reproduction, which are mutually exclusive and in constant confrontation with capital. These spheres are reproduced on the basis of circulating and accumulating alternative value practices beyond the value practices of money accumulation, commodity circulation and profit-maximisation. The beginning of history beyond capital, if realised, will only take place when societies overcome the “law of value”¹⁵, which reduces everything to capital's measurement, and posit the values of commoning as dominant (De Angelis 2007: 135, 150, 247). For Caffentzis and Federici “commoning” is a social practice, which constitutes the organising base for human communities since their inception and, therefore, predates the state and capital forms of governance and power. They conceive anti-capitalist commons as “autonomous spaces from which [we] reclaim control over our life and the conditions of our reproduction, and [...] provide resources on the basis of sharing and equal access, but also as bases from which [we] counter the processes of enclosure and increasingly disentangle our lives from the market and the state” (Caffentzis and Federici 2014: 101). For the commons to acquire anti-capitalist tendencies and fulfill their emancipatory potential, they will have to transcend intellectual production and spread to the material realm. Furthermore, they need to be embedded in self-governed communities, which in themselves will also have to be characterised by non-commodification of their outputs and by the socialisation of both the means of their reproduction and the centres of their decision-making (Caffentzis and Federici 2014: 102-103).

In contrast to social democratic theorists, who address their proposals for commons-oriented planning to state officials, critical intellectuals choose instead to provide their analysis of the commons to the service of radical social movements. According to their views, any potential commons-oriented transformations cannot involve the seizure but rather the overcoming of the neoliberal market state from the bottom-up by a social counter-power based on the commons. Fully aware of the crucial role of the state both in the enclosures of the pre-capitalist commons and in the new wave of enclosures currently in effect, critical thinkers strongly support the view that the power shift needed for the commons to thrive can only become possible by a social force in autonomy from the state and any political vanguards attached to it, albeit in a dialectical relationship of disjunctive synthesis with political forces in government which are in favour of commons-oriented policies (Hardt and Negri 2012). The circulation of the resurgent powers of commoning gradually breaks the barriers of the intangible and extends to the material realm through the formulation of hackerspaces, fablabs, community wireless communication networks, open design commons, open hardware, decentralised desktop manufacturing and peer to peer community energy systems (Witthford 2006, Kostakis, Niaros, Dafermos and Bauwens 2015).

In conclusion, critical theorists believe that the contemporary battles for the defense and diffusion of the commons, whether taking place in the intellectual or the material realm, are an integral part of a wider re-conception of class struggle and social antagonism, which also includes the power to be able to refuse wage labour and the power to gain control over the means of production and subsistence (Caffentzis 2013: 249). They predict that the class struggles of the 21st century will be centered in the generation or destruction of the commons. According to Žižek, the contemporary struggles for the commons constitute struggles for the collective survival of humanity from its annihilation. Therefore, capitalist enclosures of the commons create the social conditions for the establishment of wider coalitions between different social agents on the basis of shared communist perspectives (Žižek 2008: 420-429, 2010: 212-215). In this

respect, two alternative futures loom for humanity: “[e]ither: social movements will face up to the challenge and re-found the commons on values of social justice in spite of, and beyond, [...] capitalist hierarchies. Or: capital will seize the historical moment to use them to initiate a new round of accumulation” (De Angelis 2009).

3.6.4. Critical Evaluation: The Commons as Alternative to Capital

Table 3.4 The Commons as Alternative to Capital

Epistemology	Critical Political Economy
Agency	Social Intellect
Structure	Community of Struggle
Internal Dynamics	n/a
External Dynamics	Commons / Capital Antagonism and Sublation
Normative Criteria	Deontological [subversive]
Social Change	The Commons as Alternative to Capital

Source: Author

In relation to the criteria applied in this analysis, critical approaches are distinguished from the other three families of theories in that they conceptualise the intellectual commons as contested terrains of domination and resistance in juxtaposition to capital (see Table 3.4 above). In general, critical intellectuals engage in an examination of the ways that the intellectual commons can be exploited by corporations in order to [re]produce relations of domination and oppression or employed by society for the advancement of freedom, equality and democracy. Consequently, such theories hold a strong prescriptive / normative approach of social arrangements, openly embracing the aim of radical social change for the transition to commons-based societies. In this context, the commons are viewed as unified social processes and relations, which exhibit continuity between the realms of the manual and the intellectual.

In juxtaposition to the other three approaches, critical thinkers perceive the intellectual commons as posited within social antagonism between the forces of labour and capital and consider such position as largely determinant of their essence and their future. Hence, the focus of their analysis is centered on the specific crystallisations of such power relations within the ensembles of intellectual commons themselves, the antinomies of these crystallisations and their elements that have an anti-capitalist potential and should be promoted in the transition to commons-based societies.

Due to their subversive approach, critical theories of the intellectual commons reveal vulnerabilities of an essence different to those exhibited in the other three families of commons' theories analysed above. In terms of methodology, the majority of critical thinkers do not spend much energy in supporting their intuitions with adequate empirical evidence. Furthermore, the intellectual commons and capital are often manicheistically conceived as polar opposites in their dialectic relationship, even though dialectical schemata between the two almost never take such simplified forms of direct juxtaposition and conflict. In addition, structuralist epistemological influences within certain critical viewpoints result in deterministic tendencies and a very thin conception of social subjectivity as casuistically generated by structural dynamics with limited capacity to counter-act. Indicative of such tendencies is the intuition of Hardt and Negri that the key to "come out the other side" of capitalism is ultimately not the emancipatory potential of the forces of commonification but rather the internal contradictions of capital, which have to be pushed all the way through to their full materialisation in order for meta-capitalist societies to come into being (Hardt and Negri 2000: 218). Finally, post-structuralist influences lead certain intellectuals to introduce fuzzy terminologies, which are open to ideological regression. In this sense, "immaterial" labour literally cannot exist, since even the most intellectually-based labour materialises in specific forms (Caffentzis 2015: 176-200).

Methodological vulnerabilities are inevitably reflected in the content of critical

theories. The often manichean conception of social antagonism as solely taking place between the forces of labour and capital and the need to engage in a radical critique of existing social arrangements pushes critical intellectuals to focus more on the dominant pole of the dialectic [capital] and much less on alternatives embodied in the commons. As a corollary, critical perspectives of the intellectual commons generally fail to problematize over issues of collective action, organization, coordination and consolidation related to communities of commoning and to engage in informed discourses regarding their shortcomings. Hence, political economic analysis centered on the intellectual commons themselves is rather scarce. On the other hand, no matter how much the categories of production and labour are conceptually stretched to cover all aspects of social activity and include them within the schemata of critical political economy, such an analytical framework still falls short of fully grasping the actuality of dynamics between contemporary forces and relations of social power. The conceptualization of all social activity as reduced to the concept of labour is more attached to the reality pursued by capitalist dynamics rather than to anti-capitalist alternatives, thereby acting as a co-opted imaginary contributing to the commodification of ever-more terrains of social activity.

The forking of critical theories over the debate of informationalism is also susceptible to ideological regression in relation to both of its expressions. In particular, the assumption that the informational forces of production have acquired centrality within social antagonism is as much an ideologically constructed perspective as the assumption that capitalist relations of production have remained exactly the same after their extensive penetration by the use of information and communication technologies. A more balanced approach should research and identify the specific changes that have taken place in production, distribution and consumption and the potentials that they open for anti-capitalist alternatives (Fuchs 2014: 151). The same balance should be kept in relation to conceptions about the ways that radical social change can take place. Both the hypotheses that the subjective element of social counter-power is solely produced either by the structural contradictions of capital or by social

struggles are ideologically loaded. Structural dynamics frame and condition collective social subjects but subversive subjectivities are ultimately forged within and through struggles, where their substratum, i.e. communal relations of solidarity and collaboration and alternative value systems, can actually come in effect. Therefore, attempts to invent de novo political vanguards and propose roadmaps of transition to post-capitalist societies run counter to the historical experience of the past two centuries.

3.7. CONCLUSION

Far from forming a coherent and systematic theoretical body, theories of the intellectual commons offer a diversity of approaches to the object of their analysis. The following table compares the four distinct theoretical families analysed in this study and reveals the advantages and the shortcomings of each theoretical approach, thus providing insight on which element of each theory could appropriately contribute to a “strong” theory of the intellectual commons.

Table 3.5 Comparison of theories and approaches

	Rational Choice Theories	Neoliberal Theories	Social Democratic Theories	Critical Theories
Epistemology	Rational Choice Institutionalism	Methodological Individualism	Political Economy	Critical Political Economy
Agency	Individual(s) in Interdependent Relations	Isolated Individual(s)	Social Individual(s)	Social Intellect
Structure	Patterns of Interactions	Market	Productive Community	Community of Struggle

Internal Dynamics	Bottom-Up Emergence	Bottom-Up Emergence	Bottom-Up / Top Down Emergence	n/a
External Dynamics	n/a	Co-optation of Commons by Capital	Co-existence of Commons with Capital	Commons / Capital Antagonism and Sublation
Normative Criteria	Consequential	Utilitarian	Deontological [reformist]	Deontological [subversive]
Social Change	The Commons as Patch to Capital	The Commons as Fix to Capital	The Commons as Substitute to the Welfare State	The Commons as Alternative to Capital

Source: Author

In order to acquire substance and achieve impact, a strong theory of the intellectual commons should hold a critical perspective over existing social arrangements. Therefore, it ought to have solid normative foundations, not confined within the limitations of the status quo in the field but rather orientated towards what the current state of affairs should become. In this context, the normative horizon of such a theoretical endeavour stretches nothing short of the realization of the radical potential of the intellectual commons to fully unleash the productive forces of the social intellect. In addition, a strong theory of the intellectual commons should in principle analyse social phenomena not in isolation but rather within their social context and, hence, touch issues related to the interrelation between the intellectual commons and the social totality.

In this light, the fundamental choices regarding the categories of a strong theory of the intellectual commons ought to mindfully harvest the most appropriate elements of each theoretical approach according to the following criteria:

- ⤴ Epistemology – The methodological choices, which feature both a critical perspective and an examination of the intellectual commons as nested within the social totality, are better represented in political economic approaches. Nonetheless, even such approaches tend to limit their scope of analysis within production. The social phenomena of the intellectual commons extend to modes of distribution and consumption and, along with production, transform forces and relations of wider social power. Hence, a strong theory of the intellectual commons needs an expansive and fundamentally transformed analytical framework, which will focus on social power itself and take into account the reproduction of society in its entirety.
- ⤴ Agency and Structure – Notwithstanding the importance of commoners as individual actors, reductionist individualist methodologies constantly fail to provide sufficient explanations for the bottom-up reproduction of the intellectual commons. Circular reciprocity encountered in robust productive communities and socio-wide modes of intellectual production / distribution / consumption pushes towards a shift from an exclusively individual to a collective conception of agency, taking also into account the presence of social forces. Along the same lines, structures ought to be dialectically analysed as contested terrains and processes in constant flux, where social forces interrelate, collide and lead to syntheses.
- ⤴ Dynamics – Taking into account the influence of agency and structure in social systems, an inclusive analysis of the intellectual commons should view them as evolving through processes of both bottom-up and top-down reproduction. Nevertheless, such an analysis is partial, if not accompanied by an exploration of the dynamics developed between the sphere of the intellectual commons and the social totality. Dominant social forces / relations decisively influence intellectual commons' communities, whereas the latter counter-influence the former. The dialectics between the intellectual commons and capital impact both the

processes of commoning and the wider social processes of reproducing the intellectual bases of society.

- ^ As far as normative evaluations and their reflection on social change is concerned, the specific outcomes of the sublation between the intellectual commons and capital, as described by neoliberal and social democratic theorists, provide guidance as to which policy choices are each time implemented or omitted and which policy aims are each time promoted or rejected. Therefore, a strong theory of the intellectual commons should abstain from obfuscations in the form of technological or social determinism, search for the choices made and the forces backing them in the context of the intellectual commons and elaborate on proposals that fully exploit their potential in terms of the powers of the social intellect.

In alignment with the aim for a strong theory of the intellectual commons, heterodox theorists converge in their proposals to re-invent the rules that govern our networked information economies, by reforming intellectual property laws and by inventing policies that accommodate and embrace commons - based peer production. Hence, an integrated approach is gradually being formulated for a commons-oriented social and political program capable, among others, of constructing an institutional ecology for the intellectual commons.

Nevertheless, the engagement with theoretical ventures over the intellectual commons needs to be attentive to the fact that the radical transformations mentioned above cannot be pushed forward purely by theorizing. Instead, they presuppose tectonic shifts in co-relations of power between incumbent economic forces and the emerging commoners' movements. Therefore, our transition to commons-based societies may only come as a result of social and political action. As the commons cannot be separated in their tangible / intangible expressions, in this project no division of labour between its intellectual and socio-political is possible. Participants can only be commoners of the mind as much as of the soul and body.

The current chapter has given an overall view of contemporary theories of the intellectual commons. Such theories have been evaluated from the standpoint of their approach to social change, which is represented by their conception of the social potential of the intellectual commons and their interrelation with capital. Critical tenets from each theory are utilised in the framework of the current study as the bedrock for the moral justification of an intellectual commons law. The next chapter offer a theorisation of the intellectual commons across history, by unfolding the evolution of the regulation of cultural commons from the Renaissance to Post-Modernity. Its aim is to examine in parallel, on the one hand, the importance of the commons for art and culture and, on the other hand, the discrepancy of their treatment under positive law. Given that, the purpose of the next chapter is to raise the argument for alternative modes of regulation, which will accommodate the potential of the intellectual commons in the digital age.

4. CULTURAL COMMONS AND THE LAW FROM THE RENAISSANCE TO POSTMODERNITY: A CASE STUDY

4.1. INTRODUCTION

Throughout history humanity's cultural endeavours have been characterised by collective practices of sharing and collaboration. From the advent of civilization to the age of information and communication networks the greatest achievements of art have resulted from collaborative creativity among many minds working together in community. Our cultural heritage, upon which any new cultural advancements are based, operates as an immense common pool resource, accumulated through the ages by the collective intellectual efforts of past generations. In general, cultural commons constitute the bedrock of human civilization and lie at the core of socio-cultural reproduction.

Nonetheless, the greater the role sharing and collaboration plays in creativity, the more prevalent perceptions and social institutions disregard their existence. Dominant historiographies of art primarily focus on the role of the individual, the commodity market and copyright law in modern and postmodern processes of intellectual production. Such perceptions of our past and present reinforce structural tendencies towards enclosure and commodification of cultural resources. An alternative historical narrative from the perspective of the cultural commons aims to raise awareness over the fundamental role of the cultural community and the practices of sharing and collaboration in human creativity / inventiveness. Such a narrative brings the cultural commons and their importance for the contemporary networked information economy to the forefront of our attention.

The previous two chapters have revealed the ontological and epistemological perspectives of the intellectual commons. The present chapter unveils a historical narrative of the communal, cooperative and sharing characteristics of artistic and cultural production, distribution and consumption. Viewed as a

productive process, culture is in any historical era based on units of collaboration and structures of sharing. Furthermore, artistic expression is framed and conditioned by the structures which dominate its wider socio-historical context. These primarily refer to: (i) structures controlling access to resources and infrastructure necessary for the reproduction of the creative process, (ii) structures controlling the social diffusion and circulation of works of art, and (iii) legal institutions. Finally, the creative process is heavily influenced by dominant social perceptions regarding the role of the author within artistic production. Such a narrative does not approach its object of analysis, i.e. the forces and structures of the cultural commons, as clear-cut historical manifestations of a certain ideal-typical abstraction. Instead, it seeks for the historical manifestations of information, knowledge and cultural sharing and collaboration, which persistently pervade the reproduction of the cultural bases of society, and their penetration by countervailing forces and structures of enclosure, antagonism and control. The chapter is structured in three main parts, which, in the context of the cultural commons, consecutively examine the history of creativity and the evolution of its regulation as the outcome of the clash between forces of commonification and commodification. The current historical analysis commences from the Renaissance, which signifies the rise of the master artist and the emergence of commodity markets in art and culture, and stretches up to post-modern times. The chapter concludes with general observations and findings elicited from the historical tendencies revealed in its main body.

4.2. CULTURAL COMMONS AND THE LAW IN THE RENAISSANCE: ART AND CULTURE AS COMMUNAL PRACTICE AND THE RISE OF THE MASTER ARTIST [14th-17th CENTURY]

During the Renaissance, folk art produced within cultural communities was central in the creative process. Furthermore, workshops embedded in cultural communities were the main units of artistic production (Hauser 1999: 18). Nevertheless, the fifteenth century was marked by a shift of demand for the

employment of skill and the participation of renowned individual artists in art works (Baxandall 1972: 23). Traditional hierarchies within the workshop were thus gradually reconstructed on the basis of skill, with the talented artist elevated at the center as master of the productive process and the cooperating craftsmen acting as “assistants”. In reality, however, art works were produced through the collective work of multiple craftsmen. Even though art works produced in workshops were normally signed by their masters, many of them were a product of collaboration between the master and his assistants and pupils (Tummers 2008: 38). All in all, artistic production remained a chiefly cooperative process until the nineteenth century (Heinich 2001: 112). In the context of authorship, copying, collating and reworking of preceding forms, methods, styles and techniques dominated the creative process. Authors built their creative contributions in close relation to prior works of authorship in their genre (Woodmansee 1994: 17). Likewise, in relation to music, the great composers of classical music systematically borrowed from each other and appropriated the folk music of their era (Meconi 2004)¹⁶. From such a perspective, the archetype of the Renaissance artist is William Shakespeare. Rather than being the epitome of original genius, Shakespeare was not the actual originator of the plots of most of his plays. Instead, he could best be described as a “reteller of tales”, undoubtedly a brilliant one, whose tales were evidently derived from history, mythology, folk culture and prior art (Rose 1993: 122)¹⁷.

In the Renaissance artisanship was organised in guilds, as in the middle ages. During the Renaissance medieval guildship was formalised, consolidated and solidified. Apart from artisans, the guild form of organization was also expanded to the trade groups emerging within artistic production and distribution, such as those of printers and publishers. The guild system became interrelated with political institutions through the ratification of its internal rules by public authorities, their enforcement by state sanctions and the granting of privileges by the ruling aristocracy to its members (Merges 2004: 12). Hence, throughout the Renaissance the source of regulatory power over the creative practice gradually shifted from the guild and the church to the political

authority and from social / associative norms to state laws. In addition, the sixteenth century marks the dawn of the modern institution of the academy. The rise of the academy and the university in arts and science signifies a break with the tradition of keeping knowledge secret, which thrived under the control of religious institutions and guilds, and promotes the transformation of knowledge into a universal commons (David 2005), produced on the basis of a communistic ethos (Merton 1979). The academy was founded as an educational institution for the tutelage of new entrants in the artisanship (Pevsner 2014: 44-47). Thereafter, the institution of the academy gradually became a central mechanism in the framing of sharing artistic knowledge and in the control over the orientation and evolution of creative practice.

In the Renaissance patronage emerged as a novel structure of power within the reproduction of the creative practice, setting the outer limits of its expression (Wackernagel 1938). Members of the aristocracy and the upcoming wealthy bourgeoisie channeled their accumulated social surplus to the reproduction of artistic activity in the form of financial aid, material resources and social privileges to their protégés. In exchange, they received symbolic power bestowed by the aesthetic value of the works of art, which were produced through their aid. Even the feudal state was engaged in acts of patronage, which took the form of honoraria, i.e. financial grants or stipends as rewards to esteemed artists within its jurisdiction for their service to the state (Rose 1993: 17). In corollary, the emerging figure of the patron gave rise to the master, a thin upper class of artists, which distinguished itself from guilded artisanship in terms of both creative innovation and financial rewards. Works of art produced through the patronage system greatly reflected in their form and content the interests and worldviews of the social classes, to which patrons belonged (Antal 1986). Patrons heavily intervened in the productive process to the extent of ordering the colours to be used and the form of the figures depicted (Baxandal 1972: 11).

The 16th century signified groundbreaking technological and social

transformations in the reproduction of artistic activity. By 1500, the emerging forces of capital adapted the printing press to the needs of mass production and, thus, transformed the fixation of works of authorship into a great industry (Febvre and Jean-Martin 2010: 186-187). Whereas social perceptions of books as divine gifts insusceptible to absolute private appropriation persevered from the prior age of book barter (Davis 1983: 87), the social diffusion of books was being rapidly metamorphosed into a large - scale commodity market. From the 16th century onwards, the capitalist printer / publisher became the dominating mediator in the field of artistic production, distribution and consumption. In late Renaissance, the tendencies of commodification were also reinforced by the gradual demise of the feudal system and the rise of a wealthy class of merchants and small industry owners, who increased demand and correspondingly expanded the nascent commodity market of art (Bourdieu 1993: 112-113). As a result, a parallel commodified system of distribution appeared alongside the social reproduction of culture as an inclusive part of community life through folk culture, folk art and the exchange of artifacts in local markets, which covered every-day cultural needs. Such a market of commodities rendered possible the exchange of fixated art between buyers and sellers of creative activity and stabilised the private appropriation of cultural artifacts.

The impact of commodification was not only confined to the transformation of social relations and the shift of social power in the production, distribution and consumption of art. Forces of commodification in combination with ideological forces also changed social perceptions over the relation of the artist with her work. The protestant reformation and its demands for individual responsibility, self-discipline on earth and the non-dogmatic studying of the holy books accentuated the ethical value of personal autonomy. The authority of established communal entities, such as the church, the municipality and the commons, were brought into question, whereas emergent political and economic institutions, such as the nation-state and the commodity market, gained in importance. As the concept that social reproduction could be more efficiently governed by the autonomous economic activity of citizens under the

rule of centralised nation-states acquired political representation, law and politics gradually shifted their point of reference to the individual (De Moor 2013: 85). Hence, an amalgam of political centralization and economic liberalization set in motion by social transformations in late Renaissance societies began to weaken communities and strengthen individualism. These changes had a radical impact on the social perceptions regarding the artistic activity. The rise of the master marked the beginning of a process of differentiation between the social status of artisanship, which was considered to belong to the domain of manual work, and art, which was perceived as intellectual and spiritual work of a higher social value (Becker 2008: 353-354). In late Renaissance the rising social value of originality in art works increased the importance of creative innovation in the productive process. As a result, in the seventeenth century the individual artist started to be viewed as the main source of artistic production and her creative contribution as crucial for any kind of artistic activity (Hauser 1999: 23).

In terms of regulation through social norms, the relation between publishers and authors was determined by the custom of the honorarium, according to which publishers offered financial rewards to authors, the works of whom they printed and traded. Honoraria often took the form of contracts between publishers and authors. Yet, even though authors were considered to own private property rights over their unpublished manuscripts as physical objects, such rights did not extend to the texts engraved on them (Rose 1993: 9). Hence, instead of being founded on common law or statute, honoraria were gradually developed as trade norms grounded on the necessity to sustain the material reproduction of authors and, accordingly, literary production and the publishing industry. Overall, the honorarium was a normative and economic institution not backed by state sanctions, which, like the patronage, served the aim of the physical reproduction of authors.

In terms of regulation through law, the feudal state intervened at the mediatory level of distribution, in order to achieve censorship and control of the creative

expression and, secondarily, in order to correspond to powerful private interests and regulate art trade (De Sola Pool 1983: 16-17). State regulation of the creative practice thus took the form of state-granted privileges to individuals or collectivities. Such privileges were chiefly issued by the sovereign as horizontal concessions to printer / publisher guilds for the regulation of book trade and the competition with neighbouring feudal states (Goldstein 2003: 33-34). Only in exceptional and rare cases were privileges assigned as vertical benefits to individual artists for their services to the well-being of the community (Bugbee 1967: 45, Rose 1993: 10). Privileges were exclusive monopoly rights to print works of authorship for limited periods of time within the geographical jurisdiction of the sovereign entity granting the privilege. They were granted on an ad hoc and case-by-case basis and as a discretionary policy choice of the sovereign, as opposed to general standardised legal rights under the rule of law “conferring a uniform set of entitlements whenever predefined criteria were fulfilled” (Bracha 2004: 180-181).

The first privilege, which was issued in 1469 by the Venetian Senate, was actually a type of patent, since it conferred the monopoly over the art of printing itself for a term of five years to the German printer John of Speyer, the person who introduced the printing technology in the city (Mandich 1960: 381). In the sixteenth century, variations of the Venetian printing privileges spread to most European states with significant printing industries, such as the Netherlands and Germany. Yet, it was chiefly in England that privileges were gradually transformed into an integrated system of industrial regulation and censorship implemented by the guild and sanctioned by the sovereign. Even though the crown continued to assign printing patents on a separate basis, in 1557 the royal charter of incorporation granted to the Stationers' Company, i.e. the publishers' guild of London, the monopoly of book production (Rose 1993: 12). According to the by-laws of the guild, once one of its members asserted ownership of a text, no other member was entitled to publish it within the territory of England (Paterson 1960: 46-64). Through state enforcement the guild was thus able to administer the distribution of works of authorship, indirectly determine power

relations between authors and publishers and orient the creative practice towards the logic of the commodity market. The monopoly over book printing was combined with censorship of the creative practice. From the Injunctions of 1559 to the Licensing Act of 1662 with the exception of the interregnum, all books had to be licensed by the state before entering into circulation, whereas the stationers were legally empowered to seize unauthorised books and bring offenders before authorities. As Paul Goldstein has written, “[t]he Stationers got the economic rewards of monopoly; in return, the Crown got from the Stationers a ruthlessly efficient enforcer of the censorship” (Goldstein 2003: 33-34).

In conclusion, the Renaissance artist was an artist in collaboration with preceding and contemporary creators and a collator of prior and contemporary cultural artifacts. Both the form and the content of works of art was greatly determined by dominant social perceptions and the influence of powerful actors in artistic production, distribution and consumption. The artist was still considered as an artisan, yet the demand for aesthetic value created a new class of master artists with upgraded social status. In parallel, the rise of book trade begun to shift perceptions over the commodification of knowledge, as art was for the first time seen as a source of valorisation by the nascent forces of capital. The combination of printing technology and industrialisation raised the need of sovereigns to control and censor printed works of authorship. These two fundamental factors led to the introduction of state licenses for printing and to the granting of private monopolies over the printing of works of authorship. In accordance with the foregoing analysis, the following table summarises the main elements framing creativity during the Renaissance.

Table 4.1 The Framework of Creativity in the Renaissance

Unit of Collaboration	Structures of Sharing	Forces Controlling Access to Resources	Structures Controlling Distribution	Perception of the Author	Normative Framework
Workshop, Individual Artist as Contributor to the Creative Process	Guilds, Academies	Patron, Publisher [after the 16 th century]	Exchange markets / Commodity markets	Artisan, Master	Honorarium, Privilege

Source: Author

4.3. CULTURAL COMMONS AND THE LAW IN MODERNITY: THE COMMODIFICATION OF THE CULTURAL COMMONS AND THE APOGEE OF THE PROMETHEAN ARTIST [18th CENTURY-1960s]

The era of modernity is characterised by the prevalence of the perception of the Promethean artist¹⁸, i.e. the perception of artists as exceptionally creative individuals, who “craft out of thin air, and intense, devouring labor, an Appalachian Spring, a Sun Also Rises, a Citizen Kane” (Goldstein 1991: 110). In modernity, individualistic perceptions over the creative process became naturalised and their dominance was projected as the natural state of art and culture throughout history (Foucault 1979: 141, 159). Nevertheless, the notion of the Promethean artist ran counter to the inherently collective and collaborative character of the creative process, which persevered in all artistic forms throughout modernity. Contrary to the Promethean ideal-type, art continued to be the outcome of knowledge sharing and collaboration between multiple creators, past and present. Folk art produced within communities continued to be the cultural base and the source of inspiration whence artists and creative

industries derived the raw materials for their creative practice. Popular musical traditions, such as folk, jazz and rock, emerged and grew as artistic commons of sharing and adaptation within communities of musicians in constant dialogue to wider cultural communities (Seeger 1993, Hobsbawm 1961). In addition, both the artistic personality of individual authors and their works of art were strongly influenced by the socio-historical context of modernity. Thus, artistic production in modernity not only reflected the social conditions of its era (Lukács 1974, Weber 1958) but also contributed to the reproduction of the modernistic project towards conventional or alternative trajectories (Klingender 1947, Adorno 1991, 1992, 2002). Pablo Picasso can be considered more than anyone else as the archetype of the modern artist due to his multifarious talent and immense influence on the evolution of the visual arts. Yet, far from adhering to the ideal-type of the Promethean artist creating out of thin air, Picasso systematically appropriated shapes, styles and techniques from prior artistic traditions, such as tribal art¹⁹, and was clearly influenced from great artists of the past, such as Velazquez, Goya and Rembrandt, and from his contemporary fellow artists, such as Henri Toulouse-Lautrec, Paul Cezanne and Edvard Munch. Furthermore, Picasso collaborated with Georges Braque in the co-evolution of the art movement of cubism (Lucie-Smith 1986: 34). In addition, Picasso is considered as the inventor of constructed sculpture and co-inventor of collage, both of them artistic techniques which are mainly based on the appropriation of existing material objects and their composition and transformation into works of art. In his words, “[w]hen there's anything to steal, I steal” (Picasso 1993: 53). Finally, in contrast to the social perception of the Promethean artist creating in introspective isolation, Picasso was allegedly a social and political being and, therefore, social events and political beliefs left an indelible mark upon his art and personal life.

The rise of the social perception of the Promethean artist coincided with a contrasting cooperative tendency in the actual relations of artistic production. Modern art was characterised by the re-invention of collective productive practices, centered on the art movement and the creative factory. As the

development of individual artistic consciousness and the social emphasis on originality gradually destabilised prior nuclei of production, such as the artisanal workshop, individual artists began to establish novel modes of sharing, pooling together and re-working on the achievements of their creativity. In modernity, creative innovation was thus re-invented as a collective endeavour and the art movement became its main vehicle. As a result, the metamorphoses of art during the nineteenth and the first half of the twentieth century were strongly determined by individual artists participating in wider art collectivities and movements with common genres, styles and techniques (Lucie-Smith 1986). The artistic and literary movements of neoclassicism, romanticism, realism, impressionism and post-impressionism revolutionised nineteenth century art. The surge of collective artistic activity during the first half of the twentieth century ignited more than seventy major art movements, such as fauvism, German expressionism, cubism, futurism, the Vienna and Paris schools, realism, dada, surrealism and bauhaus. Circulation of knowledge among artists was taking place both by the formal means of exhibitions and by informal means, i.e. in artists' workshops and in artistic and literary public meeting places (Rittner, Scott-Haine and Jackson 2016). To exchange views and ideas, share knowledge and collaborate together towards current artistic problems and common causes the 19th century Parisian bohèmes met at Café Guerbois (Tinterow and Loyrette 1994: 314), Italian futurists at Le Giubbe Rosse, Gilli and Caffè Paszkowski in Florence (Livorni 2009) and Dadaists at the Cabaret Voltaire in Zurich (Sandqvist 2006). Geographical proximity played a major role in the establishment of art groups, which collaborated in the production of common projects and exhibitions, such as the Dutch neoplasticist “De Stijl”, the German expressionist “Die Brücke” and “Der Blaue Reiter” and the Moscow avant-garde “Jack of Diamonds”. Often, these shared world-views were expressed and shaped by acts of self-determination in the form of art manifestos, such as Gustave Courbet's 1855 Realist manifesto, Jean Moréas 1886 Symbolist manifesto, Filippo Tommaso Marinetti's 1909 Futurist manifesto, Albert Gleizes's and Jean Metzinger's 1912 “Du Cubiste”, Kazimir Malevich's 1915 Suprematist manifesto, Ugo Ball's 1916 Dada manifesto and André Breton

1924 Surrealist manifesto. Apart from the commonality of forms and styles, the collective and socialised character of modern artistic production was also evident in the common identity that art movements constructed and represented, which either overtly or tacitly functioned in the form of an avant-garde of radical critique and renewal in relation to the artistic and social status quo of their era (Poggioli 1968: 16-41, Jencks 1990).

By the end of the nineteenth and, especially, during the twentieth century various fields and practices of artistic production were transformed into full-fledged industries. In these industries, creativity was practiced collectively and begun to approximate the factory-form of organisation (Adorno and Horkheimer 2002: 94-96). Due to the unique characteristics of the resource of creative labour, which was the most important input in its productive process, the creative factory was since its inception an idiosyncratic factory-form based on the innovativeness of labourers, rather than the formulaic manual repetition of artistic expression encountered in the earlier unit of the ancient and medieval workshop. A combination of technological, social, economic and cultural factors, such as the invention of film and television, the establishment of a middle class in the global North, the rise of consumerism, increased leisure time and levels of literacy and the mediation of entertainment by commodity market expanded the commodification of art and established the basis for the mass production of symbolic goods and services (Hesmondhalgh 2002). In this context, individual artistic practice was first professionalised (Bourdieu 1995: 54-55) and, then, set within a wider organisational framework of industrialised cultural production based on the cooperation between multiple artists, the rationalised division of creative labour and the pooling together of talent and creativity under the rule of capital (Becker 2008: 2). Within the creative factory artists were transformed into wage labourers subject to the extraction of surplus value, the intellectual property of art works produced was as a rule automatically transferred to employers by virtue of statutory provisions and their extensive reproduction and distribution led to the mass consumption of commodity art and the rise of popular culture (Miege 1979, 1989, Garnham

1990). In corollary, the consolidation of the creative factory resulted in an increased socialisation of the productive process of art, albeit one in which artistic expression was framed and conditioned by novel social powers and hierarchies.

Throughout modernity, already established structures of cultural sharing, such as the academy and the guild, faced significant challenges, whereas novel structures emerged, such as the exhibition, the library and the museum. The consolidation of art commodity markets and the industrialisation of cultural production under the rule of capital undermined the workshop-form of production and displaced the erstwhile dominant artisan guilds. The eighteenth century signified the domination of art by the academic dogma (Pevsner 2014: 173). The royal academies in France and England became the incumbent institutions for the regulation and control of artistic activity by the state. Nevertheless, the academisation of art and the inherent hostility of the academic system against innovation and change constructed a rigid framework for the freedom of artistic expression. Such rigidity was disputed and surpassed, on the one hand, by artists themselves through the development of art movements, such as romanticism, which countered dominant academic perceptions about art, and, on the other hand, by the dynamism of art commodity markets. Since the end of the seventeenth century academies in various countries began to organise public art exhibitions. In France, the members of the Académie des Beaux-Arts organised such non-commercial exhibitions, called “salons”, so as to circumvent the self-imposed prohibition of exhibiting their works for sale. Even though prizes were insignificant²⁰, awards for artists competing in salons opened access to the art commodity market (White and White 1965: 27-43). In the nineteenth century salons acquired an international aspect through their interaction with the novel institution of international industrial expositions. As an institution freely open to the public and widely popular, salons became the main structures for the social diffusion of visual arts and the popularisation of dominant and alternative aesthetics. Artistic and literary perceptions and modes of sharing were also determined by public museums and libraries.

Museums emerged in the fifteenth century from the desire of wealthy patrons and art collectors, such as the Medici family in Florence, to emphasise their superior social status by opening their private collections to the public (Greenhill 1992: 24, 47-49). Yet, the museum acquired its modern public form only in the late eighteenth and early nineteenth centuries with the opening of the Louvre museum to the public by the 1789 revolution. The museums became institutions central for the sharing of historical knowledge and, subsequently, for popular cultural education (Bennett 1995: 19-20). Open access to cultural heritage and knowledge was also facilitated by the transformation of libraries into public institutions during the nineteenth century, i.e. institutions freely open to the public and funded by public or non-profit sources²¹. The humanitarian and democratic ethos of the time strongly pushed towards the universal free access of the citizenry to information, knowledge and literature (Ditzion 1947). As access to education increased and levels of literacy were gradually raised, public libraries played a great role in the access of lower classes to knowledge resources.

Throughout modernity, the central role of cultural sharing in modes of artistic production, distribution and consumption was evident in the spatial concentration of artistic activity and the formation of cultural centers. Nineteenth century urbanisation led to the reproduction of a public space open to aesthetic and intellectual sharing, association and cooperation on common cultural projects and artistic expression. In this urban public space, informal and formal structures of sharing and collaboration accumulated, converged and produced cultural centers and capitals (O'Connor 2011: 42). Through this social process, London and, of course, Paris gradually became the major poles of attraction for the social forces of cultural production and their mediating structures, thus rising as the incontestable cultural capitals of modernity (Newman 2009), whereas New York emerged as the definite cultural metropolis after the first half of the twentieth century (Kaufmann 2004: 161). Hence, the modernistic mode of artistic production, distribution and consumption was geographically expressed in a division between cultural centers and peripheries

and the interrelation between them strongly determined the cartography and the orientation of artistic activity, at least until the emergence of post-industrial information and communication networks (Castelnuovo 1989).

Artistic activity in the modern era was determined by the gradual abatement of artists' dependence on patronage and by the loosening of the overt control from political / religious powers over the creative practice (Bourdieu 1993: 112). Artists were freed from the various constraints existing under feudalism, communal bonds and guild artisanship, yet they became also free to sell nothing other than their creative work as labour in commodity-markets at prices imposed by capital. By being engulfed in the structural power of commodity markets, artists were increasingly influenced in the practice of their creativity from capital's inherent tendency for profit maximization (Bourdieu 1995: 49). Whether as wage labourers in the creative industries or as independent professionals within art commodity markets, creators were forced to adhere to the limitations posed by capital on their creativity, so as to be able to sell their power of creativity and access the resources necessary for their physical and artistic reproduction (Vazquez 1973: 84). Nation-states with developed art commodity markets enacted copyright laws in order to regulate the relevant industrial sectors and out-compete other states in the regional and, later, global division of labour. In this way, states became motors for the facilitation of processes of commodification in the field of art. Conversely, during the twentieth century, states acquired a more active role as collective patrons of the arts within their boundaries. Hence, ministries of culture were established and public funding was used as an instrument to encourage artistic production. After the eighteenth century, technological developments along with social and political transformations resulted in the domination of commodity markets over all other social institutions for the social diffusion of art. The capitalist industries of art distribution pushed forward for the development of iron-frame printing presses, which further accelerated the mass production of fixated works of literature (James 1976: 17). In the twilight of the twentieth century, novel inventions, such as photograph and film, facilitated mass fixation and

reproduction of visual and performing art, thus making the latter susceptible to extensive commodification (Nesbit 1987: 235-237). In parallel, the nineteenth century signified the emergence of the new wealthy middle classes, which boosted the consumption of art via commodity markets (White and White 1965: 78-82). Finally, legal institutions in the form of copyright laws reflected and reinforced the forces of commodification in art. At the same time, law had a counter-influencing constitutive effect on societies, by forging the art commodity as the dominant form of the modern work of art and by projecting the Promethean individual artist as the prevalent subject in artistic production (Coombe 2011: 81). All these developments jointly transformed both the creative practice and the power relations in artistic production and distribution in a non-linear manner.

The increasing commodification of art was also reflected on legal institutions. Processes of commodification brought the privilege regime of the Renaissance to an end and pushed for its replacement by copyright law. The rupture with the old trade regulation of privileges and the birth of copyright was first marked by the 1710 Statute of Anne in England²². At that time, the Stationers' monopoly over book printing and its adverse effects on the freedom of expression came increasingly under fire both by artists and statesmen (Goldstein 2003: 33). Simultaneously, authors started openly defending their interests by asserting natural rights of ownership over their works²³. Under such pressure, the 1662 Licensing Act²⁴, which expired in 1694, was never renewed by the House of Commons. When their petition for the extension of the privilege system of censorship failed, the powerful Stationers' Company called for a legal recognition of their incumbent interests on the grounds of a natural right of authors' ownership over their works (Deazley 2004: 31-50). Similar arguments related to lockean justifications of ownership over intellectual works based on authors' labour were invoked by the Paris Publishers' Guild during the eighteenth century, so as to bring their trade monopolies under state protection (Hesse 1990: 112, 122-123). Hence, forces of commodification significantly contributed for the birth of the modern individualistic conceptualisation of the

creative process. In England, this conflictual and contradictory process led to the enactment of the Statute of Anne. The new legislation signified a tectonic shift in the regulation of artistic creativity. Before 1710, authors' interests were invoked in order to legitimise publishers' monopolies (Peifer 2010: 351). After 1710, the author was established as a legally empowered figure and the modern conception of authorship was engraved in the law (Rose 1993: 4). The statute also freed artistic expression and the flow of art commodities from the restraints of state censorship, which was exerted through the prior system of privileges (Lessig 2004: 85-94). Yet, the fundamental transformation in the new system of regulation was the subjection of private monopolies over intellectual works to the rule of law and its explicit orientation towards serving the public interest (Lunney 2001: 813-818). Whereas prior licensing acts grounded the justification of privileges on the private welfare of national publishers' guilds, the nascent copyright legislation granted private monopolies for "the encouragement of learning"²⁵. Furthermore, whereas the prior regime was exploited for the assignment of printing privileges of unlimited scope, in its vote to enact the Statute of Anne the parliament refused to recognise a natural right of ownership upon ideas²⁶. Instead, the statute established private monopolies over intellectual works, which were subject to limitations imprinted in statutory provisions.

The advent and evolution of copyright laws has been a process of rationalisation in the regulation of cultural production, distribution and consumption through formality, codification and the acquisition of an abstract, impartial and impersonal form (Weber 1978). Through this process of rationalisation, case-specific and discretionary privileges were transformed into general standardised legal rights according to pre-defined statutory criteria and subject to purposes of public interest. The clearly delineated scope of protection and the powerful ideological justification of copyright law set robust preconditions for the diffusion of functional commodity markets in the commons of the intellect. Hence, the transition from the privilege regime to copyright law signifies a process of rationalization and consolidation of the private enclosures of the

social intellect. Before the end of the eighteenth century, copyright legislations were passed in key industrialised countries. In the 1790s, the United States constitution was amended, so as to incorporate the recognition of a fundamental right of private monopoly over intellectual works and the first US copyright act was enacted²⁷. The French equivalent of *droits d' auteur* was voted in 1793 by the revolution (Nesbit 1987: 230-233, Hesse 1990: 127-130). Simultaneously, a series of copyright laws were passed in various German states (Woodmansee 1984: 445). Overall, the emerging modern copyright law employed an individualistic notion of authorship, which constituted the figure of the ingenious Promethean artist as the archetype of creativity and ideologically reconstructed artistic production as a solitary non-collaborative engagement disconnected from its dependence on the intellectual commons (Jaszi 1991). The juridical notion of the Promethean artist as a legal subject having the right to own her work and being free to transfer her property through contract in the market reflected the social relations in the art commodity market and facilitated the circulation of art commodities (Fisher 1999: 12-13). The legal form was however not only reflective of the relations in the commodity art market. The recognition of the Promethean artist in law also defined the nature of the creative practice, by classifying artists as individual property owners of their creative skills and as sellers of their works of art in the form of commodities within the unequal power relations of the art commodity market (Pashukanis 1978). Still, the statutory recognition of private monopolies over cultural works was counter-balanced by explicit limitations grounded on public interest objectives, an outcome which in itself reflected the correlations of power between forces of commodification / commonification at the time. Such correlations were though ultimately framed by copyright law, which disabled practices of commoning and empowered the capitalist mode of cultural production, distribution and consumption through sanctioning and legitimisation.

The history of copyright law is an expression of the dialectics between the enclosing power of commercial interests over the products of the social intellect

and the opposite need for the ideological justification of such enclosures in the name of the public interest. Yet, in the course of the nineteenth and, especially, the twentieth centuries and as the commercialisation of culture shifted correlations of power in favour of the forces of commodification and against the social practices of commoning (Bollier 2008: 44-50), the balance, which guaranteed the prevalence of the public interest in policy choices related to copyright, gradually ceased being sustainable. The theoretical dichotomy between ideas and their expressive fixations tended to liquidify, as copyright protection was evoked to protect the market value of increasingly abstract and elusive intellectual assets (Bracha 2008: 238). By being influenced from moral justifications related to the labour theory of copyright and “sweat of the brow” arguments, the threshold of originality was more often than not interpreted to reflect evaluations related to the significance of the private investment for the production of intellectual works as eligibility criterion for enclosure (Bracha 2008: 201). The scope of copyright protection followed a trend of consistent expansion, approximating a status of blackstonian property-ness (Fisher 1999: 1-4, Lessig 2002: 108 - 110, 250). And in the twentieth century, the increase in the extension of the term of copyright protection accelerated at an unprecedented pace (Patry 2009: 67-68). Finally, the “work-for-hire” doctrine, which spread in countries with powerful creative industries during the first half of the twentieth century, ensured the alienability and, thus, the unencumbered flow of art commodities within markets. In this case, the ideological function of law, as expressed in the copyright theory of authorship, was bypassed and absorbed by the prevalent social function of commodification, as exhibited in the recognition of the transfer of copyright ownership from creative workers to their employers (Bracha 2008: 189-190). In conclusion, notwithstanding significant instances of resistance, the general tendency of modern copyright law was to expand its subject - matter and scope to any usage of information, knowledge and culture worth appropriating for its exchange value in commodity markets and to facilitate the commodification of art and culture. Hence, despite its various forms and internal contradictions, with the rise and consolidation of market - based societies modern copyright evolved to finally become a unified family of

monopoly theories of the social intellect. Since then, monopoly theories set the political and institutional landscape in these issues, having internalised both the orthodoxy of enclosure and its inherent contradictions in a unified theory of property over intellectual works.

In conclusion, the forces, structures and ideologies conditioning creativity in modernity took the forms set out in the following table:

Table 4.2 The Framework of Creativity in Modernity

Unit of Collaboration	Structures of Sharing	Forces Controlling Access to Resources	Structures Controlling Distribution	Perception of the Author	Normative Framework
Art Movement / Creative Factory	Academies, Libraries, Exhibitions, Museums, Cultural Capitals	State, Capital	Commodity markets	Promethean Artist	Copyright

Source: Author

Overall, modernity was marked by a fundamental contradiction between the actual practices of artistic production and the regulation of creativity. The more art and culture became dependent on collective practices of sharing and collaboration, the more social institutions intervened to regulate the creative process according to the individualistic perception of the Promethean artist and, thus, reinforce cycles of private appropriation and commodification²⁸. Yet, no matter how contradictory the modern epoch proved to be, this tendency did not reach its apogee before the coming of the postmodern historical condition.

4.4. CULTURAL COMMONS AND THE LAW IN POST-MODERNITY: THE DECENTRALISATION OF THE CREATIVE PRACTICE AND THE CONSOLIDATION OF THE CELEBRITY ARTIST [1970s-2010s]

The post-modern era signifies the generalised penetration of the cultural commons by processes of commodification, i.e. the expansion of commodities, market exchange and monetary values to most facets of cultural reproduction. Hence, post-modernity marks the “extension of the power of the market over the whole range of cultural production” (Harvey 1989: 62). Furthermore, the generalisation of commodification and the rise of consumer culture have resulted in the “prodigious expansion of culture throughout the social realm, to the point at which everything in our social life [...] can be said to have become “cultural” (Jameson 1991: 48). In post-modern times, the cultural industries have global reach and every-day life is permeated by cultural commodities. In this social context, culture has acquired materiality to such an extent that it has rendered the dichotomy between the base and the superstructure redundant (Lash and Lury 2007). In this sense, post-modernity deepens and multiplies the tendencies and contradictions of modernity. It thus constitutes the master narrative of modernity, rather than marking a socio-historical discontinuity with the latter (De Angelis 2007: 214). Yet, post-modernity also marks extensive transformations in co-relations of power between capital and the commons. The decentralisation of the creative practice and the construction of multiple cultural identities across society is claimed to open possibilities for cultural declassification, democratisation and de-westernisation (Featherstone 2007: 16-20, 139-140). In the latter sense, there rises the potential for alternative commons-based practices of social reproduction, including the potential for the expansion of the cultural commons.

The turn of the twentieth century finds the dominant mode of cultural production consolidated in the form of concentrated and internationalised cultural industries. Human creativity in the post-modern cultural industry is hierarchically organised in the form of creative labour and aggregated in the

creative factory. The latter is the main unit of industrialised cultural production and the locus where creative labour is pooled together, organised through sophisticated techniques for the division of labour, conjoined with digital communications manufacture and valorised by capital to produce cultural artifacts on a massive scale. Hence, creative labour is a social relation reproduced within the assemblage of the creative factory, the frame, organisation and every-day actuality of which are preceded, established and determined by the social power of capital. Far from pertaining to the ideological abstraction of the solitary Promethean artist, the figure of the post-modern creative labourer constitutes the subjective element immersed in the wider social relations that synthesise the capitalist mode of cultural production (Lazzarato 2014: 25-29). The relations of production in the creative factory are inherently machinic, i.e. composed of humans and machines, and socialised, i.e. based on sharing and collaboration among multiple artists. In the cultural industries creative expression becomes a collective and collaborative process taking place within the organizational framework of capital. It could thus be claimed that artistic production has never before been a process of collective endeavour to such an extent. And yet, the socialisation of artistic production in the cultural industries is distorted by the inherent contradictions of the capitalist mode of production. Access to, sharing and use of prior art are severely limited by contemporary intellectual property laws. Collaboration among artists both within and between industrial units of cultural production is mired in competition. Corporate hierarchies fail to provide the social climate of unrestrained inspiration, in which human creativity may thrive and achieve its full potential.

In this contradictory context rises the post-modern figure of the celebrity artist. It is in itself a social relation, which constitutes at the same time a factory and a commodity. Its archetype, Andy Warhol, vividly depicts its characteristics. Andy Warhol's studio from 1962 to 1968 was purportedly named as the "Factory", in order to associate its artistic production with industrial manufacture. The Factory brought together multiple artists, who worked on

Warhol's projects under his supervision and mass-produced hand-made copies of cultural artifacts. Even though artistic production in the Factory was a collective and communal process (Watson 2003), its output was solely attributed to the celebrity artist himself. In addition, Andy Warhol became a pop icon, marketizing and valorizing on his eccentric personality, artistic style, social life and image. In line with its archetype, the post-modern figure of the artist is a hyper-commodified simulation of the modern Promethean artist. It is a commercial enterprise, which has the "person" celebrity artist as its point of reference in order to valorise on both the latter's artistic innovations and popular image in industrial mode. The simulacrum of the celebrity artist exploits and, at the same time, reinforces the social and legal infrastructures which still reproduce the ideology of the Promethean artist, so as to capture value and extract profit.

Contradictions in the dominant mode of post-modern cultural production produce centrifugal tendencies in cultural expression. The digitisation of prior art and the social diffusion of the means for artistic production and mass self-communication have created the material and social conditions for the rise of commons-based peer production in art and culture (Benkler 2006: 285-296). In this alternative mode of production networks of peers physically or electronically join their creative forces in order to share information, knowledge and culture, collaborate together and practice their collective cultural expression. Hence, commons-based peer produced art and culture is the outcome of a communal process, in which peers collectively construct common meanings, aesthetics, techniques and practices through repetitive patterns of sharing and collaboration. The unit of commons-based peer production is the productive community, which takes its particular form in the horizontal and decentralised peer to peer collectivity. Peer to peer collectivities connect together, share information, knowledge and culture and collaborate through techno-social peer to peer networks. Peer to peer collectivities are claimed to generate an alternative participatory culture, which has relatively lower barriers to artistic expression and higher degrees of civic engagement than those

encountered in the dominant forms of commodified culture (Jenkins et al 2009: 5-6). The appropriation of real objects and pre-existing works of art and their mix through techniques of reworking, collation and derivation are core characteristics of the creative practices of peer to peer collectivities (Lessig 2008: 51-83). Commoners within these collective entities also use techniques of bricolage by utilising common materials available in their environment and by combining them in original aesthetic uses and meanings in order to create new cultural identities (Hebdige 2002: 102-106). Often, peer to peer collectivities employ techniques of détournement in order to convey their cultural and political messages to wider audiences²⁹. These techniques involve the reuse of mainstream cultural artifacts, such as corporate logos, in variations laden with meanings which are antagonistic to their original cultural and social use (Dery 2010).

The canvas of the emerging peer to peer collectivities is the public space. Either in cyberspace or on the urban terrain or even with the use of both these domains peer to peer collectivities engage in the production of a participatory folk art and culture, which circulates and is pooled as a commons. Do-it-yourself culture, mix culture, mashup art, culture jamming, graffiti art, ephemeral art, openly accessible user generated cultural content, works of art licensed under copyleft licenses, internet and urban cultures and memes and, generally, all contemporary non-commodified and openly accessible forms of cultural expression constitute a kaleidoscope of sharing, collective creativity and collaborative artistic innovation, which reshapes our common conceptions of art and aesthetics (Jenkins 2006; Lessig 2004, 2008). Such practices of commoning produce malleable, unfixed and fluid forms of culture (Poster 2006: 138). In this sense, they re-construct our urban and digitised environments not as private enclosures but as shared public space, a social sphere divergent from the one [re]produced by the market and the state; the sphere of a renewed post-modern cultural commons. The centrifugal cultural tendencies of post-modernity generate an alternative insurgent artistic figure, which is best personified by the work and activity of Banksy. The street art of Banksy is ripe with techniques of

appropriation, bricolage and détournement. Its mode of distribution and consumption are also commons-based, since it freely circulates as an open access commons. Whereas its canvas is the public urban space, Banksy purportedly breaks the barriers between the ephemeral physical embodiment of his art and its digitisation. His pieces of art comfortably penetrate the digital public space and become viral in contemporary social media so as to reach wider audiences and become eternally reproduced and conserved. Both the content and form of his art directly challenge dominant social perceptions about the role and use of art in society, i.e. art as commodity and as means for capital accumulation. At the same time, it becomes an effective means of circulating alternative aesthetic and political messages which also challenge dominant social, economic and political institutions and their adjacent ways of life. The art of Banksy is always pseudonymously published and the artist himself diligently protects his pseudonymity during all the years of his practice. The value of the street art of Banksy lies on the characteristics which constitute it as a commons. In other words, it is valued for its free circulation and for the use values, i.e. alternative aesthetic, social and political values and meanings, that it freely circulates.

The deep transformations in the forces and relations of power in post-modern cultural production have stamped their mark on post-modern art and aesthetics. In the 1960s, the generalisation of rationalised, semi-automated industrial production has given birth to the pop art, minimalist and post-minimalist movements, which conjugated art with industrial production and emphasised on repetition and iteration (Kealy 1979). Accordingly, the increasing similarity of art works with industrially mass-produced goods has undermined dominant social perceptions over the importance of individual style in artistic expression (Daskalothanasis 2004: 200-201). Furthermore, appropriation of everyday objects or prior works of art and their reworking and mixing into new genres of art has become the prevalent mode of post-modern creative expression, as expressed by pop artists, the fluxus, minimalist, neo-geo movements and contemporary art (Evans 2009). In this context, technologies and tools of

digitization and mass self-communication have intensified appropriation by unleashing the creative potential of artistic techniques, such as intertextuality, digital sampling, mixing, collage and pastiche. The exploitation of these technologies along with concurrent processes of cultural globalization have boosted patterns of sharing both between different genres of art and among civilisations³⁰. The increased dependence of post-modern cultural production on sharing and collaboration is evident in the leveraged role of cultural capitals, such as New York and Berlin, within the globalised cultural context and in the divide between these cultural centres and their periphery. As a result, the fusion of prior artistic and cultural styles, techniques and contents into new aesthetic contexts has come to be the fundamental characteristic of post-modern art after the 1980s (Buskirk 2003: 10-12).

The shifts taking place in the field of artistic production and the post-modern restructuring of channels and modes of distribution have disenchanted the aesthetic experience. In post-modernity, the work of art is iteratively experienced as copy and the artist as copier of symbols. Whereas the modernist artefact “is the commodity as fetish resisting the commodity as exchange”, its post-modernist counterpart collapses into such a conflict, “becoming aesthetically what it is economically”, i.e. “[t]he commodity as mechanically reproducible exchange ousts the commodity as magical aura” (Eagleton 1986: 132-133). Inevitably, the ideology of the originality of the work of art is constantly being undermined by generalised appropriation, mass culture and the distribution of the commodity art work as copy. Yet, at the same time, the commodification of culture has promoted and reinforced this same ideology it has undermined. Since exchange value is the primal metric in a commodified culture, certain generally accepted criteria are needed for the evaluation of the quality of art. In an ocean of art commodities, massively produced through patterns of sharing and appropriation, “authenticity” and innovation have been promoted as the primal criterion for the evaluation of the quality of art. The post-modern capitalist mode of cultural production and consumption has thus become increasingly reliant on the construction of difference as means to

simulate the heterogeneity of the art-work within the homogeneity of the cultural commodity (Lash and Lury 2007: 187-188). "The search for and the praise of innovation for the sake of innovation" (Greenfeld 1989: 101) in the world of art and culture has thus become the mirror image of accumulation for the sake of accumulation of capital's valorization process in the cultural industries and the art commodity markets (Marx 1990/1867: 742).

In post-modernity, forces of commodification dominate the cultural domain by controlling access to the means, raw materials and value cycles of cultural reproduction. In recent decades the cultural industries have experienced an enormous growth and expansion in most terrains of cultural activity (Power and Scott 2004) and cultural economic activity has become an integral feature in capitalist production, the circulation of finance, the allocation of commodities, the exploitation of affect, mass consumption and, hence, capital accumulation (Amin and Thrift 2004). In the capitalist mode of cultural reproduction capital controls the definite means of cultural production and distribution and also has the corresponding capacity to determine the form and content of cultural consumption. Such power upon consumption is evident in the increasingly important role of brands and commodity branding. Brands are cultural forms mediating commodity market relations, through which consumer demand for commodities is organised, controlled and governed (Lury 2004). In post-modern cultures dominated by capital the art commodity is the cell-form of circulation and the market becomes the dominant value system, i.e. the system which determines which form of social value is valued the most and how such value is distributed and accumulated. In corollary, the dominance of commodity markets has consolidated the social prevalence of the exchange over the use value of art. This means that art is primarily valued not for the social needs it addresses. Rather, what attributes value to works of art is their socio-economic function in market exchange. In this context, the re-surging cultural commons spawning from digital networks become entangled with the commodity in multiple ways, giving birth to a hybrid gift-commodity internet economy of art and culture (Fuchs 2008: 171-189).

Instead of being the outcome of the supposedly invisible hand of the market, the processes of commodification described above are forcefully imposed by state enforcement. State intervention takes place through the systematic enactment of intellectual property laws at the [trans-]national and international levels, which protect, enforce, expand and prolong private monopolies over cultural works. In analogy to the historical enclosure movement that took place in the advent of capitalism, the expansion of intellectual property protections by state enforcement constitutes a second enclosure movement for the submission of the “intangible commons of the intellect” to the capitalist mode of production (Boyle 2003). In this process of dispossession of the commons the institution of the state crucially functions as the collective commodifying agent of our common culture.

From the Renaissance to post-modernity the enclosure of art and culture through regulation has evolved towards its consolidation into intellectual property, albeit with serious contradictions, setbacks and resistance. In post-modernity, regulatory enclosures of information, knowledge and culture have expanded and multiplied to the detriment of the intellectual commons (Lemley 1997: 886-887, Hunter 2003: 501, May and Sell 2006: 145-153, 181-185). On the other hand, copyright laws have ceased to function solely at the level of industrial activity and their scope, application and enforcement has acquired a horizontal social effect, as the technological means for electronic access, copying and reworking diffused in societies (De Sola Pool 1983: 214, Doctorow 2014: 103, 131). Finally, intellectual property over cultural works has acquired a truly global reach by the enactment of the WTO TRIPs Agreement and the WIPO Internet Treaties³¹. (Drahos and Braithwaite 2002: 108-149, May 2010: 71-97). These developments in the field of law are symmetrical to the augmentation of the cultural industries and the dissemination of the commodity to most facets of socio-cultural activity.

Post-modern intellectual property is a mutation of modern industrial copyright

and, as all mutations, an inherently contradictory and unstable one. Being simultaneously a legal institution for the regulation of sharing and collaboration in cultural production and an ideology of appropriation, post-modern intellectual property rises replete of systemic contradictions and negative externalities. The possessive individualist conception of authorship in post-modern intellectual property disregards the collaboration taking place in cultural production and is, therefore, effectively configured in conjunction with dominant relations of social power to favour the exploitative appropriation of cultural works by singular entities more than its outspoken incentivisation of actual creators (Lemley 1996: 882-884). Under post-modern intellectual property private monopolies over cultural works tend to approximate the absolute exclusivity of blackstonian property³² (Netanel 1996: 311-313, Lemley 1997: 895-904, Boyle 2008: 54-55, Patry 2009: 112-114). Such approximation intensely dilutes the categories and undermines the ideology of industrial copyright. The expansion of its scope to subject-matter, from weather forecasts and all other types of factual data to photos, objects of craftsmanship, databases, motion picture plots, trade secrets and computer programs, dilutes the idea / expression dichotomy. This radical relocation of the boundary between the private and the public in favour of commodification tends to have stifling effects on artistic and cultural innovation (Rose 1993: 141). The expansion of both the types and scope of private rights of exclusion, from the right to make creative works available to the public to new generation neighbouring rights, multiplies the chances of anti-commons market failures (Heller 2008: 10-16) and increases the transaction costs of copyright clearance (Aufderheide and Jaszi 2004). The ever-expanding duration of intellectual property to quasi-indefinite levels encloses unprecedented quantities of cultural content, thus significantly weakening the public domain, which forms the raw material of creativity (Lessig 2002: 110, 2004: 133-135). The foundation of private monopolies over cultural works on the doctrine of originality ignores patterns of sharing over prior culture and, hence, overvalues the creative contribution of existing authors, who in essence “recombin[e] the resources of the [intellectual] commons” accumulated by their predecessors (Boyle 1996: 74). The expansion

of the scope of intellectual property rights through contemporary law and practice, such as the three-step test of the Berne Convention³³ and its narrow juridical interpretation³⁴, concedes increased power to right-holders, has a corresponding diminishing effect on copyright limitations and, as a result, stifles public policies to adjust social access to prior art and culture to the potential of the digital era. The legal conception of limitations as exceptions and exclusivity as the rule in post-modern intellectual property law establishes a hierarchy between the two and construes any limitations to private monopolies over intellectual works as “islands of freedom within an ocean of exclusivity” (Geiger 2004: 273). In conclusion, regarding the intellectual commons, the post-modern tendency of copyright law towards propertisation has been considered to be “a wholesale attack on the public domain” (Lemley 1996: 902).

In a nutshell, the main characteristics of the post-modern framework of creativity are manifested as follows:

Table 4.3 The Framework of Creativity in Post-Modernity

Unit of Collaboration	Creative Factory / P2P Collectivity
Structures of Sharing	Internet, Public Space, Cultural Capitals
Forces Controlling Access to Resources	Capital, State
Structures Controlling Distribution	P2P Networks / Commodity markets
Perception of the Author	Celebrity Artist
Normative Framework	Intellectual Property

Source: Author

To sum up, post-modernity deepens and intensifies the modern contradiction between the actual practices of cultural production and the regulation of creativity. On the one hand, re-surg-ing practices of cultural sharing and collaboration at the social base are increasingly impeded by reinforced cycles of

enclosure and their regulatory entrenchment. On the other hand, the expansion of commodification undermines the vitality of the intellectual commons and in many ways acts as a fetter upon processes of cultural production, distribution and consumption by obstructing the generation of cultural wealth. Post-modern intellectual property regulation of culture both internalises and exacerbates these contradictions.

4.5. CONCLUSION

Set out in historical sequence and comparative perspective, the findings of the current analysis help to elucidate the evolution of creative practice from the Renaissance to post-modernity [see Table 4.4 below].

Table 4.4 The Evolution of the Creative Practice from the Renaissance to Post-Modernity

	Renaissance	Modernity	Post-Modernity
Unit of Collaboration	Workshop, Individual Artist as Contributor to the Creative Process	Art Movement / Creative Factory	Creative Factory / P2P Collectivity
Structures of Sharing	Guilds, Academies	Academies, Libraries, Exhibitions, Museums, Cultural Capitals	Internet, Public Space, Cultural Capitals
Forces Controlling Access to Resources	Patron, Publisher [after the 16th century]	State, Capital	Capital, State
Structures	Exchange markets	Commodity	P2P Networks /

Controlling Distribution	/ Commodity markets	markets	Commodity markets
Perception of the Author	Artisan, Master	Promethean Artist	Celebrity Artist
Normative Framework	Honorarium, Privilege	Copyright	Intellectual Property

Source: Author

From the workshop of the Renaissance to the creative factory and the p2p network of postmodernity, creative collectivities have been the main factors of cultural production, their specific forms only varying over time. Furthermore, practices of sharing among creators have always constituted an integral element of cultural production, distribution and consumption, gradually shifting from more structured organisations in the Renaissance and modernity to the widely diffused networks of cultural sharing in post-modernity. Accordingly, forces controlling access to material and financial resources gradually consolidated from castes of patrons and printer / publisher guilds into full-fledged industries controlling the distribution and consumption of cultural resources under the protection and promotion of the state. In the same historical period, the social status of the author shifted from the periphery to the core of the creative practice, commencing from the perception of the medieval craftsman and reaching its climax with the simulacrum of the celebrity artist. Finally, the regulation of art and culture was characterised by a general tendency of formalisation and standardisation from the assignment of ad hoc and ad personam privileges towards alienable property rights over cultural works.

Such conclusions help us to ground more general assumptions in relation to the essence of the creative practice. Along these lines, it can be claimed that the evolution of art and culture is an inherently collective and communal process. Any culture in history is a common pool of cultural resources aggregated through the creative contribution of multiple creators, past and present, connected together by common meanings and worldviews. The resources of the

cultural commons are thus the primal means of artistic production, the raw material upon which artists draw to collate their own creations. In the words of James Boyle, the “public domain is the place we quarry the building blocks of our culture. It is, in fact, the majority of our culture” (Boyle 2008: 51). In addition, artistic production takes place on the basis of patterns of sharing and collaboration. Creativity and its supportive knowledge are cognitive resources widely dispersed in society. Their aggregation and transformation through sharing and collaboration is the cornerstone of the productive process. Creativity is a sui generis human trait. Even though its elements are allocated in single brains, it is unlocked and ignited through social exchange and constructed incrementally into art through a collective endeavour of multiple minds. This is the reason why it may only thrive in social contexts which facilitate the open exchange of ideas and individual / collective autonomy in collaboration and experimentation (Amabile 1996: 115-120).

An alternative history of art from the perspective of the cultural commons approaches artistic change on the basis of the transformation of the relations between the artistic collectivity and the world around it, considering the artistic collectivity as an active agent in the process. The work of art is the generative moment of creativity, in which all powers active in the social context are exerted and reflected. It should thus be viewed as the product of a particular time and place, deeply influenced by its social context, as much as the product of an artistic collectivity. In corollary, the production of art and culture is neither a productive process in which individual agency plays no role at all nor a process that can be solely attributed to singular entities. Beyond these two opposing conceptions lies the notion of cultural production as a process, wherein the creative individual is dialectically related to the multitudinous productive collectivity, being constantly constructed by the forces / relations of cultural production and, at the same time, contributing to their dynamism. It is only through a dialectical perspective that we are able to grasp that cultural works actually “are the product of the collective mind as much as of individual mind” (Mauss 1990: 85-86). Through this dialectic we are able to grasp the subjective

productive force of our cultural commons, the social intellect.

Law regulates creativity, by framing the creative practice, formulating its processes and constructing social perceptions over its subjects and objects. In this sense, law has a material transformative effect upon art and culture. Copyright law and practice consolidates and entrenches the dominance of the capitalist mode of cultural production, distribution and consumption by means of both violence and ideology. Its negative definition, fragmentary regulation and exception-based recognition of the intellectual commons guarantee the subordination of commons-based peer production and the ceaseless capture of its wealth by capital. At the same time, the interrelation of copyright law with the intellectual commons reveals the dependence of capital accumulation in the cultural industries upon practices of commoning in art and culture. Nowadays, transformations in the relations of cultural production, distribution and consumption unveil new forms of commoning and bring about a resurgence of the intellectual commons.

Along these lines, this chapter aims to provide the historical arguments in favour of an intellectual commons law, which will, on the one hand, calibrate the aggravating contradictions of the dominant capitalist mode and, on the other hand, exploit in full the potential of the alternative mode of commons-based cultural production, distribution and consumption. The next chapters contain the social research of the study, which examines the circulation of value within and beyond the intellectual commons. The research renders visible the existence of alternative forms and flows of commons-based value in our societies, which circulate in parallel to the flow of commodities and money. The aim of the research is to unveil the inherent moral value and the social benefit of the intellectual commons, by providing solid evidence on the immense amounts of value generated, pooled together and re-distributed to wider society by these institutions.

5. RESEARCHING THE SOCIAL VALUE OF THE INTELLECTUAL COMMONS: METHODOLOGY AND DESIGN

5.1. INTRODUCTION

The previous chapter described the historical significance of the commons for art and culture. The current chapter is the methodological part of a social research endeavour on the political economy of the intellectual commons, focusing on the circulation of commons-based values. The research decrypts the generation, circulation, pooling together and re-distribution of social value observed in the intellectual commons' communities of the sample with the aim to show the importance of the intellectual commons for social reproduction. This chapter delineates the methodological bases and the design of the research in three sections. The first section spells out the methodological orientation of the research. The second section enlists and summarises the variables, questions and hypotheses utilised in the conduct of the research and condensely describes the research design. The third section describes the coding process followed in relation to data collected from the eight Greek intellectual commons' communities, which constitute the sample of the current research. This chapter is then followed by chapters on the findings and conclusions of the research.

5.2. RESEARCH THEORY

The current research project adheres to a critical realist epistemology. Under the critical realist prism, the mission of scientific research with regard to the intellectual commons is the examination of the causal mechanisms framing the events, activities and social phenomena within the context of the intellectual commons (Archer et al 1998: xi-xii; Fletcher 2017: 183). Such causal mechanisms are not conceived as natural phenomena disconnected for their socio-historical context, but rather as contingent social products, being in themselves dependent on social activity for the manifestation of their outcomes (Bhaskar 1979: 48). The underlying purpose of the current research project is thus to ascertain the

tendencies of the intellectual commons, unveil the general causal mechanisms of commonification and explore the specific formations of the intellectual commons in their dialectical relation with capital.

In addition, this research project follows a critical realist, processual and dialectical ontology. The intellectual commons and intellectual property-enabled commodity markets are viewed as instituted sets of practices with inherent capacities, tendencies and potentialities (Psillos 2007; Bhaskar 2008: 51). The tendencies of these practices are correspondingly determined by contending forces of commonification and commodification³⁵. In other words, the intellectual commons are analysed as manifestations of the clash between commonification and commodification. Furthermore, social structures are conceived not as external but rather as dialectically interrelated to social agency (Bhaskar 2008: 248). On the one hand, these structures are constantly reproduced and transformed in daily life from the bottom up through the iterative practices of active agents in their social context. On the other hand, the structural properties of intellectual commons and commodity markets are perceived to feature mechanisms which frame social activity in a top-down manner, by enabling or restricting practices of commoning and processes of commodification (Sayer 2010: 70-79).

Accordingly, the intellectual commons are investigated as sets of iterative social practices with specific tendencies towards commonification, which are though in constant flux, penetrating and penetrated by commodity market exchange and in dialectical relation with the dominant power of capital. On these grounds, it is claimed that the causal powers of commonification constitute tendencies, not laws (Danemark 2002: 70). Such tendencies unveil themselves within open social formations. This means that tendencies of commonification can be prevented from or facilitated in manifesting themselves by the conditions set out in each specific social context, in which intellectual commons' communities are placed. Hence, the intellectual commons are not searched out in pure form as clear-cut and fixed entities but, rather, as partial or dispersed

manifestations of commonification enmeshed within societies primarily reproduced according to the capitalist mode of intellectual production, distribution and consumption. In this sense, the commons-based mode of intellectual production, distribution and consumption is conceptualised as a proto-mode of social reproduction, i.e. not yet integrated as a mode proper in contemporary societies.

As far as its research paradigm is concerned, this research applies a critical political economic analysis to the alternative mode of social reproduction, based on the commons. Such an intellectual endeavour holds power as central to social relations and structured in the institutions of society, understood as both a resource to achieve goals and an instrument of control within social hierarchies (Mosco 2009: 24). The present research on the critical political economy of the intellectual commons unfolds in two dimensions. On the one hand, it studies the power relations that mutually constitute the production, distribution and consumption of intangible resources. And, on the other hand, it deals with the circulation and pooling of social values within and beyond the spheres of the intellectual commons.

In normative terms, the present research project approaches facts as necessarily theory-dependent, in terms of both semantics and perceptions (Popper 1963; Kuhn 1970). Therefore, such an approach rejects the view of scientific objectivism as ideologically laden, i.e. in reality concealing a specific subjective normative stance concerning the interrelation between social research and its objects of analysis (Habermas 1966). Instead, it openly adopts an alternative subjective approach to science in terms of the categorical imperative of critical theory, the content of which is, in Karl Marx's words, "to overthrow all conditions in which man is a degraded, enslaved, neglected, contemptible being" (Marx 1997 / 1843-4: 257-258). In the context of the intellectual commons, the aim of the research is to highlight their potential for social emancipation and the abolishment of all forms of domination.

5.3 RESEARCH METHOD

In terms of methodology, a twofold iterative method of analysis is employed regarding the dialectical pairs of both theory / research and society / agency. Theory and research are viewed as interpenetrating and, therefore, the research follows a spiralling back and forth movement between theory and data to arrive at findings and conclusions. Such an approach ensures that the normative perspective mentioned above is thoroughly observed throughout the research project. Accordingly, the mutual conditioning and interrelation between agency and structure necessitates a combined bottom-up and top-down analysis of forces of commonification and their social context, so as to understand the social causes behind the specific manifestations of the intellectual commons.

In this context, it is claimed that both the capacities and the mechanisms generated within the intellectual commons can be identified and become known through a dialectical combination of empirical observation and abstract theorisation (Lawson, 1998: 156; Danemark et al 2002: 22). Such a dialectical movement from the empirical to the real follows a specific sequence of scientific understanding. According to this sequence, the processing of empirical data first reveals the existence of social phenomena within the intellectual commons, which are then resolved into their components and re-described through abduction, so that any contingent regularities are revealed. Next, any plausible understandings on the causal powers behind these regularities are hypothesised by means of retroduction. Furthermore, the reality of the inferred causal mechanisms is subsequently subjected to empirical scrutiny. In addition, the empirical adequacy of the hypotheses under examination is checked in comparison to that of competing explanations. Finally, the relevant social mechanism is unearthed and analysed (Archer et al 1998: xvi; Bhaskar 2008: 135; Bhaskar 2014: vii-viii). In this context, abduction is the cognitive exercise of re-describing social phenomena in an abstracted way, so as to give account to the existence of demi-regularities and potential causal powers behind them (O'Mahoney and Vincent 2014: 17). Accordingly, retroduction refers to the

cognitive exercise of constructing “a theory of a mechanism that, if it were to work in the postulated way, could account for the phenomenon in question” (Bhaskar and Lawson 1998: 5).

5.3.1. Research Aim

The aim of this research is to identify the contemporary revelations of the relations of commonification in the circulation of social value and, thus, grasp the actual formations of the intellectual commons, both offline and online, in the current socio-historical context.

The questions, variables and hypotheses of the research are qualitative and deal with the generation, circulation, pooling and redistribution of social value in intellectual commons' communities. They also examine the dialectical interrelation between forces of commonification and commodification.

5.3.2. Questions, Variables and Hypotheses

In the present section, more specific research questions regarding the manifestation of forces of commonification in the form of commons-based values are derived from the key questions of the thesis. In addition, certain variables and hypotheses are proposed in correspondence to each research question. All questions, variables and hypotheses are structured, on the one hand, in line with the circuits corresponding to the economic, social, cultural and political dimensions of commons-based values and, on the other hand, in line with the sequences of value generation, circulation, pooling and redistribution [see Table 5.1 below].

Table 5.1 Circuits and Sequences of Commons-Based Value Circulation

		CIRCUITS			
SEQUENCES		Economic	Social	Cultural	Political
	Value-Producing Practices	x	x	x	x
	Values	x	x	x	x
	Flows	x	x	x	x
	Pooling	x	x	x	x
	Redistribution	x	x	x	x

Source: Author

In relation to the economic dimension of commons-based values, the following questions, variables and hypotheses are put forward:

Table 5.2 Questions, Variables, and Hypotheses: Economic Dimension

V.1.1.	Commons-Based Economic Value Producing Practice	<p style="text-align: center;">H.1.</p> <p>The generation, formulation, circulation and pooling of commons-based economic values takes the form of collaboration, use value, gifts and common pool resources.</p>
RQ.1.1.	Which is the primary practice generating economic value in the intellectual commons?	
V.1.2.	Commons-Based Economic Value Form	
RQ.1.2.	Which is the form of economic value in the intellectual commons?	
V.1.3.	Commons-Based Economic Value Flow	

RQ.1.3.	How does commons-based economic value circulate within the intellectual commons?	
V.1.4.	Commons-Based Economic Value Pooling	
RQ.1.4.	Which is the form of pooling of commons-based economic value in the intellectual commons?	

Source: Author

Furthermore, concerning the social dimension of commons-based values, the questions, variables and hypotheses utilized in the course of the research are as follows:

Table 5.3 Questions, Variables, and Hypotheses: Social Dimension

V.2.1.	Commons-Based Social Value Producing Practice	<p>H.2.</p> <p>The generation, formulation, circulation and pooling of commons-based social values takes the form of social contribution, merit, trust and communal cohesion.</p>
RQ.2.1.	Which is the primary practice generating social value in the intellectual commons?	
V.2.2.	Commons-Based Social Value Form	
RQ.2.2.	Which is the form of social value in the intellectual commons?	
V.2.3.	Commons-Based Social Value Flow	

RQ.2.3.	How does commons-based social value circulate within the intellectual commons?	
V.2.4.	Commons-Based Social Value Pooling	
RQ.2.4.	Which is the form of pooling of commons-based social value in the intellectual commons?	

Source: Author

Accordingly, regarding the cultural dimension of commons-based values, the questions, variables and hypotheses employed are the following:

Table 5.4 Questions, Variables, and Hypotheses: Cultural Dimension

V.3.1.	Commons-Based Cultural Value Producing Practice	<p style="text-align: center;">H.3.</p> <p>The generation, formulation, circulation and pooling of commons-based cultural values takes the form of sharing, mutual aid, shared ethics and communal identity.</p>
RQ.3.1.	Which is the primary practice generating cultural value in the intellectual commons?	
V.3.2.	Commons-Based Cultural Value Form	
RQ.3.2.	Which is the form of cultural value in the intellectual commons?	
V.3.3.	Commons-Based Cultural Value Flow	
RQ.3.3.	How does commons-based cultural value circulate within the intellectual commons?	

V.3.4.	Commons-Based Cultural Value Pooling
RQ.3.4.	Which is the form of pooling of commons-based cultural value in the intellectual commons?

Source: Author

In addition, the political dimension of commons-based values is empirically examined according to the following questions, variables and hypotheses:

Table 5.5 Questions, Variables, and Hypotheses: Political Dimension

V.4.1.	Commons-Based Political Value Producing Practice	<p>H.4.</p> <p>The generation, formulation, circulation and pooling of commons-based political values takes the form of participation in decision-making, self-empowerment, collective empowerment and community self-governance.</p>
RQ.4.1.	Which is the primary practice generating political value in the intellectual commons?	
V.4.2.	Commons-Based Political Value Form	
RQ.4.2.	Which is the form of political value in the intellectual commons?	
V.4.3.	Commons-Based Political Value Flow	
RQ.4.3.	How does commons-based political value circulate within the intellectual commons?	
V.4.4.	Commons-Based Political Value Pooling	

RQ.4. 4.	Which is the form of pooling of commons-based political value in the intellectual commons?
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Source: Author

Finally, empirical research on the flows of social value from intellectual commons' communities towards society and vice versa is conducted on the basis of the following questions, variables and hypotheses:

Table 5.6 Questions, Variables, and Hypotheses: Redistribution and Dialectics of Commons-Based Value

V.5.1.	Redistribution of Commons-Based Values	
RQ.5. 1.	Are commons-based values redistributed from the intellectual commons to society?	
V.5.2.	Redistribution of Commons-Based Economic Values	
RQ.5. 2.	In which form are commons-based economic values redistributed from the intellectual commons to society?	
V.5.3.	Redistribution of Commons-Based Social Values	
RQ.5. 3.	In which form are commons-based social values redistributed from the intellectual commons to society?	

H.5.

Commons-based values are redistributed from the intellectual commons to society in the form of gifts, interpersonal trust, ethics of mutual aid, and practices of collective empowerment.

H.6.

The flow of commons-based values to society is not remunerated by a counter-flow of monetary values to the communities of the intellectual

V.5.4.	Redistribution of Commons-Based Cultural Values	<p>commons.</p> <p>H.7.</p> <p>Partial or total lack of monetary remuneration creates resource scarcity and problems of sustainability for intellectual commons communities.</p> <p>H.8.</p> <p>The pursuit of monetary remuneration as means to ensure sustainability creates dilemmas within intellectual commons communities over the preservation of commons-based value practices or their partial transformation into exchange value.</p>
RQ.5.4.	In which form are commons-based cultural values redistributed from the intellectual commons to society?	
V.5.5.	Redistribution of Commons-Based Political Values	
RQ.5.5.	In which form are commons-based political values redistributed from the intellectual commons to society?	
V.5.6.	Monetary Remuneration of Commons-Based Political Values	
RQ.5.6.	Are intellectual commons' communities monetarily remunerated for distributing commons-based values to society?	
V.5.7.	Communal Sustainability	
RQ.5.7.	Which is the impact of the partial or total lack of monetary remuneration on the sustainability of intellectual commons' communities?	
V.5.8.	Value Conflict	

RQ.5. 8.	Which value conflicts does resource scarcity and the pursuit of monetary remuneration create within intellectual commons' communities?
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Source: Author

5.3.3. Building a Research Strategy

Value in the commons and the practices of value circulation and pooling are socially determined phenomena related to dominant and alternative perceptions regarding the attribution or not of importance to productive activity, which are therefore not equated to the intransitive natural characteristics of correlated resources (Marx 1990/1867: 138-140). Furthermore, value circulation in the intellectual commons is strongly determined by the ways in which commoners and the society in general interpret productive practices taking place within intellectual commons' communities. Finally, commons-based forms of value are relatively incommensurable, at least compared to the exchange value of intangible commodities in monetised intellectual property-enabled markets. For all these reasons a primarily qualitative strategy has been opted for the empirical examination of value circulation in the intellectual commons.

5.3.4. Designing the Research

The research is designed in a comparative style of analysis. Along these lines, the deviations in the circulation of commons-based value are comparatively analysed on the basis of two meaningful distinctions between intellectual commons' communities (see Table 5.7 below).

Table 5.7 Commons-Based Value Circulation in Comparison

	Types	Spheres
Value Circulation	Offline	Contested
	Online	Co-opted

Source: Author

Depending on the medium of circulation, intellectual commons' communities are examined as circulating their produced values either mainly offline or chiefly online. As most communities both have presence on the internet and their production also involves tangible resources, such distinction is not taken in absolute terms but rather on the basis of whether the internet constitutes the primary medium of value circulation or not.

Depending on the dialectical relation with intellectual property-enabled commodity markets, intellectual commons' communities are examined as circulating their produced values either in a contentious or in a co-opted mode of interrelation with the commodity-form of value circulation. The contentious or co-opted nature of such an interrelation is evaluated depending on the extent that commons-based values are transformed into exchange value and put into circulation in the sphere of commodity markets. Since the dialectical relation mentioned above is in constant flux and subject to their subordination to commodity markets and the state, this distinction between intellectual commons' communities is also fragile and should be viewed as changing in time.

5.3.5. Research Sampling

In the relevant research sampling the Greek society is chosen as the wider field of analysis. There are two reasons for such a choice in the design of the project. For the past eight years Greece has been facing a severe economic and social crisis, which has destabilised incumbent state and market institutions. As a result, the Greek society is undergoing a period of rapid change and re-orientation, in which already existing social structures enter into a stage of reform and re-adjustment to the new environment and new structures emerge. In addition, the economic crisis has brought about a corresponding crisis of social reproduction, during which large social groups have been forced to find new ways of meeting their collective needs and desires through sharing, mutual aid and collaboration. This social tendency has resulted in the emergence of various commons in the fields of sustenance, housing, health, education, art, technology, mass media, communications and social innovation. In this light, the Greek crisis is not only a story of pain, poverty and misery. It can also be reconstructed into a narrative of courage, hope, social struggle and progressive change; a narrative of the commons.

On the basis of the factors of distinction designed above, eight communities of the intellectual commons, which are active in the crisis-stricken Greek society, are selected as objects of empirical analysis and comparison.

*Table 5.8 Intellectual Commons' Communities in Times of Crisis
The Case of Greece*

	Contested	Co-opted
Offline	Embros Theatre Athens Hackerspace	Athens Impact Hub CommonsLab
Online	Libre Space Foundation Self-Managed ERT	Sarantaporo.gr P2P Lab

Source: Author

The Free Self-Managed Theatre “Embros” is an artistic urban commons at the heart of Athens, Greece. It is housed at an ex-theatre abandoned by the Ministry of Culture, which has been occupied since 2011 by artistic and political collectives. In its six years of operation, the artistic community of the Embros Theatre has managed to organise hundreds of minor and major cultural events, from theatrical plays and cultural festivals to political events and social mobilisations³⁶. The social space is self-managed by the assembly of the members of the community, which meets every Sunday. Participation in this assembly is open to artistic collectives and whoever interested to contribute to the community. Proposals to host events are freely submitted and accepted by the assembly after evaluation. The Embros Theatre community is explicitly against the commodification of art and culture. Entrance to the events of the social space have never had any entrance fee. Voluntary contributions of any type, however, have always been welcome. The social impact of the Embros Theatre in the urban culture of Athens is significant and its events and festivals are as a rule heavily attended. The theatre is accommodated in a de facto occupation of a building, which is planned to be sold by the state as part of the privatisation programme imposed by the external debtors on Greece. Furthermore, the occupied theatre is located at a neighborhood near the city centre, which is undergoing processes of gentrification under the pressure of strong private real estate interests. Therefore, this intellectual commons’ community is in constant confrontation with law enforcement authorities with several acts of sabotage, evacuation and activists’ persecutions on behalf of the state. Its contention with art commodity markets and the state classifies this important intellectual commons community at the contested offline pole of the research sample.

The Athens Hackerspace.gr is a community of producers inspired by the practices of the free software movement, which has established a collectively managed and shared makerspace since May 2011 in the city of Athens³⁷. According to the constituent rules of the makerspace, the various projects

hosted within the Hackerspace.gr community enjoy a relative autonomy but are still obliged to comply with its values of behavioural excellence, collaborative sharing, consensus-based decision-making and hacker-inspired do-ocracy. The shared makerspace as a whole is managed by an open assembly, meeting periodically to decide and administer its operations. All these years Hackerspace.gr has become the main meeting-place of the Athens hacking community and has spawned several projects in the fields of open hardware, free software and, in general, open science and technology. The community is intentionally non-commercial, self-funded and self-sustained by the contributions of its members. These characteristics clearly place Hackerspace.gr as an intellectual commons community at the contested offline category of the research sample.

The Libre Space Foundation is a trailblazing community, which designs, develops and delivers space related projects the libre (open source) way. Its common pool resource features, among others, UPSat and SatNOGS. UPSat is the first open source hardware and software satellite, which has been already released in orbit since 18.05.2017. SatNOGS is an open source hardware and software satellite ground station and a network, which enables the remote management of multiple ground station operations. Both of these projects have been built from readily available and affordable tools and resources. As stated in the website of the community³⁸, the Libre Space Foundation has the vision of an open and accessible outer space for all, by offering the relevant infrastructure to commoners around the world to build satellite and ground station infrastructure and networks. The whole project has been spawned from the Athens Hackerspace and still holds its productive activities there, the latter being in itself another vibrant intellectual commons community of Greece. Until now the project has been financed by receiving the grant from the first prize in the 2014 Hackaday competition and by collaborating with the University of Patras in a relevant EU-funded programme. The community consists of almost twenty core team commoners but has been gradually building an emerging community of contributors around the world through the online dissemination,

re-use and improvement of its openly accessible work. Its founding values of openness, sharing and collaboration make this intellectual commons community an innovative for-benefit open source project and, as such, appropriate as a contested online sample community for the present research.

The self-managed ERT is a historically unique example of an ex-state broadcaster transformed into a media commons. It was born in June 11th 2013 amid the social turmoil ignited by the decision of the right-wing leaning coalition government of the years 2012-2015 to switch off in one night the signal of ERT, the Greek national radio and television broadcaster. The next day after the disconnection the headquarters of ERT in Athens were occupied by citizens and employees during a massive social mobilisation of one hundred thousand people. Through this social process the website ertopen.com was established in a few days, the production of the radio and television programme started again as a media commons and its transmission through the internet begun reaching millions of viewers. From January 2014 the self-managed ERT was able to re-transmit and broadcast one television and seventeen (17) radio channels through the airwaves across the country, by occupying the necessary infrastructure and by mobilising a mixed workforce of ex-employees and citizens on a daily basis. Up to June 2015, when the newly elected left-leaning coalition government led by SYRIZA re-established the national broadcaster as a state-form of media, the self-managed ERT had already produced hundreds of thousands of hours of television and radio programme as a media commons. Even though almost all its former employees joined the state broadcaster, ERTOpen still produces and transmits its radio programme until today both online and through the radio spectrum³⁹. Its history and its political and social significance thus make the self-managed ERT an ideal media commons for the online contested category of the research sample. The two focus group interviews of Self-Managed ERT interviewees have been conducted in 2017. These interviews cover the history and evolution of the community both before and after the re-establishment of ERT as a state-run public media.

The Athens Impact Hub is a business incubator for social enterprises and entrepreneurs orientated towards creating a positive social impact. In its statement of purpose, the hub presents itself as promoting an economy of co-creation under the motto “[i]mpact cannot happen in isolation”⁴⁰. Having been incorporated as a non-profit company under the laws of Greece, the hub is part of a wider association of similar hubs across 81 cities around the world. It offers resources for work and knowledge sharing among its members. It is structured as a community of sharing and collaboration, featuring community-oriented events, from common lunches and business clinics to skill-sharing sessions, and it employs hub hosts who have the task to facilitate connectivity and interaction among participants in the community. The Athens Impact Hub partners and collaborates with both non-profit and for-profit entities to ensure sources of income. In its four years of operation, the hub has been capable of becoming the undisputable meeting point of the city for civil society and other non-profit initiatives, social economy entrepreneurs and private sector companies with commitment to corporate responsibility. Even though it operates as an intellectual commons' community at the level of incubating projects, the hub spawns and accommodates for-profit start-ups, attracts sponsorships from for-profit market players and, thus, leaves open its productive output to private appropriation and commodification. In corollary, the Athens Impact Hub introduces a fresh model of operation into the Greek incubators' industry, which hybridises the intellectual commons with the commodity market in novel ways. As such, it provides an ideal testbed for empirical analysis as the offline co-opted sample of the present research project.

CommonsLab is a social cooperative running a makerspace at the city of Herakleion, Crete. Its members have been the core organisers of CommonsFest, an innovative festival for commons' communities, which greatly contributed to the launch of informed public discourse about the commons in Greece⁴¹. The makerspace is equipped with ordinary construction tools, 3D printers, FabLab infrastructure and free software programmes. The makerspace and its infrastructure are open to the public subject to a fee. The CommonsLab team also

offers knowledge sharing courses under remuneration for a diversity of activities spanning from free software programming and 3D printing to biological farming and permaculture. Furthermore, CommonsLab has developed certain commons-oriented products, such as DonationBox, a network of interconnected end-devices, which have the capacity to remotely run donation campaigns and are purported to be installed in cooperatives and social centres across the country. CommonsLab operates in many ways as an intellectual commons community yielding valuable knowledge to local societies and actively produces commons-oriented projects. Nevertheless, its dependence on the commodity market forecloses its clients from decision-making and necessitates a fee-based access to its services. As such, CommonsLab has been classified as a co-opted offline community for the needs of the current research project.

The Sarantaporo.gr project is a community which has been building wireless mesh electronic communication networks as a commons since 2010 in a series of remotely located villages inhabiting the slopes of mountain Olympus. The community network of the project consists of 21 backbone nodes, 27 point to point links and more than 180 OpenMesh devices, interconnecting approximately 15 villages, including agricultural farms, schools and public medical centres. In addition, since March 2014 the network has been interconnected through the public internet with the Athens Wireless Metropolitan Network and a dozen other community networks throughout Europe. The community network has been collectively built and is up today sustained through the joint efforts, on the one hand, of a core team of ten commoners and, on the other hand, of fourteen local support groups of villagers, who have been offering work-hours, financial contributions and the space and electricity from their houses, which is necessary to host and operate the network infrastructure. Furthermore, the community has organised twelve info-points and several major events in the area, including an international battlemesh summit and a social economy conference. The community network is sustained as a common pool resource by the contributions of the core

commoners, who hold the necessary know-how and provide the support services needed, and with the help and contribution of villagers. Apart from the network itself, the community offers high speed wireless internet access services via the network infrastructure on an unrestricted basis and without remuneration. Internet access is provided both in private and public spaces, reaching a consumer base of up to 5.000 end users. The dissemination of internet access on a free basis has been rendered possible through an agreement of the community with the University of Thessaly for the provision of the latter's excessive bandwidth to the community network for the execution of joint research projects. In addition, the core infrastructure of the project was financed through the participation of the community in a research project on community wi-fi networks of the European Union. The sustenance of the project is endangered because of its incompatibilities with the legal framework, which is solely structured for the regulation of the electronic communications commodity market and, as such, disregards communications as a commons. Furthermore, the project faces difficulties of sustenance, since several users' groups and communities in the villages which participate in the network, have equated the access to the commons for free with gratis, thus becoming reluctant to share the workload and the economic burden for sustaining the network. As a result the Sarantaporo.gr project is heavily pressurised by the dominant value system and legal framework, thus lingering between contestation and co-optation. For these reasons, this project is chosen for the online co-opted category of the current research.

P2P Lab is an independent research hub focusing on peer-to-peer practices and the commons, which has its offices at Ioannina city in the northwestern part of Greece. The hub is affiliated with the University of Tallinn and the P2P Foundation. It consists of a core team of six researchers, a council of mentors, a number of external collaborators and a network of activists interested in its theoretical work. The projects of P2P Lab involve cutting-edge social research related to issues as diverse as free software, open design and manufacturing, blockchain technologies, open cooperativism, smart cities, P2P energy

production, P2P value and, in general, commons-oriented policies. Since its activation in December 2012, the lab has produced a vast intellectual wealth of research projects, journal articles, conference papers, book chapters and book-length endeavours. The intellectual production of P2P Lab is in its entirety freely available to the public under a creative commons attribution-noncommercial licence through its website⁴². The research hub is fully dependent on state and intergovernmental research programmes either directly or indirectly through other organisations in order to finance the work of its researchers. Such dependence makes P2P lab vulnerable to external pressures on the orientation of its work and at a precarious position as to its long-term sustenance. Therefore, P2P is examined as an intellectual commons community enlisted at the online co-opted category of the research sample.

All eight of the foregoing intellectual commons' communities have been selected as objects of empirical analysis for the qualitative research of the current project on the grounds of the importance of social values they produce and the social impact they have within and beyond the crisis-ridden Greek society. Furthermore, the different socio-political visions, value practices, objects of production, means of value circulation and governing institutions of these communities have rendered them ideal for comparative analysis and the induction of valuable findings.

5.3.6. Carving Out the Method of Data Collection

Data collection regarding the circulation of commons-based value in intellectual commons' communities is conducted according to a mixed method of research, featuring a mutually illuminating combination of qualitative and quantitative methods. During the stage of data collection the qualitative temporally precedes the quantitative method. Next, quantitative and qualitative data are analysed in parallel. Finally, the two strands of data are merged together at the stage of interpretation. In this convergent parallel design, the qualitative is given priority over the quantitative method, with the qualitative being the principal

data-gathering tool and the quantitative acting as data coding tool (Creswell and Plano Clark 2011: 66-67).

As a starting point, a series of ten interviews have been executed in the form of focus group interviewing with the members of the foregoing communities, which constitute the object of this part of the social research. One focus group has been formed and interviewed for each community, apart from Embros Theatre and the Self-Managed ERT, each one of which have been examined in two separate focus groups due to the much larger size of these two communities. The focus group method of interviewing has been chosen for several substantive reasons. First, each of the focus groups consist of individuals, who share in common the experience of being involved in the same intellectual commons' community (Merton, Lowenthal and Kendal 1956: 3). Secondly, the interview has been focused on the ways through which interviewees construe social value in their community (Puchta and Potter 2004: 6; Bryman 2012: 502-503). Third, since values are essentially based on common meanings and mind-frames, the interview aims to trigger lively discussion, argumentation and, even, disagreement between interviewees on what is valuable or not in their community, thus generating a synergistic group effect between interviewees, which would not be possible to unravel from individual interviews (Stewart and Shamdasani 2015: 45-46). All the foregoing characteristics make focus group interviewing more appropriate as a research method in order to achieve inclusive data collection, collect qualitative information on the subject matter under examination and arrive to valid findings.

Along these lines, the focus group interviews have taken place in an environment that is familiar to the interviewees, i.e. the social spaces of their communities. The focus group interviews have lasted for approximately one and a half hour. The interviews have also been fully audio recorded. Furthermore, anonymised data regarding the gender, age, education, profession and role in the community of interviewees have been retained⁴³. In the

beginning of each focus group session, interviewees have been informed of the core characteristics of the research, the types and usage of the data collected from their participation, their legal rights and will, then, be requested to sign a relevant consent letter⁴⁴. After signing the consent letter, the interviewees have been asked about their personal ethical considerations and motivations for participating in their community, so as to feel comfortable and become interested in the topic. Following that, an interview guide has been applied and flexibly adopted according to the course of each focus group discussion. The guide has been deemed as necessary, in order to ensure that all research areas are adequately covered. Nevertheless, since their subject matter refers to cultural values and social value, in general, the interviews have adhered to a flexible pattern, allowing the participants to take the lead, offer their own interpretations and narratives about matters asked, discuss together and, even, argue with one another (Arthur and Nazroo 2003: 110-112).

The structure of the interview guide comprises of proposed main questions, as well as probing and follow-up questions, wherever needed, as means to enrich collected data from interviewees⁴⁵. Main questions are structured as elaborate questions, which are, then, unpacked by probing and follow-up questions, the latter often including ranges of candidate answers to help participants in the conduct of their response (Puchta and Potter 2004: 64). Focusing on what is directly observable, questions seek to unravel concrete experiences, observations and feelings, instead of just impressions and opinions, of interviewees. In certain cases, alternatives between potential questions have been devised to take into account the diversity of interviewees responses. The questions are formulated in a way so as to elicit the interviewees' subjective descriptions about their communal life-words and reveal any possible intersubjective meanings, shared pre-reflections and pre-theorisations among them (Brinkman 2014: 286-289).

After the conclusion of the interviews the members of the focus groups have been given a self-completion questionnaire with structured multiple choices⁴⁶.

In the general context of the current project, the self-completion questionnaire has been utilised as an appropriate tool for the application of the iterative research method in action. With this intention, the interviewees have first been called upon to digest the preceding discussion which has taken place during the focus group interviews and, after self-reflecting, have completed the questionnaire according to their informed assumptions. In this sequence of qualitative and quantitative research, the purpose of the questionnaire has been to act as a data coding tool with the participation of the researched subjects themselves.

To cover the needs of data analysis, the main parts of the audio-taped interviews encompassing the core arguments of the interviewees have been transcribed with the help of the transcription facilitation software programme NVivo. After transcription, the collected data have been qualitatively coded in the form of a coding guide for each one of the eight communities of the research sample. Next, with the help of the guide the qualitatively coded data have been brought under scrutiny and comparison with the quantitative data collected through the self-completion questionnaire. Finally, points of convergence and discrepancy between the two streams of data have been identified and interpreted.

Having the coded data from the two data collection methods and the points of discrepancy in mind, the stage of data analysis has been drawn to a close. Henceforth, with the step-by-step process analysed above a solid empirical basis has been established for the comparison of the eight communities under examination. In the next chapters of the thesis, available data are interpreted in order to arrive at safe theoretical findings and conclusions regarding aspects of the circulation of commons-based value in the communities of the research sample.

5.4. DATA CODING

As already mentioned in the previous methodological sections, the current research on commons-based value combines both qualitative and quantitative elements. Its qualitative element consists of ten focus group interviews, each varying in participation between five and seven interviewees. The coding of the qualitative element has been executed through the development of themes and their corresponding codes from raw data. In the context of the research, codes represent semantic labels given to data sets, whereas themes operate at a higher semantic level as meaningful interpretations and structures of coded data patterns in the light of the research questions, variables and hypotheses. Such thematic coding has evolved as a step-by-step process, spiralling towards higher levels of complexity through a back and forth movement between data-driven induction and theory-driven deduction. First, implicit and explicit ideas have been identified and described from patterns of repetition in collected data (Guest, MacQueen and Namey 2012: 10-11). Next, codes have been generated through the collapse of data into labels. Following that, generated codes have been grouped and combined into overarching themes. In this process, initial themes have been reviewed and confirmed or amended, wherever appropriate (Braun and Clarke 2016: 86-93). Afterwards, themes have been structured according to relevant research questions in order to present a coherent narrative of the sequences of value circulation and value pooling. Produced themes and codes have then been used to write down a general coding guide. Finally, the coding guide has been applied to the eight communities of the sample, generating a coding report for each one of them. In conclusion, the coding guide has been the outcome of an iterative process, combining processes of both coding up from transcribed empirical data and coding down from the theoretical variables, questions and hypotheses of the research (Miles and Huberman 1994: 58-65)⁴⁷.

In order to formulate an all-inclusive coding of available data, i.e. both qualitative and quantitative, the coding guide has been designed with a

threefold structure. In particular, the coding process takes place in three separate parts. The first coding part features the codification of qualitative data from focus group interviews. The second coding part features the codification of quantitative data from the self-completion questionnaire. The third part codifies the comparison between the other two columns and locates discrepancies. The comparison between the two streams of codification reveals that focus group interviews have yielded richer themes and codes than the quantitative feedback of interviewees to the self-completion questionnaire. Furthermore, the completion of the questionnaire after the interviews has helped participants to give more informed responses, which generally reflected the outcomes of the preceding discussion. Minor discrepancies between qualitative and quantitative data have been observed mainly in the themes and codes related to the circulation of political value and the dialectics between commons-based and monetary values. In regard to commons-based political values, participants from communities with weaker practices of generation, flow and pooling of such values have tended to embellish their quantitative feedback on these matters compared to their qualitative responses during the interviews. Accordingly, some participants have been inclined to slightly downgrade contradictions between commons-based and monetary values in their communities in the quantitative section of the research compared to their qualitative feedback. Overall though, the outcomes of both the qualitative and quantitative codification have been found to generally correspond and complement each other, hence consolidating the findings and conclusions of the research.

5.5. CONCLUSION

The current methodological chapter sets out the framework of the research project on the social value of the intellectual commons. In terms of theory, it describes the critical realist and political economic approach followed throughout the research. In terms of method, it determines the aim and demonstrates the strategy, design and sampling of the research project. It then

poses eight research questions, which can be divided into two categories. Questions 1 to 5 refer to the sequences and circuits of commons-based value. Questions 6 to 8 refer to the dialectics between the circulation of dominant monetary and alternative commons-based values. The closing section of the chapter describes the thematic method of coding the collected data. Overall, this chapter lays down in systematic form the methodological foundations of the research and develops an appropriate framework to elicit the research findings and conclusions exhibited in the following chapters.

6. RESEARCHING THE SOCIAL VALUE OF THE INTELLECTUAL COMMONS: FINDINGS ON THE DIMENSIONS OF COMMONS-BASED VALUE

6.1. INTRODUCTION

The current chapter is an extensive elaboration of the findings regarding questions 1 to 5 of the study, which refer to the sequences and circuits of commons-based value within and beyond the communities under examination. Its key finding is that commons-based value circulates in the form of economic, social, cultural and political values. The four sections of the chapter offer an analysis of collected research data as basis to ground findings in relation to each one of these four dimensions of commons-based values. The concluding section of the chapter elicits general findings on the circulation of commons-based value, arising from common characteristics found in all four dimensions. Overall, the findings of the research show that social value within and beyond intellectual commons communities is circulated in specific forms, which can be revealed through social research and depicted in general formulas.

6.2. FINDINGS IN RELATION TO THE ECONOMIC DIMENSION OF COMMONS-BASED VALUE

In relation to the economic dimension of commons-based values, the first hypothesis of the current research claims that the generation, formulation, circulation and pooling of commons-based economic values takes the form of collaboration, use value, gifts and common pool resources. Furthermore, the fifth hypothesis of the study asserts that commons-based economic values are redistributed from the intellectual commons to society in the form of gifts. Nevertheless, the thematic coding of collected data has unveiled a much more complex constellation of commons-based value formations than the initial research hypothesis. The economic value circuits in the communities of the research sample are exhibited in Table 6.1 below.

Table 6.1 The Circuit of Commons-Based Economic Value Circulation

	Offline Contested		Online Contested		Offline Co-opted		Online Co-opted	
Communities	Embros Theatre	Athens Hackerspace	Libre Space Foundation	Self-Managed ERT	Athens Impact Hub	CommonsLab	Sarantaporo.gr	P2P Lab
Value-Producing Practices	Collaboration / Collective Appropriation	Collaboration	Collaboration	Collaboration / Collective Appropriation	Collaboration	Collaboration / Competition	Collaboration	Collaboration
Values	Use Value / Exchange Value	Use Value	Use Value	Use Value	Use Value / Exchange Value	Use Value / Exchange Value	Use Value	Use Value / Exchange Value
Flows	Gifts	Gifts	Gifts	Gifts	Gifts / Commodities	Gifts / Commodities	Gifts	Gifts
Accumulation	Common Pool Resource	Common Pool Resource	Common Pool Resource	Common Pool Resource	Common Pool Resource / Private Appropriation	Common Pool Resource / Private Appropriation	Common Pool Resource / Private Appropriation	Common Pool Resource / Private Appropriation
Redistribution	Gifts / Generalised Reciprocity	Gifts / Generalised Reciprocity	Generalised Reciprocity	Gifts / Generalised Reciprocity	Gifts / Commodities	Gifts / Commodities	Gifts / Use Values / Economic Development	Gifts

Source: Author

As far as producing practices of economic value are concerned, the intellectual commons' communities of the sample are heavily dependent on collaboration among commoners, whereas collective appropriation of resources is also present in two contested communities. Especially in contested communities, the element of collaboration is prevalent upon competitive behaviour. As one Self-Managed ERT community member has stated (interviewee # 7.2): “(c)ompetition among participants at the Self-Managed ERT never existed. 99,9% has been collaboration”; “(a)ttempts of single individuals to compete against the common interest of Self-Managed ERT were isolated by the community and set aside”. On the other hand, the element of competition is evident, albeit at a marginal level, in co-opted communities. Yet, the collaborative mode of production also generally prevails as a matter of communal choice. For instance, a key member of P2P Lab (interviewee # 4.5) has described the collaborative relations of production in the community as such: “(i)n a book I wrote with another author, other members collaborated by contributing whole passages. Nevertheless, they were not mentioned in the authorship, because their contributions were relatively small. This happens with most of our projects. This mode of production is faster and more effective and works because we are united as one”. Certain communities may even employ strategies to ameliorate or even expel competition among members. For example, Impact Hub interviewees have referred to an informal rule of not accepting community members who may come in competition with other members. As one interviewee (# 5.3) has put it, “(t)he community at Impact Hub is based on values, such as willingness to collaborate and mutual aid [...] We are careful not to accept in the community members who may come in competition with other members due to related fields of activity”.

Following its generation, commons-based economic value mainly takes the form of use value in most of the communities of the sample. For its members, “the Self-Managed ERT means information and news as common good” (interviewee # 7.4). Accordingly, value for the co-opted community of Sarantaporo.gr means “the use value of our communications network for local

communities” (interviewee # 8.5). Despite that, the footprint of exchange value is also widely present in one contested and three co-opted communities. In specific, economic value in the contested community of the Embros Theatre usually takes the form of use value, because, in the words of its members, “(w)e have the logic of collectivity, in which use value is what matters” (# 1.7). Still, “(w)hen one stages a play at Embros, it may have exchange value for him/her through the voluntary financial contribution given by members of the audience” (# 1.4). In accordance, pressure from the commodity market has compelled contested communities, such as P2P Lab, to turn to exchange value in order to survive. As a P2P Lab member has stated, “(w)e produce resources that have both use value and exchange value. We have been producing and publishing papers, which for us were not necessary, yet were needed to attract funding [...] The exchange value for such an activity is that we are getting paid for producing and publishing these papers” (interviewee # 4.4). Often, however, economic exchange value is intermingled with various other motivations and forms of value and is not mediated by money. This multiplicity of incentives is mostly evident at the Hackerspace community, in which “(o)ur incentives to produce vary, yet we do not value our productive activity for what it can bring individually to us in exchange [...] One may work on a project, because s/he values the knowledge s/he receives. Another may work, because he/she believes that this project may help other people [...] Another motive is the possible disruptions we may bring from our innovations to relevant sectors of science and technology. In the sense that you created something which left a mark, no matter how small, to the world” (interviewee # 3.5). This hybridity of value circulation helps communities lower production costs and hoard enough productive activity to innovate with much fewer resources than for-profit corporations. For instance, interviewees of Commons Lab have pointed out that the participants in the COOP Box⁴⁸ working group share similar social motivations to contribute to the project, whereas, at the same time, some of them receive market promotion by communicating their work to a wider audience in exchange for their support. As a member of Commons Lab vividly commented (interviewee #6.4), “(d)ue to the fact that we share the same values we have the

capability to request support from collaborators and other communities close to us without remuneration but with the promise of future reciprocity”.

In addition, internal value flows in the sample primarily unfold in gift-form. In fact, the contested communities of the sample have open access and free dissemination of their productive output as founding principles. In this context, members at Hackerspace have clearly stated that “(o)ne of our founding principles is that whatever is produced at Hackerspace is given for free and is openly accessible to all. We never charge any fees” (interviewee # 3.4). In the same manner, Libre Space Foundation interviewees have been unanimous that “(r)esources pooled at LSF belong to LSF” (interviewee # 2.7). Likewise, in the Self-Managed ERT community, “(m)embers contribute without expecting or receiving something in return” (interviewee # 7.3), whereas at Embros Theatre “(o)ur community [...] has anti-commercialism as its founding principle (interviewee # 1.9) [...] “(e)vents at Embros have never had an entrance fee. Any kind of monetary contribution has always been entirely voluntary” (interviewee # 1.3). Apart from the gift-form, internal value flow in two of the co-opted communities, i.e. Commons Lab and Impact Hub, also takes the commodity-form. An entrepreneur participating at the Impact Hub community has stated that “(i)nside the community we exchange services between each other. It is a matter of mutual agreement whether we will involve money in such exchange” (interviewee # 5.5). At Commons Lab, “(t)he use of the makerspace is on a pay-per-basis on a reasonable subscription fee to cover costs and achieve sustainability” (interviewee # 6.5). Wherever both forms are present, a certain interrelation between them develops, wherein commoners contribute partly in gift- and partly in commodity-form. For instance, according to its members, the community of Impact Hub has developed a special relation with a certain member, who is a developer. The latter uses the resources of the community without fee, yet contributes to the community by developing and supporting websites and offering software-related services to other members and the community as a whole. In terms of value allocation, value pooling has proven to be the archetypical form for the allocation of value in the intellectual

commons in spite of the fact that private appropriation additionally penetrates all the co-opted communities of the sample. Indicatively, Embros Theatre members have vividly described this process of value pooling as fundamental for their community in the following manner (interviewee # 1.8): “There is a vast pooling of intellectual resources. A great many events have taken place, texts have been written, meetings have been made, political issues have been analysed in depth. There is a very powerful intellectual capital pooled at Embros”. Alternatively, members of the co-opted community of Commons Lab have pointed out a hybrid regime of communal pooling and private appropriation as follows (interviewee # 6.2): “there is a mixture. Resources pooled at CommonsLab from business activities are paid as remuneration to members and the remnants are used for projects for the community, i.e. for collaborative projects”.

Finally, all communities have been found to redistribute produced economic values to wider society. Such redistribution mainly takes place in the form of reciprocal gift. In the case of the Self-Managed ERT, “(t)he programme of the Self-Managed ERT has always been freely broadcasted without the involvement of any type of monetary exchange” (interviewee # 7.8). “(s)ociety has understood the Self-Managed ERT as a common good, which has to be protected” (interviewee # 7.1). The free broadcast of the radio and television programme is however constantly reciprocated in various forms by society and this reciprocal flow of value is exactly what sustains the Self-Managed ERT as a community of struggle. Accordingly, Sarantaporo.gr is described by its members as a “community network, which is freely accessed and used by everybody. It is not sold but freely given to the community, yet the community is called on to support the sustainability of the network” (interviewee # 8.2). The same logic of reciprocal gift redistribution has been found to be practiced by P2P Lab, described as such by its members: “(a)s a rule, we offer use value through our productive output, which may in the future be translated in reciprocal value. Value produced by P2P Lab is translated into use value beyond the ecosystem of the p2p and commons community and, internally, may in the

future be reciprocated by other groups within this ecosystem towards P2P Lab [...] (w)e offer use values to the commons' community but we have at the back of our minds that such value may be reciprocated in the future" (interviewee # 4.4). Yet, one co-opted and two contested communities have been observed to yield economic gifts to social groups regardless of any expectation for reciprocal rewards, thus engaging in practices of generalised reciprocity. The Hackerspace and LSF communities adhere to the free software movement ethics. As described by a Hackerspace member, "(w)e have been working both in hardware and in software projects. We make these projects openly accessible either on our website or on relevant websites of the open source community" (interviewee # 3.5). The Embros Theatre community has also been found to host hundreds of artistic events by various groups without entrance fee and to give monetary contributions to vulnerable social groups, such as refugees, prisoners, transvestites and homeless people, without any expectation of reciprocation whatsoever. Alongside reciprocal gifts, the commodity-form of economic value redistribution is also present in the co-opted communities of Commons Lab and Impact Hub. As explained by a Commons Lab interviewee (# 6.1), "(w)e want to run this business and not die during it from monetary scarcity [...] (m)any of our products and services are, therefore, classic cases of commodities and certain other services are closer to values related to collaboration, sharing and community". In the same manner, the Impact Hub community is recognised by its members to provide "products and services both as commodities and as social impact to society" (# 5.3).

Practices of commons-based value circulation and value pooling in the economic dimension of social activity examined in the study take certain forms, which can be depicted as a general formula. Along these lines, data analysis shows that the generation, formulation, circulation, pooling and re-distribution of commons-based economic values takes the general form of collaboration, use value, gifts, common pool resources and, then again, gifts. Hence, the main commons-based economic value circuit in the intellectual commons' communities under examination can be represented by the following formula:

Collaboration → Use value → Gift → Common Pool Resource → Gift
[CL→UV→G→CPR→G]

Nevertheless, in the process of data analysis explicit and implicit differentiations have emerged between the economic value circuits of contested and co-opted communities. Apart from the general circuit of commons-based economic value mentioned above, research findings show the presence of an alternative value circuit in the economic dimension of social activity, which has been more distinct in the co-opted communities of the sample. The alternative economic value circuit develops in the following form in parallel to the main economic value circuit in most of the co-opted communities under examination:

Competition → Exchange-Value → Commodity → Private Appropriation →
Commodity [CP→EV→C→PA→C].

According to the first and fifth research hypotheses of the study, the commons-based economic value circuit has been asserted to unfold in the form of collaboration, use value, gifts, common pool resources and, again, gifts. The findings of the study confirm in their generality the first and fifth research hypotheses of the study. Data analysis has also revealed the existence of an alternative economic value circuit, which has not been expected at the stage of research design.

6.2. FINDINGS IN RELATION TO THE SOCIAL DIMENSION OF COMMONS-BASED VALUE

In relation to the stricto sensu social dimension of commons-based values, the second hypothesis of the study states that the generation, formulation, circulation and pooling of commons-based social values takes the form of social contribution, merit, trust and communal cohesion. Furthermore, the fifth hypothesis of the study asserts that commons-based social values are redistributed from the intellectual commons to society in the form of

interpersonal trust. In regard to the commons-based social value circuit, the findings of the research have revealed a great variety of value-producing practices. The codification of this value circuit is presented in Table 6.2 below.

Table 6.2 The Circuit of Commons-Based Social Value Circulation

	Offline Contested		Online Contested		Offline Co-opted		Online Co-opted	
Communities	Embros Theatre	Athens Hackerspace	Libre Space Foundation	Self-Managed ERT	Athens Impact Hub	CommonsLab	Sarantaporo.gr	P2P Lab
Value-Producing Practices	Contribution in Productive Activity / Contribution in Kind	Contribution in Productive Activity / Financial Contribution	Contribution in Productive Activity / Contribution in Kind	Contribution in Productive Activity / Contribution in Kind	Contribution in Productive Activity / Financial Contribution	Contribution in Productive Activity / Financial Contribution	Contribution in Productive Activity / Financial Contribution / Contribution in Kind	Contribution in Productive Activity
Values	Quantity of Contribution / Merit / Personal Capabilities / Control of Infrastructure	Quantity of Contribution / Merit / Personal Capabilities	Quantity of Contribution / Merit	Quantity of Contribution / Merit / Personal Capabilities	Merit / Control of Infrastructure / Quantity of Contribution / Personal Capabilities	Merit / Control of Infrastructure / Quantity of Contribution / Personal Capabilities	Merit / Control of Infrastructure / Quantity of Contribution / Personal Capabilities	Merit
Flows	Trust / Power Conflicts	Trust	Trust	Trust / Power Conflicts	Trust / Monetary Exchange	Trust	Trust	Trust
Redistribution	Social Cohesion / Network	Social Cohesion / Network	Social Cohesion / Network	Social Cohesion	Social Cohesion / Network	Social Cohesion / Network	Social Cohesion / Network	Social Cohesion

Source: Author

According to the research findings, the contribution in the productive activity of the community is considered by commoners to be the universal practice of producing social value. Indicatively, in the community, which due to its nature requires the largest quantity of work to reproduce itself, i.e. the Self-Managed ERT, the contribution of work to the community is held to be of utmost importance among members. Hence, it has been explicitly pointed out by a community member that “(t)he main social value-form in the community is one's availability to contribute her productive work-power for the needs of the community” (interviewee # 7.9). Likewise, in the Hackerspace community, “(y)ou gain the trust of the community by contributing to the activities and the projects of the community, [yet] it is not a matter of just being present in the community. One gains trust by being productive and by contributing to the community” (interviewee # 3.3). Second most widespread is the contribution in kind, observed in one co-opted and three contested communities, with the practice of financial contribution also widely present in one contested and three co-opted communities. For instance, in the Sarantaporo community network, as one of its interviewees has pointed out, “(m)embership in the community is absolutely open. Anyone can become member in our community by adopting a network node and hosting the later to one's house. In this case, one receives the value of the network but also gives value by expanding the reach of the network and by providing accessibility to new users” (interviewee # 8.1).

Commons-based social value in the communities under research is similarly diverse in its forms. Merit is universally accepted as the most important embodiment of social value. At the Libre Space Foundation, “(t)here are certain roles allocated according to one's merit [and] there is respect by the community to members who have certain experience” (interviewee # 2.5). Accordingly, at the P2P Lab, “(a)llocation of tasks among members is merit-based. Whoever has the knowledge is decided to contribute. We allocate tasks based on meritocracy” (interviewee # 4.2). Accordingly, the quantity of personal contribution to production has been found to be valued in all communities except P2P Lab. In fact, the capability of contributing greater quantities of productive activity has

informally influenced membership rights in favour of more persistent contributors in the two largest contested communities, i.e. the Self-Managed ERT and the Embros Theatre. In the case of the Embros Theatre, the quantity of one's work has been pivotal, even to the degree of influencing one's status in the community. As openly admitted by a member, "(n)ormally, members of the managing committee become members, who are very enthusiastic with the community and are most of the time at the theatre. They are the members who have an overall knowledge of how the community works" (interviewee # 1.5). Personal capabilities also play a significant role in communal reproduction and are, therefore, valued within the community. As a member of Hackerspace stated (interviewee # 3.4), "(w)ithin the framework of doocracy, the community is aware of the personal skills and capabilities of each member and tasks are accordingly allocated". Finally, the private control of communal infrastructure has played an important role in one contested and in all co-opted communities.

In terms of value flow, data analysis has shown that trust among commoners is beyond doubt the archetypical form of commons-based social value circulation. In the case of the Self-Managed ERT, the element of trust is holding communal production and reproduction together. As stated by a member, "(t)he production of the (radio and television) programme is based on relations of trust among community members to the utmost degree" (interviewee # 7.4). At the Libre Space Foundation, "(t)he criterion to join the Board is the belief by board members that a certain individual is trusted as capable of defending the vision and principles of the organisation" (interviewee # 2.1). For P2P Lab members, "(t)rust is extremely important. For us what counts is one's personality and not if somebody has a PHD on the commons" (interviewee # 4.5). In accordance, trust within the Impact Hub community is the element, which plays the main role in communal relations. In the words of a social entrepreneur of the community, "(w)e start our collaborations and partnerships with other members of the community, rather than by searching outside the community, because we have trust that one of us will be better to work with" (interviewee # 5.5). Alternative forms of social value circulation among commoners include

power conflicts, present in two contested communities, and social bonds derived from monetary exchange, present in one co-opted community. The allocation of commons-based social value is generally expressed in the form of communal cohesion and, alternatively, takes the form of social and communal capital. In this context, social capital refers to the social connectivity, status and reputation, which the individual member enjoys as a result from her participation in the community (Arvidsson and Peitersen 2013: 88-108), whereas communal capital refers to the collective prestige which the community acquires vis-a-vis other social groups and society in general. Both in contested and in co-opted communities, commons-based peer production has been observed to forge strong social bonds, constructing a productive collectivity of relative cohesiveness. As a member of Libre Space Foundation pointed out (interviewee # 2.4), “collaboration within the community is strengthened by tight social bonds between members”. And, in the words of P2P Lab interviewees (interviewee # 4.5), “(w)e collaboratively produce united as one”. Evidence that the cohesiveness of commons-based peer production outstrips capitalist modes of intellectual production has surfaced in the case of the Self-Managed ERT, which has previously been state-run on the basis of hierarchical wage labour. According to interviewees, in the commonified ERT (interviewee # 7.7) “(w)e enjoyed going for work [...] Work became enjoyment”, because “[t]here were no managers [...] You had to take responsibilities and fulfill tasks at your own initiative”. In comparison (interviewee # 7.1), “(state-run) ERT produced what order-givers wanted. Self-Managed ERT produces what workers and society want”. In the same manner a member of P2P Lab (interviewee # 4.5) has commented that “(t)he logic of how we work is totally different from the jobs I have done in the past. There everybody worked independently and for himself. Here, we collaborate with each other and I have become a much better person”. Still, the prospect of amassing social capital by participating in the community has been recorded to influence individual incentives in both co-opted and contested communities. In this context, a member of the Self-Managed ERT has confessed that “(c)ertain persons wanted to have prominent roles within the Self-Managed ERT for private benefit in the aftermath of the period of self-

management” (interviewee # 7.10). Furthermore, a member of the Embros Theatre has observed that “(t)here have been people in the community who have used their participation in exchange of other values in the commodity markets of art and culture” (interviewee # 1.5).

Ultimately, commons-based social value is redistributed from the communities under examination to society primarily in the form of cohesion between social groups and classes and, alternatively, in the form of networking among individuals and communities. Indicatively, Embros Theatre interviewees have identified value in their community as related to the importance of meeting together in community and belonging together in their neighborhood. Accordingly, Sarantaporo.gr participants have considered that their activity of deploying community wireless communication networks has cultivated a kind of communal spirit between villages in the area of Sarantaporo. The development of social networks is also inherently related to practices of commoning. Indicatively, practices of networking beyond the Hackerspace community has been described by members as follows (interviewee # 3.3): “Hackerspace not only participates but also creates networks. Hackerspaces are connected together through specific projects. Now, we collaborate with other hackerspaces within the framework of our projects [...] People from other hackerspaces visit ours and we do the same when we go abroad. We do this all the time. We even have hackerspace network passports”. Accordingly, participants in the Libre Space Foundation community have proudly stated that in the past year the community has been able to pool together a worldwide network of 20 satellite base station nodes.

In its generality, the commons-based social value circuit takes the form of productive contribution, merit, trust, communal cohesion and social cohesion, which can be represented by the following formula:

Productive Contribution → Merit → Trust → Communal Cohesion → Social
Cohesion

[PP→MR→T→CC→SC].

As in the case of the commons-based economic value circuit, the differences between the social value circuits of contested and co-opted communities have revealed an alternative social value circuit, which operates in parallel to the main social value circuit in both the co-opted and contested communities of the study:

Financial Contribution → Control of Infrastructure → Monetary Exchange →
Social Capital → No Re-Distribution
[F→MR→M→SCa→SC/N].

According to the second and fifth research hypotheses of the study, the commons-based social value circuit has been expected to unfold in the form of social contribution, merit, trust, communal cohesion and interpersonal trust. In essence, the outcomes of the research confirm the hypotheses with the exception of the form of value re-distribution, which in actuality takes the much stronger form of social cohesion, instead of just interpersonal form, thus having much more widespread social effects. Nevertheless, the hypotheses of the study have failed to reflect the existence of the alternative circuit of social value, which has been pointed out by the interviewees of the research sample.

6.3. FINDINGS IN RELATION TO THE CULTURAL DIMENSION OF COMMONS-BASED VALUE

In relation to the cultural dimension of commons-based values, the third and fifth hypotheses of the study assert that the generation, formulation, circulation, pooling and re-distribution of commons-based cultural values takes the form of sharing, mutual aid, shared ethics and communal identity and ethics of mutual aid.

Data analysis has revealed that the cultural dimension of commons-based

values has revealed the least diversity of value forms, with the interviewees of the sample extensively converging in their assessments of what is valued in their communities in terms of culture. As displayed in Table 6.3 below, the research has shown that the cultural value circuit generally consists of sharing as its value-producing practice, mutual aid as its cultural value-form, the formulation of a shared ethos as its type of value flow, the construction of common communal identity as value pooling and the diffusion of mutual aid ethics in society as the form of redistributing its value to society. Only at the sequence of redistribution have communities displayed more diverse forms of value, stating the limited presence of two other forms of cultural value redistribution, in particular the dissemination of symbols and art in the case of the Embros theatre and the diffusion of an ethos of political resistance in the case of the self-managed ERT.

Table 6.3 The Circuit of Cultural Commons-Based Value Circulation

	<i>Communities</i>	<i>Value-Producing Practices</i>	<i>Values</i>	<i>Flows</i>	<i>Accumulation</i>	<i>Redistribution</i>
Offline Contested	Embros Theatre	Sharing	Mutual Aid	Relative Shared Ethos	Relative Common Identity	Mutuality Ethics / Symbol and Art
	Athens Hackerspace	Sharing	Mutual Aid	Strong Shared Ethos	Strong Common Identity	Mutuality Ethics
Online Contested	Libre Space Foundation	Sharing	Mutual Aid	Strong Shared Ethos	Relative Common Identity	Mutuality Ethics
	Self-Managed ERT	Sharing	Mutual Aid	Strong Shared Ethos	Relative Common Identity	Mutuality Ethics / Ethos of Political Resistance

Offline Co-opted	Athens Impact Hub	Sharing	Mutual Aid	Relative Shared Ethos	Relative Common Identity	Mutuality Ethics
	CommonsLab	Sharing	Mutual Aid	Strong Shared Ethos	Relative Common Identity	Mutuality Ethics
Online Co-opted	Sarantaporo.gr	Sharing	Mutual Aid	Relative Shared Ethos	Weak Common Identity	Mutuality Ethics
	P2P Lab	Sharing	Mutual Aid	Strong Shared Ethos	Strong Common Identity	Mutuality Ethics

Source: Author

Evidence collected by the study shows that intellectual commons' communities are constructed and reproduced around strong cultures of sharing. The practice of sharing data, information, news and content both among members and with individual citizens and organised social groups has helped the Self-Managed ERT to overcome resource scarcity and has constituted the main source for the production of its television and radio programme. Accordingly, without citizens' practices of sharing space and electricity in their houses and rooftops to host equipment the community wireless network of Sarantaporo.gr would not have been possible. Along the same lines, Impact Hub interviewees have stated that at the community space nobody has their own chair or office. Everything is shared and moving around among members. Describing the cultural aspect of sharing a Libre Space Foundation interviewee (# 2.6) has commented that "sharing and, generally, the open source work mode help very much with collaboration". The cultural aspect of sharing has been proven so strong that it may also permeate the periphery of certain communities. This is evident in the observation of Embros Theatre members that voluntary financial contributions at the bar yield more money than imposed price tags for drinks, since visitors acknowledge the need to share the costs of the community. As a

rule, practices of sharing culminate in relations of solidarity among commoners. Hence, all communities of the sample demonstrate a degree of mutual aid among their members. For members in contested communities, mutual aid is a practice of survival and, at the same time, a way of living. In the hard times of the Self-Managed ERT struggle, from the scarce communal resources “(l)imited monetary remuneration was granted by the Self-Managed ERT community on the basis of mutual aid to members, who were evaluated to be in pressing need” (interviewee # 7.3). In co-opted communities, mutual aid replaces monetary exchange as means to cut down financial costs and depend on alternative social and cultural bonds for the transfer of value among communities. As a Commons Lab participant has pointed out, “(b)y being oriented towards the social and solidarity economy we are able to find collaborators, who may contribute at no or marginal cost” (interviewee # 6.4). Strong bonds of mutuality benefit both individual members and the community as a whole. As described by a P2P Lab participant, “(i)n our community we realise that helping one another and learning from one another is more effective for our operation and for the development of our personal skills” (interviewee # 4.2).

By realising the benefit of sharing and mutual aid, members begin to converge in their principles or, at least, to mutually respect each other and co-exist even when individual principles diverge. This common understanding of what constitutes acceptable practice or not within the community forms a shared ethos among members, which has been recorded in most communities of the sample in various degrees. A member of Impact Hub (interviewee # 5.5) described this process as follows: “(t)hrough day to day contact in the community we acquire common practices. Even our beliefs and ideas about profit and entrepreneurship converge”. In most communities participation has deeply changed individual mindframes and practices. For example, the experience of self-management has radically shifted the perceptions of ERT members about their role as journalists in society, having developed among them a common understanding of themselves as social workers for the provision of news services. In communities, which forged strong shared

practices and principles, a common cultural identity has emerged both internally and vis-a-vis actors external to them. From within, such a collective culture has been experienced by community members as a unity in diversity, both unifying commoners with the sense of belonging in a certain community with shared ideals and, at the same time, accommodating individual differences. In the words of a Self-Managed ERT interviewee (# 7.5), “(t)he values cultivated in the Self-Managed ERT project created a common identity of struggle, mutual aid, trust and self-management”. Externally, interviewees have been keen on observing that the identity of their communities may be received in different ways. Widely known communities, such as the Self-Managed ERT, the Embros Theatre and Impact Hub, seem more capable of projecting their identities to society than less known communities, such as Hackerspace, the Libre Space Foundation, Sarantaporo.gr, Commons Lab and P2P Lab. Nevertheless, the latter communities have forged strong identities vis-a-vis individuals and groups, which identify themselves in proximity to the intellectual commons. As an LSF member has pointed out (interviewee # 2.1), “(w)e have developed a common identity. Third parties beyond the community see each member of our community as representing our communal identity. And even our members see it like that [...] Very rarely there will be a third party proposing to us a project alien to our vision and principles, because people know our identity”. As far as the diffusion of mutual aid ethics in society, communities employ various strategies. In particular, the Self-Managed ERT struggle is claimed by its members to have “made the issue of mutual aid relevant again in the public debate” (interviewee # 7.2). Likewise, the Embros Theatre community is held by its members to “produce values, such as mutual aid, which penetrate society and influence people” (interviewee # 1.12). Accordingly, a Sarantaporo.gr member (interviewee # 8.1) described its communal culture diffused in local societies as such: “Sarantaporo.gr is a project in which local communities actively participate. It brings people closer together, because they collaborate together to build it. It belongs to the community. It is the network of the community”. And Commons Lab has been constantly disseminating open source hardware and free software principles by giving

seminars at schools, organising events in public spaces, influencing the programme structure of local business festivals and trying to persuade clients to open their software code and give back to communities.

Based on the foregoing, the general formula of the commons-based cultural value circuit is consolidated in the form of sharing, mutual aid, shared ethics, communal identity and mutuality ethics, which can be summarised as follows:

Sharing → Mutual Aid → Shared Ethos → Communal Identity → Mutuality
Ethics
[S→MA→SE→CI→ME].

In contrast to the other dimensions of social activity, the presence of alternative cultural value circuits has not been detected, since interviewees' responses repetitively revolved around sharing, mutual aid, shared ethics, communal identity and ethics of mutual aid -or their absence- as embodiments of cultural value. In corollary, as far as the cultural dimension of commons-based values is concerned, the outcomes fully confirm the third and fifth hypotheses of the study.

6.4. FINDINGS IN RELATION TO THE POLITICAL DIMENSION OF COMMONS-BASED VALUE

According to the fourth and fifth research hypotheses, the generation, formulation, circulation and pooling of commons-based political values is claimed to take the form of participation in decision-making, self-empowerment, collective empowerment, community self-governance and collective empowerment.

In practice, the commons-based political value circuits of the communities of the sample have been found to exhibit wider diversity than expected at the stage of research design. In particular, the codification of commons-based political value

circulation has taken the following form, as presented in Table 6.4 below:

Table 6.4 The Circuit of Commons-Based Political Value Circulation

	Offline Contested		Online Contested		Offline Co-opted		Online Co-opted	
Communities	Embros Theatre	Athens Hackerspace	Libre Space Foundation	Self-Managed ERT	Athens Impact Hub	CommonsLab	Sarantaporo.gr	P2P Lab
Value-Producing Practices	Participation	Participation	Deliberation	Participation	Deliberation	Deliberation	Deliberation	Participation
Values	Self-Empowerment	Self-Empowerment	Self-Empowerment	Self-Empowerment	Self-Empowerment	Self-Empowerment	Self-Empowerment	Self-Empowerment
Flows	Collective Empowerment	Collective Empowerment	Collective Empowerment	Collective Empowerment	Collective Empowerment	Collective Empowerment	Collective Empowerment	Collective Empowerment
Redistribution	Collective Empowerment / Melting Pot of Political Values	Collective Empowerment	Collective Empowerment / Vision for Social Transformation	Collective Empowerment / Freedom of Information / Media Pluralism	No	Collective Empowerment / Vision for Social Transformation	Collective Empowerment	Collective Empowerment

Source: Author

Analysis of the political value circuit unveils that apart from Libre Space Foundation, participation is dominant as the practice producing political value in contested communities, whereas co-opted communities mainly produce political value through deliberation. Participation normally takes the form of consensual decision-making, with majority vote only exceptionally called forth in certain communities to resolve serious disagreements. On the other hand, the political form of deliberation emerges in communities with hierarchical elements as a means to include members' views in decision-making practices. Both practices of consensus and deliberation ensure communal integrity and sustainability. As a P2P Lab member (interviewee # 4.4) has put it, "(d)ecisions have to be mutually acceptable by our members. One might not be persuaded about the validity of the decision, but may opt to consent with that decision taking into account the reactions of the rest of the members in relation to that decision". Political value generally takes the form of self-empowerment and circulates within communities in the form of collective empowerment. Self- and collective empowerment is achieved through flexible and inclusive rules over individual and collective access and use of common pool resources. For example, Hackerspace members practice do-ocracy. Any member or non-member can develop any project he/she wishes without the need to acquire the consent of other members or the community in general. Along these lines, an Embros Theatre member (interviewee # 1.3) has stated that "(e)mbros is libertarian, open to everybody to express whatever one wishes in relation to art. If you have an artistic concept in mind, whatever that is, you can realise it at Embros". Furthermore, according to its members, any participant of Impact Hub is free to propose a scheme of collaboration for a project or a social activity or a call for help to her project to other members or to the community in general. As a rule, political values are transformed at the sequence of allocation into communal self-government and are then redistributed to society again in the form of collective empowerment of social groups and classes. As far as political value redistribution is concerned, three communities have also been found to diffuse other forms of value to society. The Embros Theatre has thus been

described by interviewees as a melting pot of existing values, through which new political values emerge and are then dispersed to society. Accordingly, interviewees have stated that Embros shows to artists an alternative mode to produce art and, thus, plays the role of a breeding ground for new form of artistic creativity and contributes to the creation of a distinct artistic movement. On the other hand, the self-managed ERT community is considered by its members as a means of disseminating the political values of freedom of information and of media pluralism to society. Finally, CommonsLab is considered by its members as a way to inspire social groups with its alternative vision for social transformation. Such a vision, as described by participants in the study, is the creation of value both for the individual members of Commons Lab and for the commons, with the aim to grant access to knowledge and resources to social groups necessary for collective empowerment. Members of the Libre Space Foundation also share the socially transformative vision to democratise aerospace technologies. In the words of an LSF interviewee (# 2.7), “(i)n the 70 years of aerospace technology it is the first time that such technology is developed and offered as openly accessible to the public”.

According to the research analysis, the commons-based political value circuit thus unfolds in the form of participation in decision-making, self-empowerment, collective empowerment, community self-governance and, again, collective empowerment, which can be formulated as follows:

Participation → Self-Empowerment → Collective Empowerment →
 Community Self-Governance → Collective Empowerment
 [P→SE→CE→CSG→CE].

Apart from the general circuit of political value, an alternative political value circuit develops in certain co-opted communities in the form shown below:

Deliberation → Self-Empowerment → Collective Empowerment →
 No Accumulation → No Re-Distribution

As in the previous dimensions, research findings confirm the fourth and fifth research hypotheses of the study with the exception of the unexpected finding of an alternative political value circuit. These specific findings from all four dimensions of value can thus be processed to a higher level of abstraction and yield more general findings regarding the sequences and circuits of commons-based value.

6.5. GENERAL FINDINGS IN RELATION TO THE DIMENSIONS OF COMMONS-BASED VALUE

Based on the foregoing analysis, the first general finding of the study is related to the value sequences and circuits of commons-based value. Elaboration on coded data has confirmed that commons-based value does not remain static, but rather undergoes various phases of transformation in its form. Repetition in data patterns shows that value transformation generally follows the sequences of generation, circulation, pooling and redistribution. As a rule, interviewees have confirmed the transformation of value throughout the sequences assumed in the study. Correspondingly, almost all interviewees have responded with a definite yes in the question of whether their community re-distributes values to society. Furthermore, data analysis has shown that commons-based values and their circulation spread across all dimensions of social activity, i.e. economic, *stricto sensu* social, cultural and political, forming specific circuits of value transformation in each one of these dimensions. Thus, practices of commons-based value circulation and value pooling in all four of the dimensions of social activity examined in the study take certain forms, which can be depicted as general formulas⁴⁹.

Nevertheless, an unexpected finding has emerged in the conduct of the research. Commons-based value circuits appear to be interconnected. Furthermore, they seem to be constituted in two stages. At the first stage, commoners build

interpersonal circuits of reciprocity, by circulating commons-based values among themselves. Dense value kettles at this stage strengthen the second stage of value circulation, in which interpersonal gives its place to circular reciprocity. Multiple kettles of commons-based values form common pools of value, which then feed back and reinforce the interpersonal circulation of value. Finally, the establishment of robust common pools of value within intellectual commons makes them capable of re-distributing commons-based values to society. On the contrary, weak value practices at the phases of generation and circulation generally result in weak or no value pooling and redistribution and vice versa. The two stages of value circulation are thus dialectically interrelated, with constant sequences of influence and counter-influence between each other. This key finding concurs with the phenomenon observed in all communities, in which the quality of value circulation at the first stage is reflected on the quality of value pooling and re-distribution.

The second general finding of the study is related to the comparison between the contested and co-opted communities of the sample. In the process of data analysis explicit and implicit differentiations have emerged between the value circuits of contested and co-opted communities. Apart from the general circuits of commons-based value mentioned above, research findings show the presence of alternative value circuits in three dimensions of social activity, which have been more distinct in the co-opted communities of the sample. These alternative circuits are constituted by value-forms, which can be widely found in commodity markets and the capitalist mode of intellectual production, distribution and consumption.

Hence, the intellectual commons' communities of the sample are reproduced by two types of value circuits in each of the four social dimensions of the study. The first value circuit is constituted by commons-based values. The second value circuit is constituted by forms of value, which dominate commodity markets and the capitalist mode of intellectual production, distribution and consumption. These two distinct circuits of value co-exist within communities

and reproduce them in a contentious and contradictory relationship with each other. The prevalence of commons-based value circulation and value pooling over capitalist-based forms of value constructs contested communities of the intellectual commons. The dominance of capitalist-based value circulation and accumulation over commons-based values co-opts communities of the intellectual commons to forces of commodification.

To sum up, the contested and co-opted circuits of value in the communities of the study take the general forms described in the two tables below:

Table 6.5 Contested Circuit of Value in the Communities of the Intellectual Commons

	Economic	Social	Cultural	Political
Value-Producing Practices	Collaboration	Contribution in Productive Activity	Sharing	Participation
Values	Use Value	Merit	Mutual Aid	Self-Empowerment
Flows	Gift	Trust	Shared Ethos	Collective Empowerment
Accumulation	CPR	Communal Cohesion	Communal Identity	Community Self-Governance
Redistribution	Gift	Social Cohesion	Mutuality Ethics	Collective Empowerment

Source: Author

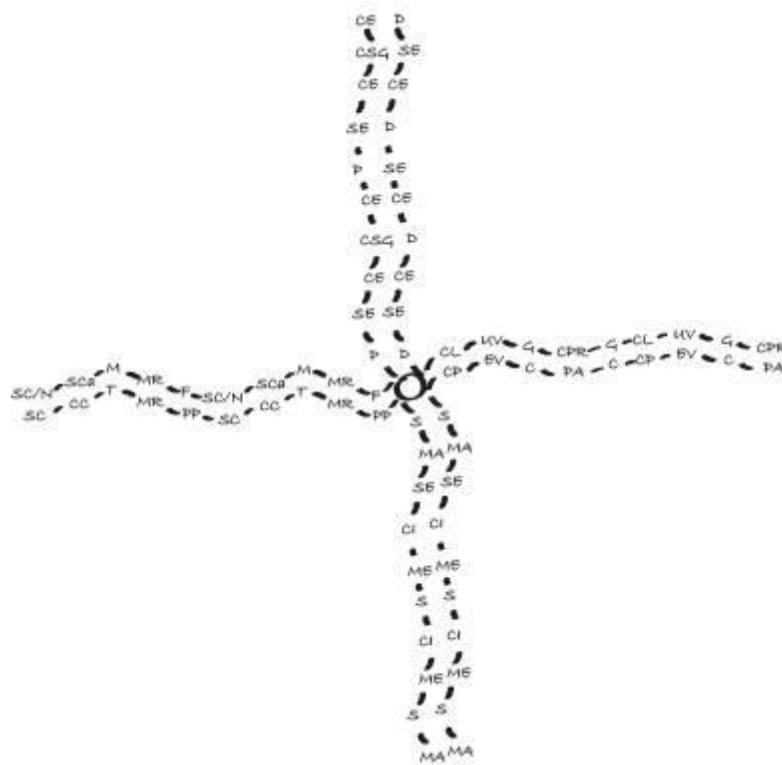
Table 6.6 Co-opted Circuit of Value in the Communities of the Intellectual Commons

	Economic	Social	Cultural	Political
Value-Producing Practices	Competition	Financial Contribution	x	Deliberation
Values	Exchange Value	Control of Infrastructure	x	Self-Empowerment
Flows	Commodity	Monetary Exchange	x	Collective Empowerment
Accumulation	Private Appropriation	Social Capital	x	No Accumulation
Redistribution	Commodity	No Re-Distribution	x	No Re-Distribution

Source: Author

In conclusion, each one of the intellectual commons' communities of the research sample is in terms of social value the outcome of the interrelation between contested and co-opted circuits of value circulation and value pooling and their variations, Value circulation and value pooling in the intellectual commons can be depicted according to the following graphic representation:

Figure 6.1 Value Circulation and Value Pooling in Intellectual Commons' Communities



Source: Author

The exact formulations of value flows in each community depend on the resolutions of commons-based and monetary value dialectics attained by communal institutions, which in themselves are subject to internal and external influence by forces of commonification and commodification. Hence, communities of the intellectual commons should be conceptualised as entities in constant flux, in which contestation is always constant and co-optation imminent.

This chapter has laid down the formulae through which commons-based value is circulated, pooled together and re-distributed within and beyond the communities of the intellectual commons. The ethical argument of this chapter is that these alternative circuits of value have both inherent moral value and are beneficial for society. Therefore, they ought to be protected and promoted by

the law. The next chapter investigates the dialectics between commons-based and monetary values, in an effort to specify the mutual influences between them and the overall consequences for the characteristics and manifestations of the intellectual commons.

7. RESEARCHING THE SOCIAL VALUE OF THE INTELLECTUAL COMMONS: FINDINGS ON COMMONS-BASED AND MONETARY VALUE DIALECTICS

7.1. INTRODUCTION

Having already examined the circuits of commons-based value in the previous chapter, the current chapter further proceeds with an analysis of the dialectics between commons-based and monetary values, as recorded in the study. It also deals with the comparison of value circulation between the offline and online communities of the sample. Its key finding is that commons-based value circuits are in constant contestation with monetary values both in offline and online communities of the intellectual commons. Furthermore, it gives a view of the actual forms that such contestation takes and their impact on the evolution of the intellectual commons. In corollary, the current chapter on commons-based and monetary value dialectics reveals that communities of the intellectual commons formulate their own specific modes of value circulation and value pooling, which come in contentious interrelation with the corresponding mode of commodity and capital circulation and accumulation.

7.2. COMMONS-BASED AND MONETARY VALUE DIALECTICS

In regard to the dialectics between commons-based and monetary values, it has been claimed at the stage of research design that the redistribution of commons-based values to society is not met by a corresponding flow of monetary values to the communities of the intellectual commons (hypothesis no. 6). Hence, such lack of monetary remuneration creates resource scarcity and problems of sustainability for the communities of the sample (hypothesis no. 7) and creates dilemmas over the preservation of commons-based value practices or their partial transformation into exchange value (hypothesis no. 8).

Coding and analysis of collected data in relation to such dialectics has revealed the following general picture of sampled communities, as set out in the table

below:

Table 7.1 The Dialectic between Commons-Based and Monetary Value Circulation

	Communities	Reliance on Monetary Exchange	Impact of Monetary scarcity	Influence of Monetary Scarcity on Commons	Conflicts related to Monetary Exchange
Offline Contested	Embros Theatre	Limited	Sharing among Members / Financial Donations / Unremunerated Work / Expropriation	Relative	Relative
	Athens Hackerspace	Limited	Sharing among Members / Donations/ Unremunerated Work	Limited	Relative
	Libre Space Foundation	Relative	Unremunerated Work / External Funding	Relative	Limited

Online Contested	Self- Managed ERT	Limited	Sharing among Members / Financial Donations/ Unremunerated Work / Resource Expropriation	Extensive	Limited
Offline Co- opted	Athens Impact Hub	Extensive	External Funding / Commodity Market Exchange	Relative	Limited
	Common sLab	Extensive	Sharing among Members / Unremunerated Work / External Funding / Commodity Market Exchange	Extensive	Extensive
Online Co- opted	Sarantap oro.gr	Relative	Sharing among Members / Financial Donations/ External Funding / Unremunerated Work	Extensive	Extensive

	P2P Lab	Relative	Sharing among Members / External Funding / Unremunerated Work	Relative	Limited
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Source: Author

Data analysis shows that, as a rule, co-opted communities are more dependent on monetary value circulation for their reproduction than contested communities. The mode of dependence varies. Impact Hub bases its reproduction in the exchange of services both within the community and beyond. An entrepreneur participating in the community described his mode of doing business with other community members as such: "(I) have a different pricing for my services within and beyond the community. Prices for offering his services to other community members are lower" (interviewee # 5.1). In relation to her status in the community, a paid employee of the community has said that "(I) am getting paid as a hostess at Impact Hub and, at the same time, I have all the benefits of the community for free" (interviewee # 5.4). In relation to external funding, a member has stated that "(the managers of the community) have booked all the space for certain events, which bring money, and this has an impact to your activity within the space. Yet, this space somehow has to remain open and, in the end, if it remains open, such choices will bring benefit to the space and society in general [...] All these businesses may become the prospective financiers of our social entrepreneurship projects" (interviewee # 5.2). Commons Lab operates as a cooperative with its core members being remunerated cooperativists. In this context, a member of Commons Lab (interviewee # 6.1) has stated that "(m)any of our products and services are classic cases of commodities and certain other services are closer to values related to collaboration, sharing and community. We try to keep a balance between the two. It is impossible right now to be able to earn a living solely by adhering to our values. The pressure from the need to be monetarily sustainable

is huge and the consequences are enormous for me". P2P Lab attracts funding from universities, states, non-profit entities and inter-governmental organisations in order to compensate its researchers and produce a steady line of deliverables. As a member of the community has said, "(w)e are lucky to have achieved sustainability for the next two years by having been able to attract funding from sources beyond the commons community (interviewee # 4.3). In terms of the dependence on non-monetary resources, another member has clearly stated the following: "(m)onetary surplus has never existed in our community [...] We have been compelled to self-fund projects we believed in [...] We have been compelled to work for free in certain cases and for certain periods of time in order to make our projects sustainable [...] This has sometimes led us to an "activist burn out". In terms of monetary resources, our position remains precarious" (interviewee # 4.1). Sarantaporo.gr follows a mixed mode of dependence, on the one hand by resorting to funding from non-profit entities and inter-governmental organisations in order to expand its network and, on the other hand, by collecting micro-donations from end-users to sustain network maintenance and support. A core member of the community has stated that "(t)he project began with the granting of communications equipment [routers] by ELLAK (a free software non-profit organisation) [...] Collaborative work and creativity is the main input in the production of the community [...] the community sustains itself by financial donations from local groups and individual citizens [yet] the main financial resource of the project has been the EU Confine programme" [...] Citizens share space in their houses and roofs to host the network's equipment [...] Work is contributed on a voluntary basis by citizens. For instance, when we worked at Melouna last week, 4-5 citizens from the villages came to help [...] All the core network has been built by the citizens of the villages themselves" (interviewee # 8.5). Hence, monetary flows penetrate co-opted deeper than contested communities, taking the form of commodity-market exchange, external funding and financial donations.

On the other hand, and in order to work around the mediation of money, contested communities depend heavier on practices of sharing and are far more

inventive in terms of other commons-based practices, such as unremunerated productive activity of their members and resource expropriation, when compared to co-opted communities. Workarounds again vary. All contested communities depend heavily on the productive activity of their members. Most communities also rely on voluntary contributions in kind, such as resources or member donations. Resource pooling according to each member's capacity or from donations by third parties are thus the means for community sustenance in the case of Hackerspace. In the words of Hackerspace members, "(w)hen we do not have the money to buy equipment, we build the equipment ourselves" (interviewee # 3.4); "(w)hen hackerspace lacks the monetary resources to buy a certain type of equipment, members with the financial capability may contribute" (interviewee # 3.5); "(t)hird entities, non-profit or for-profit, have donated to hackerspace, more in kind than in the form of money" (interviewee # 3.1). In the case of the Libre Space Foundation (LSF) community "(t)he major type of contribution by members to the community is their work" (interviewee # 2.5). Furthermore, "(m)embers who construct base stations contribute in kind equipment components" (interviewee # 2.7). Also, in terms of monetary resources, a community member has stated that "(u)ntil now, our monetary resources have been derived from our winning the first prize at an international hackathon contest, which prize was monetary, and from a collaboration with the Greek national observatory. We have also been funded by the University of Patras during the construction of UPSAT within the framework of an EU funding programme, in which the latter participated" (interviewee # 2.4). In the case of the Embros Theatre, "(v)oluntary monetary contribution and surplus from drinks offered at the bar covers the monetary needs of the community" (interviewee # 1.2), whereas "(a)ccess to the internet has been solved by sharing a neighbour's line and by the work of friends who had the technical knowledge to install the relevant antenna" (interviewee # 1.8). Furthermore, "(g)roups hosting their events at Embros return the surplus from their events to the community" (interviewee # 1.4). In the case of the Self-Managed ERT, many interviewees have described the multiple sources of resource pooling as follows: "(t)he resources of Self-Managed ERT originate partly from contributions in

kind by Pospert” [the confederation of unions of the ERT employees] (interviewee # 7.4); “from contributions in kind by participants and people in solidarity to the struggle” (interviewee # 7.10); and “from financial contributions by members of the community” (interviewee # 7.9). In terms of workarounds to resource scarcity, community members have described a variety of relevant practices in the following words: “(w)e did not own any professional equipment and were therefore forced to use amateur equipment to produce reportage” (interviewee # 7.7); “(i)n order to cope with resource scarcity, we had to use news content generated by citizens” (interviewee # 7.9); “(c)itizens in solidarity were spontaneously coming all the time at the ERT3 headquarters, offering either goods, such as food, to members of the assembly, or doing any kind of work, such as cleaning and washing” (interviewee # 7.7).

Additionally, the Self-Managed ERT and the Embros Theatre have been expropriating and recuperating resources, such as water, electricity, communications and spectrum, in order to be able to redistribute common goods to society. In terms of resource expropriation, Self-Managed ERT members have described their tactics as follows: “(d)uring the struggle the Self-Managed ERT community appropriated privately or state-owned resources and used them for the production of the programme, such as private property, masts, transmitters and infrastructure” (interviewee # 7.8); “(i)n its second phase the Self-Managed ERT became able to broadcast through the airwaves by placing unlicensed transmitters throughout Greece” (interviewee # 7.6); “(w)e did not pay for water and electricity. The public energy and water companies would not cut us from the grid, because they wanted to avoid public outcry and reactions from their workers’ unions. Their workers’ unions would react, because they recognized their struggles in our struggle” (interviewee # 7.4). A member of Embros has also clearly stated that “(w)ater and electricity are expropriated from the state” for the reproduction of the community” (interviewee # 1.1).

The foregoing analysis shows that both the contested and the co-opted

communities of the sample receive pressure from monetary scarcity in various degrees. To resolve monetary scarcity and achieve sustainability co-opted communities resort in part to modes of external funding, commodity market exchange and, generally, monetary alongside commons-based value circulation. The pursuit of monetary remuneration as means to ensure sustainability both within and beyond the limits of the community creates pressing dilemmas to these communities over the preservation of commons-based value practices or their partial transformation into exchange value. The degree of co-optation in each community depends both on the success of its model of sustainability and on its level of democratic consolidation. Co-opted communities, which have been successful in becoming, even temporarily, financially sustainable through their chosen mode of interrelation with commodity markets, correspondingly ameliorate the extent of pressure by monetary scarcity. In addition, when such communities have robust self-governing mechanisms in place, which help them to hold on to underlying founding values and orientations, financial sustainability gives them space to expand commons-based value circuits and increase commons-based value redistribution to society. Along these lines, interviewees – members of P2P Lab, a co-opted community with increased democratic consolidation, have collectively taken decisions with the primary criterion of promoting financial sustainability, in order to be able to deploy more powerful circuits of commons-based value in the future. A P2P Lab interviewee (# 4.2) has stated that “(t)he impact of monetary scarcity on our practices is that we spend a large part of our time trying to get funding, instead of working on projects which promote our goals [...] In terms of decentralised production, we have been publishing on this topic in order to produce the necessary noise, so that funding becomes possible”. Another member of P2P Lab (interviewee # 4.4) elaborated on this line of thought, by saying that “(w)e compromise our principles when e.g. we publish at non-open access journals, yet we believe that such compromises help us in the long run to get funding and have more capabilities to offer use values to communities of the commons”. Furthermore, one of the founding members of the P2P Lab community (interviewee # 4.1) confessed that “(o)ur aim has been to produce publications in order to be able

to attract funding and then acquire the capacity to achieve our social vision and help other communities, as has happened in the project at the north Tzoumerka mountain". On the contrary, co-opted communities, which heavily struggle to sustain themselves for periods longer than their capacities to endure, gradually delimit commons-based value circuits and decrease commons-based value redistribution to society, as they fight for survival in commodity markets. Prolonged unsustainability increases value-laden tensions among members and has a negative impact on social, cultural and political value circulation and value pooling within the community. At this stage, communities either disband or enter in a process of full co-optation within commodity markets, whereby their commons-based value circuits are displaced by monetary and commodity market exchange. In this context, interviewees – members of Commons Lab, a co-opted community with decreased democratic consolidation and intense pressure from monetary scarcity, have stressed the distance between, on the one hand, their common values and, on the other hand, the practices they have to go through in order to ensure monetary flows towards their community. As a member of Commons Lab has stated (interviewee # 6.4), "(t)he criteria of our approach towards other communities or organisations are based on business evaluations. For instance, we have decided to participate in Universe Festival 2017, because we want to promote our "COOP" product and gain revenues. On the other hand, we did not go to the Karditsa social cooperatives' summit, because we believed that it would not help us from a business point of view. All these decisions are filtered by the need to be sustainable. Time spent on the movements has been shallowed by our business activity and now we try to engulf the activist element to our business activities". Accordingly, in the Sarantaporo.gr community, as described by one of its core members, the struggle for survival takes another form: "(s)ince what we do has not managed to become financially sustainable, the whole project purely depends on the will of our core team members to push it forward without remuneration [...] We have kept our day-to-day costs at a very low level. For instance, we do not have employees. This attributes low financial risk to the project. Yet, it also confines the project to the limits of a best-effort basis by volunteers" (interviewee # 8.2).

On the contrary, contested communities employ different means to resolve issues of resource scarcity. Such communities delimit their reliance on monetary exchange as a way of both reducing the extent of its influence on their reproduction and becoming more independent from commodity markets. The example of the self-managed public broadcaster is particularly illuminating in regard to the relation of contested communities with monetary exchange. In this context, a member of the Self-Managed ERT (interviewee # 7.2) has admitted that “(w)e had limited reliance on money to produce. If we had to manage monetary resources, we would have great problems” and another member (interviewee # 7.5) has added that “(i)n general terms, the community did not manage monetary resources to sustain itself. This was very liberating”. Workarounds to monetary and resource scarcity in contested communities mainly refer to commons-based practices of sharing and pooling together resources among members, accepting micro-donations by members or third natural persons or other commons-oriented groups and collectivities in solidarity, resorting to resource expropriation and, last but not least, mobilising members’ unremunerated productive activity. By virtue of its common ethics, Hackerspace delimits its reliance on money to the very basics. As one of its members has described it, “(a)part from the subscription of administrators and the donation to buy a beer, there are no other uses of money in the community” (interviewee # 3.5). Another Hackerspace member has given a glimpse of the commons-based peer mode of production embedded in the communal contract of Hackerspace as such: “(o)ne of our founding principles is that whatever is produced at Hackerspace is given for free and is openly accessible to all” (interviewee # 3.2). A third member has described the practice of resource pooling in the following words: “(f)ive members may get together and decide that they will contribute 20 Euros each to buy equipment necessary for a project [...] When you buy something for the community, this remains to the community [...] We have accumulated equipment by donations in kind by members” (interviewee # 3.3). Accordingly, members of the LSF community have stated that “(m)embers have given huge amounts of their spare time for

LSF projects" (interviewee # 2.2). In terms of the rationale behind commoners' unremunerated work, an LSF interviewee has also added that "it is better to contribute to the community without any remuneration in return, because in this way your contribution will come from your heart" (interviewee # 2.1). Horizontal solidarity at the individual or group level is particularly evident in the sustenance of the Embros Theatre community, which "collects financial resources from voluntary contributions given either at the bar or at parties or at hosted events" (interviewee # 1.7). Accordingly, "(g)roups, which hold events hosted at Embros, decide to donate voluntary contributions from their audience to the Embros community" (interviewee # 1.9). Finally, the mobilization of members' productive activity has been central for the reproduction of the Embros Theatre collective, in which "(d)ay-to-day necessary tasks are executed by members of the community without remuneration" (interviewee # 1.11). The same pattern of reproduction has been identified in all other contested communities of the sample. For instance, in the LSF community "(m)embers have given huge amounts of their spare time for LSF projects [...] The main type of contribution by members to the community is their work" (interviewee # 2.6). Accordingly, the resources of the Self-Managed ERT have originated primarily from the voluntary work of community members and from donations by the public. In the words of the participants in the community, "(e)ach member was free to participate in the ERT workgroup which he/she was interested in. For instance, a citizen participated in the news report workgroup or a journalist became a technician" (interviewee # 7.2); "(w)e enjoyed going for work in the community. Work became enjoyment [...] There was not any quantification of contributions. One contributed what one wanted and was able to do. There were no penalties for not contributing something above what you wanted" (interviewee # 7.11); "(t)he participants in the Self-Managed ERT community are not remunerated for their contributions" (interviewee # 7.3); "(l)imited monetary remuneration or donation was granted by the Self-Managed ERT community on the basis of mutual aid to members, who were evaluated by the community to be in pressing need" (interviewee # 7.9); "(c)itizens were coming all the time to donate food and goods from the supermarket" (interviewee # 7.7).

Nevertheless, their relative independence from commodity markets makes contested communities more dependent on the unremunerated productive activity of their members. Pressure from monetary scarcity thus shifts to the level of the individual. Both contested and co-opted communities have gone into conflicts related to the role of monetary exchange in various degrees and extents. The nature of such conflicts however differs among communities. Whereas conflicts in co-opted communities mainly rotate around the success or failure of their model of sustainability, conflicts in contested communities explicitly surface in reference to the degree of monetary penetration and intermediation in every-day community practices. In the words of an interviewee - member of the Athens Hackerspace (# 3.1), "(t)here are a lot of people ["lurkers"] coming for a short period of time with the aim to exploit either certain members or the community and extract value. They try to lynch resources from the community for commercial reasons. They are first spotted by the community and, then, either encounter the indifference of the community or are given advice that their aims are against the principles of the community. Then they leave". In contested communities with shortcomings of self-governance, conflicts may again be implicitly connected with monetary scarcity. According to certain members, the cohesion of the Embros Theatre community is ravaged by power conflicts. Such conflicts intensify after financially successful events and revolve around the collective management of the treasury. As a member of the collective has put it (interviewee # 1.2), "(a)fter successful festivals, through which a surplus of monetary contributions has accumulated, the assembly has shown signs of failure to manage the surplus and to defend from claims of individuals or groups over the acquisition of special roles over the community". Another member (interviewee # 1.1) has spotted the emergence of special roles and hierarchies and their connection with monetary scarcity as such: "(t)he needs of organising the AntiFascist Festival required a full-time person for the sound and the lighting. This particular person was never paid for that. Yet, this person afterwards was given the role of the management of the treasury and this lasted for more than one year despite objections by

members of the assembly". In the words of a third member (interviewee # 1.4), "(m)onetary surplus from the AntiFascist Festival has been used to buy infrastructure, i.e. sound and lighting system, for the Theatre. Yet, there have been phenomena of privatisation of such infrastructure by members with high status in the community". Finally, another interviewee (# 1.3) vividly summed up the importance of monetary scarcity in the intellectual commons' community of the Embros Theatre with the following words: "(t)here were members at Embros who biologically depended on the 10 Euros they would take from the treasury". In the Self-Managed ERT struggle, "(a)ll members faced problems of survival. Monetary scarcity has influenced the quantity and quality of unremunerated productive activity. Many members had to stop contributing, because they had to work elsewhere for money" (interviewee # 7.11). In the Libre Space Foundation, a member (interviewee # 2.2) has confessed that "members who do not have a full-time job have relatively less capacity to contribute than members with full time jobs. This has an implied impact on members' status in the community". In many respects, the disregard of individual remuneration in contested communities has an implied connection with phenomena of non-transparent management and informal hierarchies on the part of members who contribute more to the community in terms of productive activity and free time.

In conclusion, contested and co-opted communities of the sample resolve the dialectics between commons-based and monetary value in a different manner. Co-opted communities are relatively more dependent on monetary circulation and more prone to displacement of their commons-based value circuits than contested communities. Contested communities are relatively more dependent on non-remunerated productive activity from their members and more prone to power conflicts in relation to monetary resources held in common, when such resources increase. Co-opted communities exit the value sphere of the intellectual commons, when their value circuits become predominated by monetary values and commodity market exchange or when they collapse under the weight of irreconcilable contradictions between their principles and every-

day practices. Contested communities become redundant, when they lose the capacity to motivate their members to offer their productive activity on a non-remunerated basis in large quantities. Hence, it is by no chance that the more resilient and commons-oriented communities, either co-opted or contested, have proven to be those with robust and participatory political institutions of self-governance. In contemporary societies, dominated by capital and commodity markets, the political circuit of commons-based values appears to determine contestation from co-optation.

The findings of the research regarding the dialectics between commons-based and monetary values have confirmed the hypotheses of the study. The relation of intellectual commons' communities with money plays a crucial role in their structure and sustenance. Despite the fact that all the communities of the sample produce and re-distribute value to society, such re-distribution is not reciprocated by corresponding flows of monetary value. As a result, a crisis of value emerges within the communities of the sample, which urges them to adapt to commodity market exchange and the pursuit of private profit to the detriment of commons-based value practices.

7.3. THE COMPARISON BETWEEN OFFLINE AND ONLINE COMMUNITIES

The research on commons-based value has been designed in comparative perspective along the lines of two significant distinctions between, on the one hand, the offline / online and, on the other hand, the contested / co-opted communities of the sample. Elaboration of data in terms of the offline / online distinction has yielded interesting key findings regarding the mediation of practices of commoning by contemporary information and communication technologies. In a nutshell, research has revealed that such technologies have the potential of strengthening and multiplying elements of commons-based peer production, distribution and consumption in the communities of the sample, when utilised by commoners for such purposes.

In particular, data coding of the economic circuit shows that the mediation of value circulation by money and commodity exchange appears to be significantly wider in the offline compared to the online communities of the sample. Accordingly, data analysis of the dialectics between commons-based and monetary values reveals that the dependence of offline co-opted communities on monetary exchange and their reliance on commodity market exchange appears more extensive than in online co-opted communities. The augmented role of co-opted monetary and commodity exchange value circuits in offline communities has the side effect that these communities institute more fragile circuits of commons-based value, which tend to be suppressed and displaced by the former. Hence, this key finding supports the assumption that the use of contemporary information and communication technologies is connected with the influence of money and commodity exchange in intellectual commons' communities in contextual causality. When such technologies do not directly promote practices of commoning, they the least delimit the influence of money and commodities in the value circuits of communities. Furthermore, coded data in the other three researched dimensions of social activity, i.e. *stricto sensu* social, cultural and political, show a lack of significant differences between the value circuits of offline / online communities. Indicatively, practices of sharing and mutual aid or networked forms of social value redistribution appear in both types of communities. This lack of difference runs counter to the commonsensical view that information and communication technologies weaken social bonds.

Taking into account these research outcomes in combination, the overall comparison between offline / online communities shows that the technological factor plays a significant role in the circulation of value within the intellectual commons. Information and communication technologies have certain capacities, which can be exploited by communities to amplify the circulation and pooling together of commons-based vis-a-vis monetary and commodified values. Nevertheless, as further examined below, such capacities can and will remain unfulfilled as long as forces of commonification do not circulate and pool

together additional social and political values, which establish strong shared ethics, communal identities and, most important, self-governing mechanisms, which will give them the level of politicisation to become a social power “for itself”.

7.4. CONCLUSION

The current chapter sets out the findings in relation to questions 6 to 8 of the research project, which refer to the dialectics between the circulation of dominant monetary and alternative commons-based values. By iterating back and forth between theory and data, the outcomes of the study have generally confirmed the underlying hypotheses of the foregoing research questions but have also enriched them by shedding light to important new aspects of the contestation between commons-based and monetary values. Hence, data analysis has revealed the dialectics between opposing forms of social value within value circuits, which dynamically determine the physiognomy of each sampled community. The core of this dialectic is the confrontation between commons-based values and the universal equivalent of value in our societies, i.e. monetary value. Such a confrontation permeates and frames the communities of the intellectual commons.

The focus of this chapter on the dialectics between commons-based and monetary dialectics has unveiled the pressure of the dominant value system of commodity markets and its universal equivalent of value in the form of money upon the intellectual commons. Such pressure, which may even lead to the extinction of intellectual commons’ communities, comes in contradiction with the overall conclusion regarding their social value and potential. Even though such communities may as a rule not be as productive as corporations in terms of money circulation, profits, jobs and taxes, this does not make them unproductive in terms of social value. On the contrary, the communities of the intellectual commons contain and emanate a wealth of social values, which ought to be protected through legal means. The next and final chapter of the

main body of the research offers relevant arguments and conclusions.

8. RESEARCHING THE SOCIAL VALUE OF THE INTELLECTUAL COMMONS: RESEARCH CONCLUSIONS ON COMMONS-BASED VALUE

8.1. INTRODUCTION

The current chapter of the research on commons-based value elaborates on key findings of previous chapters in order to come up with more abstract statements on commons-based value, its sources, forms and mode of circulation and, finally, the value crisis challenging the interrelation between intellectual commons and capital. It is structured in five sections. The first section offers a working definition of commons-based value in accordance with the findings of the research. The second section determines productive communal activity as the source of commons-based value. The third section analyses the forms of commons-based value. The fourth section sketches out the basic characteristics of the mode of commons-based value circulation. The fifth and final section examines the crises of value encountered in the sphere of the intellectual commons. Overall, this chapter offers a social theory of commons-based value circulation based on the social research of the current project.

8.2. SOCIALVALUE IN THE INTELLECTUAL COMMONS

Throughout the conduct of the research participants have defined social value as what is important in their specific social context. Such importance has been attributed to various practices of commoning, such as collaboration and utility, voluntary contribution and trust, openness and solidarity, participation and consensual decision-making. Taking into account these findings, commons-based values can be defined as collectively constructed representations in the particular context of intellectual commons' communities of what constitutes meaningful social activity. This concurs with the anthropological conception of social value as "the meaning or importance society ascribes to an object" (Graeber 2001: 15, 39, 46-47).

The specificities of commons-based value in the communities of the sample have been found to be inherently related to their communal context. What is valuable for commoners depends on collective judgements about value constructed within their community (Simmel 1978: 65). This supports the assumption that the evaluation of what is important is preceded by the collective attribution of meaning to action, which in itself presupposes a total system of meaning (Saussure 1966). As Castoriadis writes, “society cannot institute itself without instituting itself as 'something' and this 'something' is necessarily already an imaginary signification” (Castoriadis 1997: 269). The collective attribution of importance to a specific activity of commoning thus presupposes the existence of a commons' community with a collective conception about social value and its own place in society. Commons-based value thus appears to be preceded by a communal plexus of imaginary significations regarding the commons and their value for society. It is only by being integrated into this larger action-guiding mechanism that each practice of commoning acquires meaning and becomes worth pursuing.

8.3. PRODUCTIVE COMMUNAL ACTIVITY AS THE SOURCE OF COMMONS-BASED VALUE

Social value in the intellectual commons occurs through the movement and transformation of matter. The movement of matter is both an objective / non-transitive phenomenon and a social phenomenon which acquires meaning and value within and through its social context (Fuchs 2016: 35). The movement of matter within the spheres of the intellectual commons therefore circulates and pools together social values.

It follows that social value necessarily comes into being through human action consolidated in social practices. Rather than being an individual activity, any practice of commoning is a communal process - many commoners act together in community as a combined worker. Value production in the commons is, therefore, inherently socialised. In addition, to produce value, practices of

commoning are necessarily intentional and productive in the sense of contributing to social reproduction (Graeber 2001: 58-59, 76). Along these lines, research findings reveal the following value-producing practices in each of the four social dimensions under examination:

Table 8.1 Forms of Productive Communal Activity in the Communities of the Intellectual Commons

	Economic	Social	Cultural	Political
Value-Producing Practices	Collaboration	Contribution in Productive Activity / Inalienated Work	Sharing	Participation

Source: Author

Commons-based values are objectified in the movement and transformation of matter caused by the foregoing practices. The common denominator of all these practices is that they constitute forms of productive communal activity, i.e. inalienated work defined in the widest possible way (De Angelis 2007: 24; Fuchs 2014: 37; Graeber 2001: 68). In corollary, productive communal activity – intermingled with matter – should be considered as the source of commons-based values.

8.4. THE FORMS OF COMMONS-BASED VALUE

What is valued in each social formation is greatly dependent on the interrelation between dominant and alternative social forces in each socio-historical context. Contests over value lie at the heart of politics. For conventional economics value is considered to be solely produced at the point of exchange and, therefore, the only form of social value, which supposedly exists, is exchange value. Hence, all other forms of social value are either concealed or at best described as

positive externalities or spillovers to the commodity market value system.

By monitoring the circulation of commons-based value in its multitudinous manifestations, the current research follows a non-economistic approach to the phenomenon of social value, examining its formulations in all facets of social activity on an equal footing. According to the outcomes of the current research, commons-based values unfold in economic, stricto sensu social, cultural and political manifestations. The following table exhibits the main forms that commons-based value takes in the communities under examination:

Table 8.2 Main Forms of Commons-Based Value in the Communities of the Intellectual Commons

	Economic	Social	Cultural	Political
Values	Use Value	Merit	Mutual Aid	Self-Empowerment

Source: Author

By no means do such manifestations imply the existence of separate domains of social activity. Rather, they refer to aspects and characteristics of the same communal practices of production, distribution and consumption of intellectual resources pooled together in common. In other words, they constitute dimensions of the same value practices and value spheres, which emerge in undifferentiated continuity, as they constitute integrated sets of social relations.

In contemporary capital-dominated societies commodity markets are the dominant system of value circulation. In the framework of commodity markets, actors interrelate through impersonal transactions mediated by the exchange of monetary values. Monetary value prevails as the universal equivalent of value and, as a result, frames and conditions the attribution, production, circulation and ranking of all other social values. Yet, the primary social function of money is its accumulation as capital. In this function money operates less as a means of

exchange and more as an end in itself, i.e. as the final outcome of the tendency to accumulate. The function of accumulation thus transforms money into the dominant social power of our age. Apart from operating as the universal equivalent of all other values, this makes money in our societies the ultimate form of the accumulation of social power. On the contrary, commons-based values in all their forms are generated and are, thus, dependent upon face-to-face interpersonal and communal relationships (Bollier 2008: 251). Due to this characteristic they become both means of value circulation and ends in themselves. Their strong connection with face-to-face human relations also renders the qualities of their formulations difficult to quantify and essentially different to each other. As a result, commons-based values, especially their non-economic forms, are relatively incommensurable and commons-based value spheres lack general forms of value equivalence.

Despite the finding that commons-based value circulation and value pooling lacks a universal equivalent of value, research has shown that a certain value-form has central importance in commons-based value spheres due to their dependence on the flourish of communal bonds. This value-form is communal trust. Interviewees from both the contested and co-opted communities under examination have repeatedly stressed the crucial role that trust plays in the sustenance of practices of commoning. Indicatively, Hackerspace members characterised trust as very important for the community, since it is the reason for the smooth operation of community affairs. Members of the Self-Managed ERT were also explicit that the community operates on the basis of trust among participants in order to produce its programme. Accordingly, a participant of Impact Hub (interviewee # 5.1) pointed out the importance of trust in the synergies among members, by stating that “[w]e start our collaborations and partnerships from other members of the community, rather than by searching outside the community, because we have trust that they will be better to work with”. In the same manner, P2P Lab members concurred that trust is the most important social element in their community. Overall, research coding and analysis on trust has yielded data in greater quality and quantity compared to

other codes of the research. For this reason, it can be safely claimed that trust appears to constitute the cornerstone of commons-based value circulation and value pooling.

8.5. THE MODE OF COMMONS-BASED VALUE CIRCULATION

In the current research, the circulation of commons-based values is analysed as a totality. In this context, the research outcomes reveal a rich diversity of forms and circuits of commons-based value. This inherent attribute of the intellectual commons makes them inappropriate to be conceptualised, described, analysed and governed as systems. The inertness of the systemic approach entails the risk of disregarding the diversity and of ignoring the fluid interrelation of the intellectual commons with their environment. Instead of approaching the intellectual commons as systems, analysis should rather focus on modes of value circulation and value pooling. Such modes evolve through time in a dialectical manner, both framing practices of commoning and being reproduced and reformulated by them in reflexivity to internal and external factors of change.

As a starting point, it can be claimed that social value and its circulation / allocation take specific historical forms depending on each social context and modes of social reproduction. In relation to the intellectual commons, the repetition of practices of commoning converges into a specific mode of commons-based value circulation and value pooling. Such a mode is constituted by sequences of value transformation and circuits of value flow. In terms of value sequences, research has revealed that the transformation of value is structured around practices of value generation, value flow / circulation, value pooling and, finally, value redistribution. In the intellectual commons, value allocation is achieved by practices of pooling intangible resources together in pools of information, communication, knowledge and culture held in common. Pooling, instead of reciprocity, is the foundation of the mode of circulation / allocation of commons-based values. Instead of being privately appropriated as

in commodity markets, value allocation within the spheres of the intellectual commons is socialised.

Pooling is a superior mode of value allocation. When productive communities of the intellectual commons possess institutions, which guarantee that the value output of their production remains within the virtuous circle of commons-based peer production, then practices of pooling resources in common acquire network effects. This gives rise to an expansion of both the quantity / quality of production and the size of productive communities, which has been characterised as the “cornucopia of the commons” (Bollier 2007: 34). The communities of the study have deliberately constructed specific mechanisms to pool together their value output and avoid its capture by commodity market forces. First of all, contested communities have reduced their exposure to monetary exchange and have invented alternative practices to garner resources and work. Secondly, commoners have managed to construct practices of exchange based on generalised reciprocity as means to avoid the quantification of commons-based value⁵⁰ and its subsequent co-optation by the commodity market value system. Accordingly, communities have developed non-commodified social practices of transvestment in order to transfer value flows from the commodity market to the sphere of the commons, such as peer to peer donations and funding⁵¹. Furthermore, certain communities, especially contested ones, employ more aggressive strategies of social appropriation vis-a-vis commodity markets in order to pool together social values, such as the expropriation of privately owned commodities. Finally, all the contested and most co-opted communities of the sample have instituted informal communal rules and/or have adopted legal norms, such as copyleft licenses, to prohibit the private appropriation and commodification of common pool resources. This phenomenon of deliberately expanding the pooling of resources in common can be termed as commonification. Contrary to the opposite transformations of commodification, commonification transforms social relations, which generate marketable commodities valued for what they can bring in exchange, into social relations, which generate resources produced by multiple creators in communal

collaboration, openly accessible to communities or the wider society and valued for their use. For this reason, pooling should be considered as the most important practice of commoning in the quest of the intellectual commons for value sovereignty.

Society is reproduced through the circulation and allocation of multiple forms of social value and according to diverse value spheres (Appadurai 1988: 14-15). Anytime social forces of commonification reveal themselves by producing forms of value alternative to the dominant value system of commodity markets, these sets of communal value practices articulate themselves in commons-based value spheres. The transformation from one to another form of value renders possible the transition of value between different value spheres. As Gregory describes it, “things are valued in many different ways over the course of their “life” [...] people can switch from one value regime to another as, for example, when gold is purchased as a commodity, given as a gift to a daughter and passed on to descendants as a family heirloom” (Gregory 2000: 110). The boundaries between intellectual commons and commodity markets are thus porous and susceptible to permeability and interchange. Nevertheless, capital holds a strategic position in the general circulation of values in society due to the imposition of commodity market institutions from the state as the dominant value system of society. Such a position gives capital the structural power to control the switch between diverse and heterogeneous social values and money.

Along these lines, the mode of commons-based value circulation is dialectically interrelated with the dominant mode of capitalist value circulation and the dominant value system of commodity markets. This dialectical relation takes various forms. Alternative conceptions of the importance people attribute to action, which are generated within the intellectual commons, are heavily influenced by the social prevalence of economic exchange value and commodity markets. When coping with resource scarcity in societies inundated with commodities, intellectual commons' communities face severe pressure to transform part or the entirety of their value output into economic exchange

values and money. This influence upon the circulation and pooling of commons-based values by exchanging value and money is manifested in hybrid forms of co-opted value circuits within the intellectual commons. Co-opted value forms, as described in the previous section, act as switches of value transformation from the commons-based value spheres to the commodity market value system. At the point when co-opted circuits predominate contested circuits of commons-based value, intellectual commons communities either break down or are gradually transformed into for-profit enterprises and their social aims are subsumed under the prevailing logic of capital accumulation. From this follows that intellectual commons are nowhere to be found as full-fledged realisations of the potential of commonification, but rather appear as sets of practices fulfilled to the extent possible by the correlations between forces of commonification and commodification.

Contrariwise, commons-based values constitute conceptions of what is socially important activity not just within communities of the intellectual commons but also in society as a whole (De Angelis 2007: 179). Communities of the intellectual commons are not isolated but, rather, lie at the core of socially reproductive activity. Commons-based values are constantly redistributed to society, thus contributing to its reproduction. Through its widespread social circulation, commons-based value redistribution challenges dominant perceptions about social value. In particular, it challenges the dominant perception of economic exchange value as the primary, or even exclusive, form of social value and of commodity markets as the primary, or even exclusive, societal value system. Practices of commoning which generate commons-based values, reveal in practice the fallacy that social activities are not productive, if they do not create economic exchange value and are, therefore, not monetarily quantifiable. In this way, the flow of commons-based values to society calls into question hegemonic ideologies regarding what should be rewarded or not by social institutions. It is the moment when the intellectual commons loom out of invisibility that social re-orientation on a mass scale gradually becomes possible.

8.6. CRISES OF VALUE

Key findings of the research show that both the contested and the co-opted communities of the sample receive pressure from monetary scarcity in various degrees. This breakdown of value circulation is due to the fact that the flow of commons-based values to society, as explicitly confirmed to be taking place by all participants in the study, is basically not remunerated by a counter-flow of social values towards the communities of the intellectual commons.

The unsustainable value flows recorded in the study give a hint of a more general contradiction in the current sublation between intellectual commons and capital. By controlling the dominant system [commodity market] and the universal equivalent [money] of social value, capital is in the position to dominate the circuits of commons-based value circulation and value pooling. This structural superiority gives the power to capital to capture the values of the commons and switch them into money. Value capture is a more appropriate term than wage labour to describe such strategies of capital accumulation. Wage labour is a specific co-relation of social power between labour and capital. Yet, even in orthodox marxist political economy, wage labour was never considered to be the sole means through which capital accumulates its socio-economic power. Marxists always acknowledged other ways of value capture by capital, which involve different co-relations of social power than wage labour. Marx talked of the primitive accumulation of capital (Marx 1990/1867: 896). Luxemburg observed that primitive accumulation is a continuous phenomenon throughout colonialist and imperialist epochs (Luxemburg 2003: 447). Harvey conjoined various contemporary phenomena of value capture under the term “accumulation by dispossession” (Harvey 2003: 137). All such phenomena have in common the capturing of value through power mechanisms different than wage labour. Along the same lines, Hardt and Negri write, “exploitation under the hegemony of immaterial labor is no longer primarily the expropriation of value measured by individual or collective labor time but rather the capture of value that is produced by cooperative labor and that becomes increasingly

common through its circulation in social networks” (Hardt and Negri 2004: 113). For them, commons-based values are produced in relative autonomy to the power of capital: “In contrast to industry, extraction relies on forms of wealth that to a large extent preexist the engagement of capital [...] Whereas in the factory workers cooperate according to schemes and discipline dictated by the capitalist, here value is produced through social cooperation not directly organized by capital—social cooperation that is, in that sense, relatively autonomous” (Hardt and Negri 2017: 120). Accordingly, apart from non-remunerated labour, a variety of value capture mechanisms takes place in the dialectics between commons-based and commodity market value spheres, which can be generally described under the “umbrella” term “value capture”. Through value capture, commons-based value spheres are in various degrees ravaged by the hijacking of commons-based values by capital without opposite value flows to counter-balance the loss (Kostakis and Bauwens 2014: 26). Accordingly, communal relations of value circulation / allocation, which sustain the intellectual commons, are eroded by the penetration of the commodity and the logic of capital accumulation (De Angelis 2007: 215; Hyde 2007: 96-99). The result is a crisis of value circulation, wherein the producers of value [commoners] are deprived from the means to reproduce the social relations [intellectual commons], which make such value generation and circulation possible (Bauwens and Niaros 2017).

This value crisis appears to be confined within the boundaries of the intellectual commons. Nevertheless, such a hypothesis remains on the surface of things. Deeper analysis reveals that the capitalist mode of intellectual production, distribution and consumption is dependent on the intellectual commons. The fundamental “law of motion” of capital is its tendency to expand by subsuming terrains of commoning previously left relatively outside the reproduction of capital. In regard to the intellectual commons, such subsumption is accomplished by valorising the output of commons-based peer production in multiple ways. Yet, capital is incapable of reproducing the relations of commons-based peer production, upon which its mechanisms of value-capture

are dependent, since such mechanisms are external to the organisation of commons-based value generation. Even, in the co-opted spheres of the commons their subsumption by capital remains formal and does not penetrate the organisation of commons-based peer production. Secondly, value capture is a transformative process of valorization. Through this process relations of commonification are dissolved, i.e. commons-based values are displaced by economic exchange and monetary forms of value. By dissolving the commons, capital destroys the very productive base upon which it stands. Hence, capitalist reproduction at the level of intellectual social activity becomes unsustainable and destroys its own conditions of existence. In this context, dysfunctions of intellectual-property enabled commodity markets and capital accumulation in the networked information economy should be viewed as repercussions of the unsustainable commodification of our commonwealth.

In conclusion, the unsustainable value flows monitored in the current study indicate the existence of wider crises of value in the interrelation between intellectual commons and capital. This unsustainability reveals the pressing need for the institution of counter-flows of value from commodity markets to the intellectual commons, in order to restore the balance in the circulation of social value between these two spheres. As Bauwens and Niaros have spelled out (Bauwens and Niaros 2017: 4-6), value sovereignty for the communities of the intellectual commons necessitates the constitution of practices of commoning for the “reverse co-optation” of capitalist values and their transformation into commons-based values.

8.7. CONCLUSION

The current research backs with empirical data the presence of an alternative proto-mode of value circulation based on the intellectual commons, which supports the reproduction of the intellectual bases of our societies in dialectical interrelation to the dominant capitalist mode. It is, therefore, a straightforward dispute of the ideological perspective that money is the sole form of social value

and that commodity markets subsume the totality of value circulation in our societies. On the contrary, this research generally supports the hypothesis that commons-based circuits of value circulation and value pooling are at work in all dimensions of social activity, thus significantly contributing to social reproduction. Finally, by exploiting the power of critical political economy as methodological tool for sociological research on the commons, this study has the aim to render commons-based value visible to activists, researchers and policy-makers and fuel practices, policies and laws, which unleash their potential.

The next concluding chapter of the thesis recapitulates the arguments of both the current social research project on commons-based value and all other previous chapters regarding the moral significance of the intellectual commons with the aim of offering a unified normative theory of the intellectual commons in support of an intellectual commons law.

9. TOWARDS A NORMATIVE THEORY OF THE INTELLECTUAL COMMONS

9.1. INTRODUCTION

The current chapter builds upon the ontological, epistemological, historical, and social research outcomes of the thesis. The second chapter of the thesis exhibits the elements of the intellectual commons, i.e. commoners, communities and common pool resources, and highlights their strong ontological connection with personal autonomy and practices of sharing and collaboration. The third chapter is an analysis of the main characteristics of commons-based peer production from the perspective of contemporary theories of the intellectual commons. The fourth chapter demonstrates the inherent sociality of cultural production across history. Chapters five to eight provide solid research findings on the social value of the intellectual commons.

This chapter is purported to constitute the normative denouement of the thesis, by laying down the foundations for the critical normative theory of the intellectual commons and the moral justification of an intellectual commons law. The chapter is structured in five interlinked sections. The first section sets out the basic tenets of a critical normative theory of the intellectual commons. Sections two to five examine the normative dimensions of the intellectual commons, i.e. personhood, work, value and community. The conclusion briefly enlists the contours of an intellectual commons law in alignment with the normative evaluations of the chapter.

9.2. FOUNDATIONS OF THE CRITICAL NORMATIVE THEORY OF THE INTELLECTUAL COMMONS

The critical normative theory of the intellectual commons is founded on (i) an explicit orientation towards progressive social transformation; (ii) the dialectics between potentiality and actuality; (iii) the interrelation between structure and

agency, and (iv) the moral significance of the dimensions of the intellectual commons.

In terms of its orientation, the critical normative theory is guided by the “categorical imperative to overthrow all conditions in which man is a degraded, enslaved, neglected, contemptible being” (Marx 1967/1844: 257-258). The critical normative perspective asserts that policy choices in relation to the organisation of intellectual production, distribution and consumption are fundamentally political. These choices not only frame our freedom of creativity and innovation but also determine the evolution of our science, technology and culture and influence the quality of our public sphere, channels of political participation and networked information economy. Therefore, the question of how we govern our creative practice relates in a sense to the broader question in which society we want to live in. According to the critical normative perspective, the rules governing our creative practice ought to be designed according to what is morally right for society. It is, hence, mainly founded either on deontological moral arguments in favour of the inherent social value of the intellectual commons or on a rule-based consequentialism, orientated towards countering social domination and promoting freedom, equality and democracy. Within this framework, the intellectual commons are held to embrace social relations, which are inherently moral, because of their value for collective empowerment, social justice and democracy. Productive communities of commoners are considered to contribute to the welfare of both their members and the wider public and to cultivate sets of commons-based communal relations with inherent moral value. In this light, commons-based creative practices are morally justified in respect of their value for collective empowerment, social justice, freedom from domination, cultural diversity and democratic participation. Based on this normative perspective, the critical normative theory of the intellectual commons accommodates, on the one hand, a thorough critique of contemporary intellectual property laws and, on the other hand, an adequate moral evaluation of the social potential of the intellectual commons for social welfare, freedom and democracy.

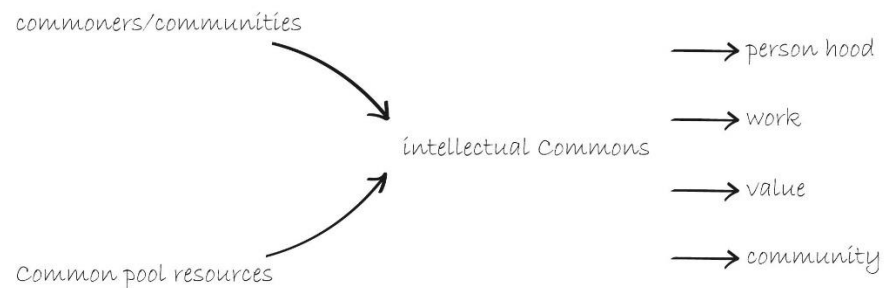
The critical normative perspective of the intellectual commons is further determined by the dialectics between the actuality and the potentiality of contemporary intellectual production, distribution and consumption with a definite orientation towards the realisation of the positive social potential of commons-based practices. Such an approach recognises the social value of the intellectual commons as the cornerstone of our culture, science and technology and as a major part of contemporary intellectual production, distribution and consumption. In addition, the critical normative approach acknowledges the phenomenon of social creativity and innovation at the cutting edge of contemporary economic and social transformations and its immense social value. It is also receptive of the capacities of contemporary information and communication technologies to unleash the powers of the social intellect. Hence, it is argued that an institutional ecology for commons-based peer production ought to be designed in such a way as to decouple the current conjoinment of intellectual commons and commodity markets under the rule of capital and provide the institutional infrastructure for the exploitation in full of the potential of the intellectual commons for self-development, collective empowerment, social justice and democracy.

The “philosophical anthropology” of the critical normative theory is determined by its approach on the dialectics between structure and agency. Contrary to one-dimensional approaches which view creators either as pre-social agents or as entirely socially determined, the critical normative approach takes the stance that the intellectual commons emerge from a dialectical interrelation between the individual agency of commoners and the communal structures in which they participate. In the context of commons-based peer production, individual creators interrelate with each other to produce in community as a collective subjective force, whereas production takes place as a collective and socialised practice essentially based on sharing and collaboration. Within this framework, individual creative activity is immersed in cooperative production. As such, individual contributions are inextricably fused and entangled in an inseparable

whole, the value of which is superior to the sum of its parts. Individual well-being is therefore unattainable without collective well-being. In this context, the essence of the link between the commoner and her intellectual work is understood by virtue of the links between the commoner, her community and society in general. Hence, in all cases that private interests justify the award to commoners of individual rights upon common-pool resources, such rights are granted on the condition and to the extent that they operate to the virtue of the relevant community and the wider society.

Last but not least, the critical normative theory commences its moral argumentation from the ontological elements of the intellectual commons. As already exhibited in the second chapter of the thesis, the intellectual commons are held to be the outcome of the interrelation between, on the one hand, their subjective elements, i.e. producers and communities, and, on the other hand, their objective element, i.e. commonly pooled intangible resources. Yet, at the point of production such elements are transformed and sublated to a higher level of ontological complexity into commons-based forms of personhood, work, value and community. Producers are interpenetrated by communal relations and transformed into commoners, exhibiting novel characteristics of personhood in community with their kind. Intellectual work in the form of individual contributions is transformed into a commons-based peer proto-mode of production. The dialectical interrelation between the subjective and objective elements of the intellectual commons produces commons-based forms of value, which circulate within and beyond the communities of the intellectual commons. Finally, through the productive practice communities are also in themselves constantly reproduced, whereas communal relations are diffused in society. This practice of transformation is depicted in the following figure:

Figure 9.1 *The Normative Dimensions of the Intellectual Commons*



Source: Author

From a critical normative perspective, personhood, work, value and community are thus considered as dimensions of the intellectual commons with moral significance. Each of the following sections gives an analysis of the ethical considerations in regard to these four dimensions with the aim to construct a coherent and integrated normative theory for the intellectual commons.

9.3. PERSONHOOD

Starting from the premise that human beings are social beings, the critical normative theory of the intellectual commons takes the position that human agency is dialectically interrelated with social structure. Contrary to the opposing common understandings of intellectual production as a strictly either solitary or collective endeavour, the critical normative perspective approaches the creative practice as a constant dialectical exchange between the poles of agency and structure, through which both the creative individual and the intellectual commons' community are being constantly re-constructed by their mutual influences⁵². The task of the philosopher is to unearth each time the particularities of such an exchange and determine the impact exerted by each dialectical pole.

Personhood in the context of the intellectual commons arises in the form of the commoner. The characteristics of the commoner are two-dimensional. On the one hand, individual contribution to intellectual production takes the communal form of sharing and collaboration among peers⁵³. On the other hand, participation in the productive community influences the commoner's personal world-view, incentives, values and identity⁵⁴. Within this framework, personhood acquires characteristics, which have moral significance. The contribution of the commoner to the community is strongly connected with the freedom of science and culture and with human dignity. The influence of the community on the commoner is evaluated from the perspective of the capacity of communal relations to accommodate personal autonomy and cultivate self-development.

Table 9.1 The Moral Significance of the Commoner

Perspective	Moral Significance
Commoner → Community	Freedom of Science and Culture
	Human Dignity
Community → Commoner	Personal Autonomy
	Self-Development

Source: Author

The critical normative theory of the intellectual commons holds the unrestricted freedom to contribute to the intellectual commons as fundamental for the well-being of commoners, communities and society in general. Concomitantly, it gives moral priority to the right to participate in scientific progress and cultural life in the form of a general freedom of scientific research and creative activity within the intellectual commons, both individually and in association with others. Embracing this normative premise has important repercussions in terms of positive law. At the level of human rights law, the participatory aspect of the human right to science and culture is given equal weight vis-à-vis the aspect of authors' exclusive rights established on international human rights law treaties. Secondly, the human right to science and culture is given primacy over

international or national intellectual property law, on the legal grounds that the promotion and protection of human rights takes precedence over any other objectives and obligations of signatory states of international human rights treaties. Following the above, it is held that states are morally committed to respect, protect and fulfill the freedom to contribute to the intellectual commons, thereby abstaining from its restriction through intellectual property laws, which are not compatible with international human rights treaties. In addition, the critical normative theory of the intellectual commons holds that the freedom to contribute to the intellectual commons ought to acquire statutory content substantive enough to give commoners the ability for its meaningful practice. Such a substantive normative content to the human right to participate in scientific progress and cultural life within the intellectual commons shall include (i) the right of everyone to access the public domain without discrimination; (ii) the freedom of all to contribute to the scientific and cultural commons, especially the freedoms to create, share, collectively transform prior or newly produced resources and pool them in common; (iii) the right of communities to defend the intellectual commons from enclosure or commodification and receive compensation from any type of commercial use of common-pooled resources, and (iv) an enabling social environment fostering the foregoing rights and freedoms through commons-oriented state policies.

The critical normative theory of the intellectual commons further asserts that participation in the intellectual commons is inextricably connected with human dignity. Access to the fundamentals of information, knowledge and culture is a pre-requisite of one's capacity to exercise all other human rights and freedoms. Furthermore, the freedom to contribute to the intellectual commons is essential for commoners' autonomy and self-development. Therefore, the deprivation of one's access or freedom to take part in the scientific and cultural commons disregards her dignity as a person. The extensive enclosure of the intellectual commons disables individual autonomy to the extent that it may constitute an offence to human dignity of impoverished individuals without the social and economic means to restore access to our intellectual commonwealth. As a result,

it is claimed that the freedom of participation in the intellectual commons lies to the core of human dignity and ought not to be restricted, should commoners be paid due respect as dignified individuals. Along the same lines, commons-oriented rules and institutions are ethically necessary either on the grounds that the latter shield from private appropriation artifacts essential for authors and inventors to express their creative “wills” or on the ground that they create social conditions conducive to creative intellectual activity, which is in turn important to flourishing of individuals as autonomous moral agents.

Apart from the foregoing, the peer relations of the intellectual commons are deontologically justified on individual autonomy and personal self-development. First of all, any form of artistic expression and scientific discovery is an elemental exercise of personal autonomy and self-determination. Creativity and innovativeness are generated through the activation of superior intellectual human capacities and qualities, such as enquiry, critical reflection, inspiration and imagination. The self-emancipatory aspect of these qualities is what constitutes autonomous human beings. Therefore, the freedom to contribute to science and culture can be claimed as the utmost expression of individual autonomy, an upfront act of changing the world for the better. Secondly, creativity and innovativeness are fundamental to personal self-development. The active participation in one’s scientific and cultural environment is important to personal well-being. Accordingly, creative capacities are closely bound up with the way we constitute ourselves, posit ourselves in the world and draw up our short- and long-term life-plans. In addition, the practice of creativity and innovativeness are strongly connected to human flourishing. Becoming creative is the medium to proper self-development and the fulfillment of one’s own potential. Hence, the self-constituting aspect of the creative practice render it an essential element of personhood. Nevertheless, self-development presupposes one’s ability to access and transform resources in his or her social environment (Radin 1982: 957). Communal relations and commons-based practices are thus held to be moral and worthy of protection and institutional promotion, because they embrace the

capacity of individuals to express autonomously, self-develop and realise their creative capacities to the full.

In general, the critical normative theory provides moral justifications of the intellectual commons from the perspective of the creative individual as end in herself and the concomitant imperative for her empowerment through appropriate social institutions. From this theoretical prism, intellectual property laws are subsumed under the framework of international human rights treaties, which then become the primal legal institutions for the regulation of contemporary intellectual production, distribution and consumption. Furthermore, the deontological and positive law foundations of the right to participate in the intellectual commons are held to justify an extensive legal status of the public domain in terms of both the freedom of access and transformative use and the obligation of states to respect and empower such freedom. As a result, such an ethical theory strikes an equitable balance between the right to participate in science and culture and individual authors' rights within the system of human rights law and, therefore, morally justifies the reform and re-orientation of intellectual property laws along such a direction.

9.4. WORK

The critical normative theory of the intellectual commons commences from a conception of the creator as a socio-historical and yet autonomous person in the conduct of her creative practice. Creators are socio-historical selves in the sense that they are embedded in their social and historical context. Their creative cognitive practices, such as their use of language, attribution of meaning and construction of aesthetic values, are defined interpersonally vis-à-vis their co-creators, audience and wider society. The experiences fueling their imagination are related to their social context. Their emotions and affects have interpersonal causes. Their motivations and overall self-narrative are heavily determined by reference to the groups they participate and the society they live in. Yet, creators are autonomous in their creative practice in the sense that they are capable of

self-reflecting on their socio-historical context in the conduct of producing intellectual works.

Socio-historically framed creativity only partly accounts for the advancement of arts and science. Additional traits inherent to intellectual production depict a view of authors and inventors, which is far away from the dominant conception of the promethean or solitary creator. In practice, creators quarry the form and content of their intellectual achievements from the vast deposits of information, knowledge and culture accumulated through time by the collective endeavours of prior generations⁵⁵. Across history, authors and inventors have worked on their creations directly or indirectly through practices of sharing and collaboration⁵⁶. Creativity and innovativeness are practices in which the singular is interrelated with the plural with the mediation of relations of production, social norms and positive law. Hence, from a wider perspective, intellectual work is not strictly attributed to the individual creator, but rather refers to a social relation, in which the latter's contribution operates as input to social modes of intellectual production, distribution and consumption.

Work in the context of intellectual production has moral significance. The link between the creator and the outcome of her work gives rise to ethical considerations about the protection and promotion of certain interests of the creator vis-à-vis the collectivity. The link between the community and the collective productive output of its members calls for the respect of the interests of the community by society in general. And the common interest of current and future creators to access and work upon the public domain requires for its protection and promotion from generalised enclosure and commodification. Whether individual or collective, rights upon the use of intellectual works presuppose moral demands and corresponding duties to respect the foregoing interests. In accordance, the ethical considerations brought about by intellectual work are analysed in the table below from the perspectives of the creator, the productive community and society in general:

Table 9.2 The Moral Significance of Intellectual Work

Perspective	Moral Significance
The Interests of the Creator	Work / Commons Mix
	Joint Authorship
The Interests of the Community	Collective Work
	Inherent Sociality of Intellectual Work
The Common Interest	No-Harm to Others
	No-Spoilage of the Commons

Source: Author

Within the framework of the critical normative theory of the intellectual commons, the rights of creators upon the products of their labour are determined by the morally significant elements of the social relation of work. These are located in the link of the creator's individual contribution with the public domain and the work of others. The work / commons mixing argument asserts that intellectual works ought to be managed as commons rather than property, because such works are built upon intangible resources which already embody the work of prior generations. In contrast to natural resources, the public domain is thus constituted by objects, which do not lie in a primordial state of nature. Instead, it is a social domain of information, knowledge and culture commonly pooled by the accumulated efforts of prior generations. Since the raw materials of intellectual production already incorporate the work of others, their interests ought to be taken equally into account as those of contemporary creators. Hence, in the absence of contractual means with prior authors and inventors, the mixture of resources in the public domain with one's own work cannot morally justify the establishment of private property, at least in its Blackstonian form⁵⁷. Rather, the moral imperative to treat the interests of prior and contemporary creators alike necessitates the harmonisation of rights to individual contributions within a management regime oriented towards the commons.

Accordingly, the critical normative theory of the intellectual commons raises concerns in regard to the treatment of joint intellectual creations under contemporary intellectual property laws. Such concerns are especially relevant today that the production of contemporary artistic works, scientific discoveries or technological breakthroughs revolves more and more around collaborative creativity and innovation by multitudes of workers joined together in industrial or commons-based modes of production⁵⁸. In contrast to contemporary relations of production, today's doctrines of authorship act as social constructs, which obfuscate the collective character of contemporary intellectual production and tend to promote the concentration of exclusive intellectual property rights to single natural persons or legal entities as means to centralise control over the latter and facilitate their exchange in commodity markets⁵⁹. Within the framework of the critical normative theory of the intellectual commons, disregard of the actual expenditure of individual efforts in joint intellectual works is considered as morally wrong. In this context, collaborating creators ought to be able to invoke rights, which appropriately pay tribute to the actuality of joint authorship in contemporary relations of intellectual production.

In reference to the interests of the community of producers, the critical normative theory focuses on the moral evaluation of the collective and socialized character of the social relation of work. From a moral standpoint, the transformation of a commonly held resource through one's work justifies the entitlement of rights over the outcome of the mixture of the commons with work, on the condition that the worker's expedited effort makes the major part of the value of the novel object⁶⁰. As already exhibited in previous chapters, any intellectual creation is inherently derivative and referential upon pre-existing knowledge. Furthermore, intellectual production is by its nature a practice of incremental, sequential and complementary advancement upon prior achievements, which in themselves are founded on the collective endeavour of

science and the arts as a whole. For these reasons, individual contributions to intellectual production do not have sufficient moral standing compared to the immense wealth of the intellectual commons to qualify for the establishment of individual rights of absolute private enclosure upon intellectual works.

More importantly, intellectual production is an essentially socialised practice, in which individual contributions are, on the one hand, heavily influenced by prior and present knowledge and, on the other hand, intertwined through collaboration among multiple creators in an inseparable whole. Science, technology and culture develop in a process of sharing and collaboration between creative collectivities of both the past and the present, wherein the individual author / inventor dialectically receives influence by her social environment, by co-creators and by prior intellectual achievements and, at the same time, contributes to the dynamism of collective creativity and innovativeness. The advancement of arts and science as a whole can in itself be conceived as a collective and collaborative social enterprise for the search of truth, beauty and social flourish⁶¹. Any intellectual work is thus an amalgam of individual and collective achievement, always reflecting the creative and innovative contribution of an individual author / inventor upon prior intellectual advancements. In addition, most contemporary intellectual works embody in one way or another the joint collaborative effort of multiple workers and derive their social value from the fact that they contribute to a wider knowledge field or cultural current. From this standpoint, the attribution of an intellectual expression or application in its entirety to single individuals or legal entities does not correspond to the actuality of the form of post-modern intellectual production and cannot be held as morally acceptable. On the contrary, the allocation of rights and duties between the commoner and the collectivity needs to take seriously into account the ethical implications arising from the fundamentally social character of human creativity and innovation.

From the perspective of the common interest, the critical normative theory of the intellectual commons asserts that everyone ought to have an equal privilege

to access and use the public domain. Inspired by the Lockean “no harm” proviso, it then argues that creators ought to be morally entitled to individual rights upon their work so long as there is “enough and as good” left in common for others to practice their freedom of science and culture. Therefore, intangible resources belonging in the public domain, which are fundamental for the practice of creativity and inventiveness, need to remain absolutely open to access, use and transformation in common. Given that it favours an expanded notion of the right to participate in scientific progress and cultural life, the critical normative theory also claims that the same regime ought to be enforced to any type of intellectual resource on the condition that its access and use is conducted for transformative non-commercial purposes.

Finally, the critical normative theory of the intellectual commons requires that intellectual resources be protected from under-use caused by acts of enclosure. Exclusive rights, which result in under-use, run counter to the common interest, because they injure others’ privilege over the intellectual commons and breach the general moral requirement for their noble stewardship. According to John Locke, any loss of value due to under-use is incompatible with morality, since nothing has been created by God to be spoiled (Locke 1689/1988: 291)⁶². Despite their inherent characteristics of non-rivalry and non-subtractability, intangible resources can also be wasted. As pointed out in previous chapters, information, knowledge and culture acquire their social value through sharing and transformative use. Spoliation of intellectual works thus occurs, each time that enclosure either prevents their wide dissemination or results in their under-use. In addition, spoliation also takes place, whenever the social potential of intangible resources for the flourish of arts and the progress of science is wasted. In contemporary context, the over-expansive scope and duration of intellectual property laws leads to significant wastage of the social value and potential of our intellectual commonwealth. Hence, there arises the need for an independent body of intellectual commons law to guarantee individual privileges of enjoyment over intangible resources and avert value spoliation.

From the perspective of the critical normative theory of the intellectual commons, work-related arguments follow an agent-centered line of thought to justify the protection of the public domain and the recognition of commons-oriented management regimes for intellectual resources. In this context, individual creators are held to bear rights upon intellectual works, which ought to be balanced with the interests of productive communities and society in general.

9.5. VALUE

The critical normative theory of the intellectual commons commences from a plural conception of social value in the context of the intellectual commons. In particular, social value is held to circulate within and beyond the communities of the intellectual commons in multiple forms of economic, social, cultural and political values⁶³.

Commons-based value has moral significance. From generation to pooling and re-distribution, intellectual commons communities produce and diffuse to society immense amounts of value, which supersede the economic form and have positive social outcomes in the aggregate. On the one hand, the institution of the public domain has overall positive social effects, by maximising net social benefits through open access to intellectual resources, especially those which constitute the infrastructure for scientific, technological and cultural progress. On the other hand, commons-based peer production exhibits impressive results in the contemporary framework of intellectual production. Overall, the intellectual commons produce social outcomes which promote “the greatest good of the greatest number”, by maximising the aggregate sum of individual benefits versus individual losses in the pursuit towards freedom, equality and democracy. From the perspective of rule consequentialism, the moral arguments in favour of the intellectual commons can be categorised according to their reference to access (“consumption”), production and distribution, as displayed in the following table:

Table 9.3 The Moral Significance of Commons-Based Value

Perspective	Moral Significance
Access ("Consumption")	Static Efficiency
	Dynamic Efficiency
	Infrastructure as a Commons
Production	Efficiency in Production
	Quality in Production
	Superiority of the Mode of Production
	Accommodation of Multiple Incentives
Distribution	Efficient Allocation

Source: Author

Open access to intellectual resources is as a rule the most efficient mode of maximising the positive social impact of information, knowledge and culture from the perspectives of both static and dynamic efficiency. From the perspective of static efficiency, intellectual resources are public goods in the economic sense. This means that their social value is realised upon consumption. Due to their public good character, the more widely information, knowledge and culture are shared the more people benefit and the more the social potential of intellectual goods is realised. As a result, from the standpoint of social utility, sharing ought to be the rule and exclusive rights the exception to the management of intangible resources. In addition, open access is the most efficient mode of maximising the social value of intellectual resources from the perspective of dynamic efficiency. Should intellectual resources be treated as a commons, i.e. open to access and subject to rules of pooling in common, the social potential of our intellectual commonwealth will be fully realised and the benefit derived therefrom will be maximized. Furthermore, wider rights of access and transformative use over intellectual resources tend to have positive effects to intellectual production. On the one hand, a wider interpretation of the fair use doctrine has the potential to promote technological innovation by

permitting a greater spectrum of innovative uses over existing technologies. On the other hand, greater rights of access and transformative use have the potential to boost creativity and increase the quantity and quality of produced intellectual works. In this respect, the enactment of substantive copyright exceptions and limitations are expected to result in the production of more creative works. In general, the expansion of open access and transformative use tends to produce positive social externalities and spillover effects, which, though not recorded in the commodity market system, significantly contribute to techno-scientific progress and the thriving of arts and culture.

In addition to the above, the social utility of the intellectual commons is supported by the “infrastructure as a commons” argument. According to this argument, certain categories of intellectual resources are so central for the overall process of intellectual production that they ought to be subject to commons management. Due to the fact that these resources constitute the infrastructure for any type of creative or innovative activity, the social costs of their enclosure on the evolution of science, technology and culture outweigh the benefits of incentivising creators through the bestowal of exclusive rights upon them⁶⁴. According to Frischmann, intellectual resources can be claimed to attain an “infrastructural” character when they are primarily used as core input into downstream activities of intellectual production, especially non-market intellectual resources (Frischmann 2012: 61). Commons-based management of the intellectual infrastructure maximizes net social benefit, since any fetters of enclosure at this level tend to have amplifying cascade effects on lower levels of production. The scope of the intellectual infrastructure essentially applies to all categories of intangible resources, which constitute core raw materials for creativity and innovation, such as data, information, discoveries, scientific theories, ideas, procedures, standards, methods of operation, mathematical concepts, schemes and rules. Yet, infrastructure is a socially constructed institution, which only partly relies on the inherent characteristics of resources. From the perspective of consequentialist ethics, infrastructural ought to be considered all those categories of resources and types of access and use, which,

when commonified, generate positive externalities of social value greater than their market exchange value, when they remain enclosed. This includes strategic resources in each economic sector, the ownership of which creates high barriers to entry for newcomers and tends to lead to market oligopolies or monopolies. Infrastructure is today regulated as a commons in a number of network industries worldwide, such as the energy and electronic communications sectors. From a consequentialist perspective, this ought to be expanded to the intellectual infrastructure of knowledge-based industries.

Apart from the net social benefit of access and transformative use, the critical normative theory of the intellectual commons takes seriously into account the social utility of commons-based peer production on the grounds of its efficiency in the most advanced sectors of the networked information economy. Nowadays, the social diffusion and prominence of commons-based practices in our societies is related to contemporary relations of intellectual production. The economics of improvement in the highly complex environment of today's science and technology reveal that innovation more than ever is based on building upon preceding achievements, by complementing already available with novel breakthroughs. Contemporary relations of intellectual production also leverage the aspects of sharing and collaboration to center stage. Decentralised peer-to-peer modes of work management emerge on the basis of collective empowerment and participation in task allocation and decision-making. Technological advancements and the decentralisation of the means of production further provide the basis for interactive asynchronous many-to-many sharing and collaboration among peers. The foregoing techno-social changes construct intellectual commons which create "large-scale, effective systems for the provisioning of goods, services and resources" (Benkler 2004: 276). In this context, the mode of commons-based peer production dynamically penetrates and transforms the value-producing processes of the dominant capitalist mode of intellectual production. The critical normative theory of the intellectual commons thus claims that commons-based peer production is ideally equipped with the capacity to unleash the potential of the social intellect

in the digital era. It, therefore, calls for the enactment of the appropriate institutional framework for the promotion of commons-based peer production in all cases that its application has positive social outcomes.

From the perspective of intellectual production, commons-based practices are also held to enhance the quality of the productive output and, thus, benefit society. The open mode of intellectual production has the capacity to pool together individual skills, capabilities and effort in a collective worker, who produces in unity. In contrast to closed models, the collaborative combination of multiple minds is thus capable of generating intellectual works of higher complexity with fewer flaws and better properties. Twenty years after Eric Raymond's statement "given enough eyeballs, all bugs are swallow" (Raymond 1999: 30), the superior quality of free and open source over enclosed software programs has led to the former dominating the critical infrastructure of our information society. Since then, similar modes of production open to voluntary contribution have spread in most fields of creative activity with impressive results, such as in open modes of design, hardware, systems, standards, data, digital content, publishing, journals, science, engineering and medicine.

In comparison to capital and commodity markets, commons-based peer production also arises in its unity as a superior social mode of production of intellectual resources. Commodity market allocation presupposes the transformation of intellectual resources into well-delineated units with strictly determined boundaries capable of being circulated through private contracts among market players. The social construct of parcelling intellectual resources into commodities disregards their essentially relational and referential character. Obstructing the establishment of potential links between intellectual resources by means of private enclosure inevitably hinders the production of new information, knowledge and culture and functions as fetter to collaboration among multiple intellectual workers. As a result, commodity market allocation has a negative impact on the overall process of intellectual production. Instead, creativity and inventiveness are inherently socialised practices ignited by the

common work of multiple minds and pollinated by prior intellectual achievements. Commons-based peer production is compatible with the incremental, sequential, relational and referential nature of the creative practice. The freedom of access and transformative use dominating the intellectual commons removes the fetters over production and, thus, unleashes the creative potential of commoners. Taking the latter into account, the critical theory of the intellectual commons holds that commons-based peer production is superior to the capitalist mode of intellectual production, regardless whether the latter is driven by the state or commodity markets, since it has the capacity to make faster and more important breakthroughs at the cutting edge of contemporary science and technology.

The beneficial effect of commons-based peer production is evident not only in production but also at the stage of the allocation of intangible resources. Creativity and inventiveness are resources widely dispersed across members of society. In the wider social context, in which commodity markets function as the primal institutions defining the distribution of resources, allocation is determined by monetary capacity. From the perspective of efficiency, more often than not the capability to create does not correspond to monetary capacity. In societies with unequal opportunities, such as ours, those with the capacity to innovate will in most cases lack the monetary resources to realise their ideas. On the contrary, in the intellectual commons prior information, knowledge and culture is openly accessible and free for transformative use by all. Hence, allocated resources inevitably reach individual creators or teams of creators who are most capable of achieving the greatest breakthroughs for the common good.

In addition to the foregoing arguments, the critical normative theory of the intellectual commons generally questions the utilitarian presupposition underlying intellectual property law, according to which the stimulation of creativity and inventiveness is solely dependent on monetary incentives. Instead, it counter-proposes a multiple-incentive approach of the creative practice, in which non-monetary incentives ought to be equally embraced and

promoted by legal institutions due to their contribution to the common good. In practice, artists and inventors are usually spurred by a multiplicity of non-monetary social rewards, which in certain contexts may also prevail over money and profit. As demonstrated in chapters five to eight of the current study, the intellectual commons are based on alternative value practices, which are dominated by non-market values and incentivise individuals alternatively and in parallel to the value system of the commodity market in most, if not all, formations of intellectual production, distribution and consumption. In this context, the critical normative theory takes seriously into account the existence of these values in its felicific calculus and emphasises their beneficial effect for the flourish of arts, science and technology. On the grounds of their net social benefit, such an ethical approach calls for the institutionalisation of alternative reward systems through law, which will accommodate and promote such value practices for the greater good.

In conclusion, from the perspective of social utility, the critical normative theory of the intellectual commons raises consequentialist arguments on the grounds of the net social benefit of the intellectual commons to justify their promotion for the common good. In this context, it provides the philosophical basis for the proactive institutionalisation of a vibrant non-commercial zone of creativity and innovation as means to achieve the flourish of art, science and technology and spur economic growth at a faster pace than proprietary models of intellectual production, distribution and consumption.

9.6. COMMUNITY

According to the critical normative theory, the commons of the information age lift up the traditional form of the human community to a superior level. In contrast to the closed and hierarchical communities of the past, contemporary communities within the framework of the intellectual commons are open, participatory and cosmopolitan, combining in a dialectical way the element of face-to-face relations of intimacy with the element of decentralisation across

space and time through the use of information and communication technologies.

Through the productive process intellectual commons' communities both produce intangible resources and, at the same time, reproduce themselves and evolve through time into novel forms of community through their dialectic with capital and commodity markets. In its wider sense, communal reproduction also involves the multiplication of intellectual commons' communities and the diffusion of commons-oriented social relations in society. In this context, the community of the intellectual commons tends to display elements and characteristics, which have moral substance from the standpoint of deontological ethics. Such elements can be approached from the perspectives exhibited in the table below:

Table 9.4 The Moral Significance of the Intellectual Commons' Community

Perspective	Moral Significance
Resilience	Counter-Enclosure
	Counter-Domination
Freedom	Collective Empowerment
Equality	Social Justice
	Fairness
Democracy	Freedom of Expression
	Democratisation of Intellectual Production

Source: Author

The intellectual commons' community is founded on the principle of knowledge sharing among its members. Consequently, the communities of the intellectual commons put any regimes of enclosure into question by virtue of both their constitutional rules and every-day practice. In the context of the intellectual commons, the enclosure of intangible resources is disputed on moral grounds. According to this moral stance, not all things ought to be absolute property and knowledge is one of them⁶⁵. Throughout most of human history, the products

of the intellect were treated as common to all and any assertion of private property upon them was considered as absurd and morally condemnable⁶⁶. In contemporary societies, which are fraught with the ever-expansive commodification of intangible resources, intellectual commons' communities represent the social movement against enclosure, by practicing the non-commodifiability of certain categories of resources⁶⁷. Borrowing the words of Karl Marx, commoners act not as owners but as possessors and usufructuaries of intellectual resources, "and like *boni patres familias*, they must hand [them] down to succeeding generations in an improved condition" (Marx 1992/1894: 776). Furthermore, commonly pooled resources are subject to regimes of communal proprietorship or ownership and based on contractually enacted rights of use. In contrast to absolute property, they take the form of bundles of legal rights upon intellectual resources, which embody rules of open access, non-excludability, protection from state or private ownership, governance in a decentralised or communal manner and limited sovereignty⁶⁸. Commons-based practices are generally motivated by the moral argument that freedom to access and use intellectual resources should be the general principle for the governance of creativity and innovation. Accordingly, legal regimes of qualified property in the form of intellectual property rights ought to be the exception and only in morally justified cases⁶⁹. Communal relations within the intellectual commons, therefore, constitute a fundamental shift in the institution of property from exclusive ownership to inclusive stewardship and trusteeship of intangible resources.

Furthermore, the critical normative theory of the intellectual commons asserts that property over intellectual resources is immoral due to its deep impact on power relations in society. According to this perspective, the institution of intellectual property constructs an asymmetric power relation between owners and non-owners of intangible resources. In particular, intellectual property rights are conceived as privileges designated by the state to private entities, which bestow exclusive decision-making power over the use of a wide spectrum of intellectual resources. The enclosure of the commons of the intellect is not

without social repercussions. Exclusive rights not only grant control but also demarcate the framework and the opportunities of others to exercise the freedom of science and culture and the freedom to receive and impart information. In specific, property on intellectual resources confers control over the limits of creativity and innovation of other persons. Furthermore, private enclosures imposed on the raw materials of expression frame the public sphere on the basis of criteria extrinsic or even hostile to the common interest. Hence, from being an institution for the control over intangible resources, intellectual property is transformed into an idiosyncratic tool of control over persons and communities in terrains of activity crucial for social autonomy⁷⁰. In line with the foregoing, the critical normative theory of the intellectual commons critiques the aspect of domination inherent in intellectual property from the standpoint of collective empowerment and democracy. As an alternative, it holds the enactment of commons-oriented rights of access, sharing, transformative use and pooling in common over intellectual resources as morally justified means to reduce private powers of exclusion and to unleash the freedom of creativity and innovation for all in the digital age.

Notwithstanding the critique of domination, the critical normative theory also supports the moral viewpoint that the intellectual commons constitute an integral element of collective empowerment in contemporary societies and should, therefore, be institutionally promoted. First of all, the intellectual commons and their supportive social institutions, such as schools and libraries, provide the essential infrastructure for the education of the general population. In a democratic society, the social dissemination of knowledge for educational purposes is morally justified on the grounds that it constitutes the main prerequisite for individual and collective empowerment. On the other hand, robust and thriving intellectual commons also broaden the spectrum of resources and types of uses available for the intellectual advancement of the population as a whole⁷¹. Apart from provisioning the raw materials for education, the freedom embodied in the intellectual commons is also crucial for human flourish. The advanced level of sharing and collaboration encountered in communities

renders creativity and innovativeness in the intellectual commons an exercise of inherently collective development and self-determination. In particular, the increased degree of participation in the creative environment of the intellectual commons provides the organisational basis for the production of a more self-reflective and critical science and culture. Hence, the decentralised organisation of commons-based peer production contributes to the pursuit of “a more genuinely participatory political system, a critical culture, and social justice” (Benkler 2006: 8). In addition, practices of commoning in the fields of science, technology, art and culture constitute as such an important political expression of collective empowerment in contemporary societies, which ought to be promoted as an end in itself⁷². Practices of commoning, therefore, fully embrace the freedom of collectivities “to develop and express their humanity, their world view and the meanings they give to their existence and their development through, inter alia, values, beliefs, languages, knowledge and the arts, and ways of life”⁷³. Taking the above into account, the critical normative theory of the intellectual commons justifies the morality of commons-oriented legal institutions on the grounds of the inherent value of communal relations of sharing and collaboration thriving in the intellectual commons and the essential role that such relations play in the collective empowerment of social groups and communities.

Of equal importance to collective empowerment is the relation of the intellectual commons with social justice and the inclusiveness of vulnerable social groups. According to the egalitarian justification of the intellectual commons, by empowering the right of everyone to science and culture on an equal footing, the open access commons of the human intellect play a crucial role in the elimination of all forms of social discrimination based on wealth, social status, position in social reproduction, gender, race, colour, cultural identity, belief or sexual orientation. In a democratic society, intellectual goods are considered to be properly distributed in a moral sense, when they are disseminated on the basis of equality or according to one’s needs, rather than on the basis of commodity market allocation. Equal opportunities for all to access the

intellectual commonwealth of humanity is fundamental for critical thinking, individual empowerment, social justice, civic engagement and democracy. For this reason, democratic societies are generally prone to sustaining public institutions, which guarantee minimal levels of education and access to knowledge for the general population. In parallel, the open access institutions of the intellectual commons tend to remove socially constructed restrictions to access intangible resources and to facilitate the exercise of the fundamental right of everyone to take part in scientific development and cultural life through communal practices of participatory co-creation. In the spheres of the commons, the term “everyone” acquires its true meaning, by including “women as well as men, children as well as adults, popular classes as well as elites, rural dwellers as well as urbanites, the poor as well as the wealthy, and amateurs as well as professionals” (Shaver and Sganga 2009: 646-647). As in every other regime of generalized reciprocity, production and allocation in the intellectual commons takes place from each one according to his abilities, to each one according to his needs (Marx 1970/1875). As a result, the intellectual commons create the conditions, which allow all people to access, participate in and contribute to science and culture without discrimination and on an equal footing.

On the other hand, the critical normative theory of the intellectual commons disqualifies the morality of commodity markets as primal mechanisms for the allocation of intangible resources on the grounds of their incompatibility with the principle of fairness. In this context, Yochai Benkler comments that “(i)n the presence of extreme distribution differences like those that characterize the global economy, the market is a poor measure of comparative welfare. A system that signals what innovations are most desirable and rations access to these innovations based on ability, as well as willingness, to pay, over-represents welfare gains of the wealthy and under-represents welfare gains of the poor” (Benkler 2006: 303). Along these lines, the three moral principles of the Rawlsian conception of justice as fairness are helpful in evaluating the relation of intellectual property-enabled commodity markets with social justice. First of all, the Rawlsian moral construct raises the imperative that “each person has an

equal claim to a fully adequate scheme of equal basic rights and liberties” (Rawls 2005: 5). Furthermore, social and economic inequalities are according to John Rawls morally acceptable, when “they are both a) reasonably expected to be to everyone’s advantage, and b) attached to positions and offices open to all” (Rawls 2009: 53). Interpreted in the context of creativity and inventiveness, the first basic liberties principle of Rawlsian moral theory dictates the universal equal access to infrastructural intangible resources. The second difference principle prescribes that inequalities in the treatment of the right to all to science and culture are permitted only when they benefit the worst-off. Finally, the third equality of opportunity principle orders that individuals ought to enjoy an effective equality of opportunities in exercising the right to science and culture. Contrary to the regimes of the intellectual commons, commodity markets are by definition not appropriately modelled to grant access to all to those intangible resources, which are of an infrastructural nature and are, thus, essential for the meaningful exercise of the right of everyone to science and culture⁷⁴. In addition, the commodification of information, knowledge and culture brought about by over-expansive intellectual property laws has given rise to significant barriers to participatory modes of creativity and innovation, thus encroaching upon the fundamental freedom to take part in scientific progress and cultural life. Overall, in our hierarchical and stratified societies commodity markets inevitably fail to allocate access and use rights to intangible resources according to the moral imperatives of fairness. Hence, the critical normative theory grounds the morality of commons-oriented legal regimes on the basis that the intellectual commons construct more fair and inclusive environments for creativity and innovation than intellectual property-enabled commodity markets.

Collective empowerment, social justice and democracy are interdependent and mutually reinforcing⁷⁵. The empowering and egalitarian characteristics of the intellectual commons have a positive effect on freedom of expression, the development of critical perspectives to science and culture, cultural diversity, meaningful citizenship and, in corollary, the quality of democratic institutions.

First of all, freedom of speech presupposes a public sphere with an extensive public domain of informational, communicational, scientific and cultural resources⁷⁶. The public domain is a legal institution representing the scope of uses of intellectual works, which do not necessitate the prior acquisition of the permission of right-holders. Hence, resources in the public domain are openly available to the public without restriction and everyone is equally privileged to use them in expressing him- or herself. In juxtaposition to the public domain, intellectual property law establishes exclusive rights on speech. Since they correspondingly decrease the scope of the public domain, the extensive reach of contemporary private enclosures upon intangible resources may have a chilling effect on free speech. In democratic societies, copyright has been structured as a semi-commons institution in order to internally resolve the tension between exclusive rights and the freedom of expression. In this context, the doctrine of the idea / expression dichotomy is dedicated to preserving a common pool of ideas, which remain free to access and the generation of creative expressions. Furthermore, exceptions of fair use grant immunity to unlicensed forms of expression, which involve socially desirable uses of protected works related to the freedom of speech. Resolving the tension within the system of intellectual property law, however, tilts the balance in favour of exclusion rather than freedom. First of all, freedom-enabling copyright doctrines lie within the system of copyright law and are not co-extensive with the protection of the fundamental right to free speech granted in international human rights treaties. Secondly, within the framework of intellectual property such doctrines are structured as exceptions to the basic principle of exclusion and are only invoked under very restrictive conditions, which end up subsuming the freedom of expression of all to the private economic interests of the right-holder. As a result, in the majority of real-life cases in which they collide, the exclusive control that intellectual property confers over intangible resources trumps the fundamental right to free speech. On the other hand, there is a fundamental connection of the intellectual commons with freedom of expression and the construction of a vibrant democratic public sphere. By giving substance to the right to take part in science and culture under conditions of equipotency, the communities of the intellectual

commons are in themselves an important collective form of free speech that ought to be accommodated and promoted by the law. In addition, these communities tend to re-vitalise the public domain by expanding its contours and leveraging its quality with newly produced and virally growing constellations of information, knowledge and culture. Viewed from the prism of the intellectual commons, the traditional negative definition of the public domain as a “wasteland of undeserving detritus” (Samuelson 2003: 147-161) is superseded by the re-conception of the commonwealth of the human intellect as the rule to the exception of private enclosures over intangible resources (De Rosnay and De Martin 2012: xv)⁷⁷. From such a perspective, the critical normative theory of the intellectual commons ethically requires a user-rights approach to the governance of the tension between intellectual property and freedom of speech. According to this approach, permissible uses of free speech under copyright law ought to be articulated and treated as rights. Accordingly, any tensions between intellectual property rights and the fundamental right to free speech ought to be resolved in *dubio pro libertate*, i.e. in favour of freedom, on the moral grounds that intellectual property rights are the exceptions to the major principle of the freedom of use (Geiger 2017). In corollary, the reversal and replacement of the rule of exclusivity by the rule of freedom, which characterises the critical normative theory of the intellectual commons, purports to guarantee and safeguard the institution of the public domain as a common space of free speech within a participatory and democratic public sphere.

Taking into account their connection with free speech, intellectual commons can also be claimed to cultivate critical and diverse scientific, technological and cultural environments. According to article 2 § 1 of the UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Expressions, “(c)ultural diversity can be protected and promoted only if human rights and fundamental freedoms, such as freedom of expression, information and communication, as well as the ability of individuals to choose cultural expressions, are guaranteed”⁷⁸. The wide diffusion of the means of intellectual production in societies constitutes an environment of open and equipotential

opportunities of participation to science and culture for individuals and communities and, eventually, makes possible decentralised forms of scientific discourse and the growth of cultural diversity. The objective conditions for the rise of the intellectual commons are enjoined with the creative force of the social intellect, which is manifested in the mass intellectuality of commoners both within and beyond the workplace. The participatory and communal aspects of the intellectual commons encourage individuals and social groups to create, innovate, collaborate, share and disseminate their own intellectual achievements and facilitate access to the intellectual achievements of others. These characteristics of commons-based peer production give rise to collaborative innovation and a novel folk culture in the networked information economy and render science, technology and art more transparent, critical and self-reflective). Commons-based peer production thus has a democratising effect on the organisation of intellectual production and the content of science, technology and culture. Through increased participation in the process of contributing to scientific progress and making cultural meaning in the communities of the intellectual commons, citizens are transformed from passive receivers of centrally manufactured intangible commodities into co-shapers of the social world they inhabit. Furthermore, to the extent that such communities take control of aspects of intellectual production, there is a power shift from the state and corporations to modes of decentralised decision-making regarding the evolution of our scientific and cultural environments. Even though they are neither tautological with democracy nor automatically lead to more democratic polities, the intellectual commons constitute spaces and vehicles for the democratisation of science, technology and culture in contemporary societies. The critical normative theory of the intellectual commons justifies the morality of commons-oriented institutions and policies on the grounds of the link between the intellectual commons and democracy. From such a standpoint, the aspects of participation, creative pluralism, critical discourse and self-governance, which generally characterise commons-based peer production, are held to democratise facets of economic and political power in our societies. For all these reasons and drawing from the inherent moral value of the democratic

ideal, the critical normative theory of the intellectual commons advocates the institution of an independent body of intellectual commons law with the purpose of unleashing the democratising potential of the intellectual commons.

9.7. BASIC ELEMENTS OF AN INTELLECTUAL COMMONS LAW

The ethical and political considerations exhibited in this chapter justify the enactment of an independent body of law for the protection and promotion of the intellectual commons. The cornerstone for the legislation of an intellectual commons law is the human right of everyone to take part in science and culture. Its full realisation requires detailed statutory provisions for the interrelation of the freedom of science and culture with individual authors' rights on an equal footing.

A law for the intellectual commons needs to be based on independent legal principles, as means to acquire independence from the system of intellectual property law. The formulation of its principles should benefit from existing proposals for the reform of intellectual property law. Such proposals mainly focus on copyright exceptions and limitations. In the quest for a more equitable balance between the freedom of science and culture and private enclosures, scholars and policy-makers have often called for their flexibility (indicatively Hugenholtz and Senftleben 2011; Samuelson 2017) or for the expansion of their scope and subject matter (indicatively Lohmann 2008; Hargreaves 2011). In this respect, an independent body of law for the intellectual commons should embody principles of law, which will effectively delineate its contours from the system of intellectual property law and create a new pro-commons system of statutory rules. In this new system of law, the freedom of non-commercial creativity and innovation shall be the rule, thus trumping any types of enclosure upon intangible resources, and its encroachment by exclusive rights shall be the exception, applicable only in cases justified by ethical considerations and empirical evidence.

In addition, intellectual property reform proponents stress out the need of protecting the public domain (Lange 1981; Litman 1990; Benkler 1999; Boyle 2003). In this context, access to the public domain is viewed as crucial for the independent creation of intellectual works by members of the public. Yet, several scholars point out the lack of an explicit recognition and protection of the public domain under the law (Cahir 2007; Dussolier 2011; De Rosnay and De Martin 2012). In the context of an intellectual commons law, the public domain will need to acquire a positive legal status through its affirmative recognition by statute. Furthermore, public domain material will have to be converted by law from its current state of *res nullius* imposed by intellectual property law into the legal status of *res communis omnium*, i.e. used by all but appropriated by none. Finally, the scope of the public domain will need to be expanded, in order to accommodate and protect all categories of intangible resources, which have infrastructural role in intellectual production.

Furthermore, certain scholars and interest groups propose a user-rights approach to intellectual property law reform. In particular, it has been asserted that access to knowledge needs to be protected and promoted by the law, because it leverages economic development and social cohesion (International Federation of Library Associations and Institutions and Technology and Social Change Group 2017 and 2018). Accordingly, a number of scholars have called for the recognition of rights of non-commercial access and use of protected works within the system of copyright law (Cotter 2010; Voorhoof 2015; Koren 2017; Geiger 2018). According to the normative perspective taken in this study, legal rules for the regulation of commercial and non-commercial use of intangible resources should differ for ethical and political reasons. In relation to commercial use, it should be noted that property interests emerge as a result of resource scarcity. Given that intangible resources are essentially abundant, exclusive rights are mainly granted to forbid free-riders from economically exploiting protected intellectual works. Yet, this justification holds no water in relation to the non-commercial use of intellectual works, the economic value of which takes the form of use-value, not exchange value. Within the framework

of an intellectual commons law, affirmative rights of non-commercial access and transformative use of pre-existing intangible goods will need to be recognised for the exercise of everyone's creativity and innovation. Hence, the interrelation between intellectual property and intellectual commons law will be clearly demarcated, with the former regulating commodity markets of intangible goods and the latter establishing a non-commercial sphere of unleashed social creativity and innovation, which will also have beneficial spillover effects to commodity markets.

Given the foregoing, an independent body of law for the intellectual commons can be based on the following principles of law:

- The principle of the freedom of non-commercial creativity and innovation, according to which any types of transformative use of intangible resources ought not to be restricted on the condition that they remain non-commodifiable.
- The principle of the exceptional nature of exclusivity, according to which exclusive rights upon intangible resources ought to be granted by the state only when and up to the extent that such rights are justified, backed up by empirically sound evidence produced through independent and impartial impact assessments. In compliance to this principle, intellectual works considered as fundamental for creativity and innovation will have to be placed by default in the public domain.
- The principle of the lawfulness of exclusivity, according to which exclusive rights upon intellectual works ought to be conferred only for the purpose of providing sufficient remuneration to creators and producers, so as to promote the progress of science and the wide circulation of information and ideas. Protection that goes further and in a way incompatible with this purpose should be deemed as illegitimate and should not be granted.
- The principle of the proportionality of exclusivity, according to which exclusive rights upon intellectual works ought to be protected only

insofar as this protection is adequate, relevant and necessary in relation to the purpose for which they are protected.

- The principle of the temporality of exclusivity, according to which the duration of exclusive rights ought to be determined in accordance to the type of the relevant intellectual work and the purposes of their protection. Thus, works should not be protected longer than is necessary for the purpose for which they are protected.

Furthermore, such a body of law ought to have the following core elements:

- The re-constitution of the freedom to take part in science and culture as the rule to the exception of private rights of exclusivity upon intellectual works.
- The introduction of sets of extensive rights to access, work upon and transform information, knowledge and culture for non-commercial purposes.
- The re-constitution of the public domain as a positive common space of sharing, collaboration, innovation, and freedom of expression through proactive laws and policies for its protection and promotion.
- The expansion of the public domain to cover all types of infrastructural intangible resources and social uses, which are important for intellectual production, social justice and democracy.

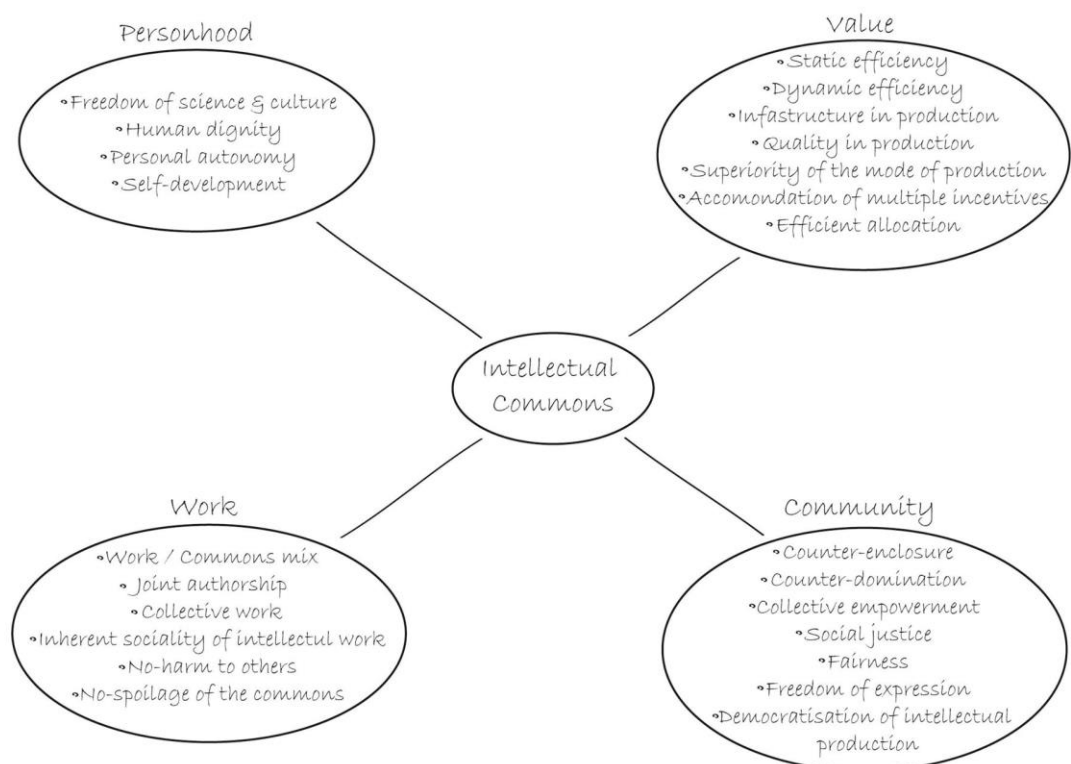
9.8. CONCLUSION

Dominant normative perspectives of intellectual production, distribution and consumption are generally orientated towards the justification of property. As a result, such perspectives remain confined within the framework of intellectual property law and, thus, fail to provide adequate ethical grounds for legal institutions enabling commons-based practices of knowledge sharing and collaborative creativity and innovation. This failure necessitates the establishment of an alternative normative approach orientated towards the

intellectual commons.

By benefiting from the arguments of the previous chapters of the study, the current chapter aims to provide a normative model for the moral justification of the intellectual commons as a social totality. This model unfolds at three levels. At the first level, it focuses on the fundamental ontological elements of the intellectual commons, i.e. the elements of personhood, work, value and community. At the second level, it examines the morally significant characteristics of each of the foregoing elements. At the third level, the ethical arguments of the model provide the moral grounds for a distinct and independent body of law for the protection and promotion of the intellectual commons beyond the inherent limitations of intellectual property law. A summary of this model is displayed in the following figure:

Figure 9.2 A Normative Model for the Intellectual Commons



Source: Author

In corollary, the ethical considerations exhibited in this chapter outline the contours of a law for the intellectual commons.

10. CONCLUSION

10.1 INTRODUCTION

The current thesis constitutes an intellectual endeavour for addressing the following research question: Why are the intellectual commons morally significant and how should they be regulated so that their social potential is accommodated? The foregoing main question of the thesis is further articulated in detail in the following five sub-questions:

- RQ1: Which are the elements, characteristics, tendencies and manifestations of the intellectual commons and their potentials for society?
- RQ2: Which are the main theories regarding the social potentials of the intellectual commons and how are the intellectual commons in these theories perceived to be related with the dominant power of capital?
- RQ3: How have the cultural commons been shaped across history and, in turn, how have they have shaped society?
- RQ4: How is social value generated, circulated, pooled together and redistributed within and beyond the communities of the intellectual commons? What relationship is there between commons-based and monetary values?
- RQ5: Which elements and characteristics of the intellectual commons have moral significance and which ought to be the fundamentals of an intellectual commons law, which will adequately accommodate their potential?

This chapter provides, on the one hand, a brief summary of the research results in regard to the main question and sub-questions of the thesis and, on the other hand, conclusive remarks and recommendations for further research. The following section of the chapter presents a brief summary of the study. Sections 10.3 to 10.7 exhibit the results of the research in relation to sub-questions RQ1 to

RQ5 correspondingly. Section 10.8 of the chapter summarises the result of the study in regard to the main research question, by consolidating the results of the sub-questions. Section 10.9 examines the political implications of the thesis. Finally, section 10.10 discusses the limitations of the thesis and recommends further fields of elaboration on the subject matter of the current research.

10.2. BRIEF SUMMARY

The current thesis asserts that the intellectual commons are of academic interest, because they have the potential to (i) increase access to information, knowledge and culture, (ii) empower individual creators and productive communities, (iii) enhance the quantity and quality of intellectual production, and (iv) democratise creativity and innovation. Therefore, it is argued that the intellectual commons ought to be regulated in ways which accommodate the potential mentioned above. The inherent values and net social benefit of aspects related to personhood, work, value and community within the sphere of the intellectual commons morally justify the enactment of a distinct body of law with the purpose of protecting and promoting commons-based peer production.

Throughout the thesis, the intellectual commons are conceived as productive self-governed communities, which generate and pool together intangible resources in conditions of relative equipotency. They consist of three main elements, which more or less refer to the social practice of pooling a resource, the social cooperation of productive activity among peers and, finally, a community with a collective process governing the production and management of the resource (Hess & Ostrom 2007a: 6, Caffentzis 2008, De Angelis 2009, Bollier and Helfrich 2015). Their main difference from the institutions of the state and the commodity market is that social power in the commons is not separated but, rather, remains immanent within the body of the community and is guarded as such. Due to their determining elements stated above, the intellectual commons exhibit propensities with a positive potential for society, which therefore bear ethical substance and are in need of protection

and advancement under the auspices of law.

In recent years, the academic interest in the study of the intellectual commons has increased exponentially, giving rise to four distinct theoretical approaches with divergent perspectives as to their social potential and capacity to generate progressive social change. In this context, rational choice theories analyse the characteristics and limitations of collective action within intellectual commons' communities and view commons-based peer production as complementary to capitalist production in cases of state or market failure. Neoliberal theories examine the ways that the intellectual commons can generate private profit or address market failures and, thus, treat them as an important component to the contemporary accumulation of capital. Social democratic theories hold that the intellectual commons are crucial for the democratisation of intellectual production, distribution and consumption and, therefore, call for their active promotion by a new form of state, which operates in partnership with the communities of the commons. Finally, critical theories consider commons-based peer production as a revelation of the transformations taking place in production, which bring forward the revolutionary force of the social intellect.

Notwithstanding ontological and epistemological arguments about their social potential, historical analysis shows that the current surge of the intellectual commons is the outcome of an evolutionary process, which ought to be taken into account by legislators and policy-makers. The current thesis offers a historical narrative of the regulation of art and culture from the standpoint of the intellectual commons. This narrative reveals the role of regulation in framing practices of sharing and collaboration among creators. Since the Renaissance and throughout Modernity, communal practices of producing and sharing culture have been systematically marginalised by property-oriented systems of law. In the current historical conjuncture, the study finds that the intellectual commons acquire again a central role in cultural production, distribution and consumption. Based on the lessons of the past, the conclusion of the study is that the law ought to recognise and accommodate commons-based practices, instead

of suppressing their potential by framing them as incompatible with the current framework of intellectual property law.

In addition to ontological, epistemological and historical arguments, empirical evidence from the social research conducted in the framework of the study also supports the conclusion that the intellectual commons embody practices with positive potential and ought, therefore, to be taken into account from the perspective of law and policy. The social research of the thesis adheres to a critical realist epistemology and a critical political economic analysis of its subject matter. In addition, the social research follows a primarily qualitative strategy and a comparative style of analysis. As far as its sampling is concerned, the research is conducted upon eight communities of the intellectual commons, which are active in the crisis-stricken Greek society. In regard to its method of data collection, the research abides by a mixed qualitative and quantitative method of collecting data through focus group interviews. As for its content, the social research of the study renders visible the alternative social values generated and circulated by the communities of the intellectual commons and highlights their inherent moral value and their beneficial impact upon society. It, thus, provides adequate grounds for the justification of positive laws for the protection and promotion of commons-based value practices. Finally, the arguments about the social potential of the intellectual commons, which are raised throughout the study, are re-assembled in a systematic way and are examined from a purely normative perspective in the ninth chapter of the thesis. These arguments provide the foundations for the construction of a general normative theory of the intellectual commons, which in turn acts as basis for the justification of an affirmative law for their protection and promotion.

10.3. RESEARCH RESULTS ON THE TENDENCIES OF THE INTELLECTUAL COMMONS AND THEIR POTENTIAL FOR SOCIETY

This section presents the results of the research in regard to RQ1 of the study concerning the elements, characteristics, tendencies and manifestations of the

intellectual commons and their potential for society. These results are analysed in detail in both the second ontological and ninth normative chapter of the thesis.

According to the results of the study regarding their propensities, the objective and subjective elements of the intellectual commons exhibit, among others, the characteristics of non-excludability, non-rivalry, zero marginal costs of sharing, cumulative capacity, non-monetary incentives, voluntary participation, self-allocation of productive activity, consensus-based coordination, communal value systems and communal ownership of shared infrastructure and resources. These characteristics give rise to tendencies of open access and sharing of intellectual resources, collaboration among commoners, self- and collective empowerment, circular reciprocity and self-governance. Yet, the intellectual commons are by no means homogeneous and consistent spheres of social activity. Rather, they are social entities, which exhibit their unity in diversity. In this respect, their manifestations reflect opposing forces of commonification and commodification. In relation to their potential, the intellectual commons can be classified in contested and co-opted spheres of commonification / commodification.

In the study, the manifestations of the foregoing tendencies are examined through the conduct of social research on actual communities of the intellectual commons. According to the outcomes of the research, contested communities generally manifest more and deeper tendencies towards sharing, collaboration, solidarity, self- and collective empowerment and self-governance than the co-opted communities of the sample. In addition, social research reveals the existence of alternative value circuits within the intellectual commons, which are in constant interrelation with the dominant value system of commodity markets, producing various degrees of contestation or co-optation between forces of commonification and commodification.

Taking into account the empirical data and conclusions mentioned above, the

propensities of the intellectual commons are then examined from a normative perspective. Elements of personhood, work, value and community within the intellectual commons are then found in the study to bear moral significance. The relation between tendencies, manifestations and moral dimensions across the study is exhibited in the table below.

Table 10.1 The Tendencies, Manifestations and Moral Dimensions of the Intellectual Commons

Tendencies	Manifestations	Moral Dimensions
Sharing	Sharing as Cultural Value- Producing Practice	No-Spoilage of the Commons Counter-Enclosure
Collaboration	Collaboration as Economic Value- Producing Practice	Joint Authorship Collective Work Inherent Sociality of Intellectual Work Efficiency in Production Quality in Production Superiority of the Mode of Production
Open Access	Use Value as Form of Economic Value	Work / Commons Mix Static Efficiency Dynamic Efficiency
Circular Reciprocity	Mutual Aid as Form of Cultural Value	Infrastructure as a Commons Efficient Allocation
		No-Harm to Others

Self-Empowerment	Self-Empowerment as Form of Political Value	Freedom of Science and Culture Human Dignity Personal Autonomy Self-Development Accommodation of Multiple Incentives
Self-Governance	Self-Governance as Form of Political Value Flow	Social Justice Fairness Democratisation of Intellectual Production
Collective Empowerment	Collective Empowerment as Form of Political Value Re-Distribution	Counter-Domination Collective Empowerment Freedom of Expression

Source: Author

Overall, the current thesis analyses the intellectual commons as sets of social practices in a constant state of becoming social totalities according to their inherent tendencies and approaches the law as an important means to facilitate such a process.

10.4. RESEARCH RESULTS ON THE MAIN THEORIES ON THE POTENTIAL OF THE INTELLECTUAL COMMONS AND THEIR RELATION WITH CAPITAL

This section presents the results of the research in regard to RQ2 of the study concerning the main theories of the intellectual commons and their divergent approaches on the relation between the intellectual commons and capital. The elaboration of the main theories of the intellectual commons is presented in the

third epistemological chapter of the thesis, whereas the moral dimension of the arguments of each theory is analysed in the ninth normative chapter of the thesis.

The main theoretical approaches of the intellectual commons consist of four theoretical families, each one of which acknowledges, albeit from different angles, both the positive potential of the intellectual commons for society and their interrelation with existing institutional arrangements, especially the dominant institutions of the state and commodity markets and the dominant social power of capital (see table below).

Table 10.2 The Potential of the Intellectual Commons and their Interrelation with Capital in Literature

	POTENTIAL	RELATION	JUSTIFICATION
Rational Choice Theories	Complement to Markets and the State	Patch to Capital	Consequentialist
Neoliberal Theories	Component of Capital Accumulation	Fix to Capital	Utilitarian
Social Democratic Theories	Substitute to the Welfare State	Synergy with Capital	Deontological
Critical Theories	Non-Domination	Alternative to Capital	Political

Source: Author

Rational choice theories provide consequentialist justifications of the intellectual commons criteria, by evaluating the efficiency commons-oriented institutions for social utility. As a starting point, these theories debunk the myth advanced by Garrett Hardin (1968) in his essay “The Tragedy of the Commons” that

commons-oriented regimes of managing resources are by default inefficient. By elaborating on their typologies, such approaches reveal both the shortcomings and advantages of commons-based practices in comparison to state- or market-based modes of organisation. Where commodity market and state management fail, commons-oriented regimes tend to exhibit better outcomes in the management of intellectual resources. In certain well-documented cases, communities of the intellectual commons even out-compete corporations and states in maximising net social benefits for the common good. The moral dimension of rational choice theories is that, in such cases, commons-based practices in the production, distribution and consumption of intellectual resources ought to be established, protected and promoted by legislators and policy - makers. Yet, rational choice theories provide a theoretical framework for the evaluation of the intellectual commons in relation to their potential for social change, which limits the latter in a complementary position to intellectual property - enabled markets. Given the dominance of the capitalist mode of intellectual production, distribution and consumption, the vast asymmetries of power this dominance entails and its contentious relationship with the intellectual commons, this supposed complementarity is inevitably translated in reality as a patch to capital.

On the other hand, neoliberal theories justify the morality of commons-based peer production from a utilitarian perspective. Such theories consider the intellectual commons as valuable due to their potential for capital accumulation. Neoliberal theorists claim that commons-based practices tend to produce significant amounts of social value, are capable of resolving market failures in the management of strategic resources and, in certain respects, constitute a superior mode for the organisation of the social intellect in the contemporary techno-social context. The main objective of this approach is to unearth possible ways through which corporations can capture the immense social value, which lies dormant within the intellectual commons, transform communally managed resources into commodities and, ultimately, enhance business profitability. On the basis of their potential for the generation of private profit, neoliberal thinkers

claim that a relation of mutually beneficial co-existence between commodity markets and the intellectual commons is not only an attainable but also a desirable business and policy choice, on the grounds that it benefits social well-being. Their advocacy for such a choice thus opens the discourse for a more balanced intellectual property regime, which aims to reconstruct capitalist accumulation in knowledge-based economic sectors along rational lines. It is in this context that neoliberal thinkers consider that the commons could act as fix to capital and give birth to a more balanced economy, which would combine the best elements of both worlds. In Peter Barnes' words, "[t]he essence [...] is to fix capitalism's operating system by adding a commons sector to balance the corporate sector. The new sector [...] would offset the corporate sector's negative externalities with positive externalities of comparable magnitude" (Barnes 2006: 65-6).

In contradistinction, social democratic theories evaluate commons-based peer production as important in itself, because it promotes collective aims, such as democratic participation, human community, sociality and efficiency in intellectual production, distribution and sharing, without burdening individual freedom. As social democratic theorists see it, the intellectual commons have the potential to re-balance power in the networked information environment between civil society on the one hand and government and corporate power on the other, whereas, at the same time, they offer the opportunity for a mutually beneficial relationship with the forces of the market by "adding value" to one another (Bollier 2008: 251). In addition, political economists within the social democratic tradition hold that the circulation of value under the existing power co-relations between capital and the intellectual commons operate to the detriment of the latter. Therefore, such thinkers believe that a productive ecosystem between intellectual commons' communities and for-profit corporations is only attainable through deliberate state policies inclined to circulate value back to the sphere of the intellectual commons and shift power to the hands of civil society (Kostakis and Bauwens 2014). For these reasons, social democratic theorists advocate radical institutional and legal reforms

within the state apparatus, which will render its transformation from the withering welfare state-form into a new form of state in partnership with the communities of the intellectual commons.

Accordingly, critical theories hold that commons-based practices are morally justified on political grounds due to their potential for the displacement of forms of domination by social relations oriented towards freedom, equality and collective empowerment. Critical theorists examine the commons within the wider context of social antagonism as unified practices without the confines of separate categories, such as intellectual, social or material. According to the critical approach, the interrelation between the commons and capital is conceived as a dynamic process of both domination and resistance between the conflicting forces of commodification and commonification. Commencing from an understanding of the labour / capital antagonism as inherently irreconcilable, critical intellectuals reject any possibilities for the “harmonious” interrelation between the commons and capital and, instead, project two possible states of sublation between the two. Whereas in the one case the commons are co-opted and subsumed under capital, such theorists favour the alternative prospect, in which the forces of commonification openly contend capitalist relations of production and proceed to the socialisation of the economy and the polity. Eventually, the centre of gravity, from which social change is ultimately generated, is not the state but rather the communities of the commons and the wider movements for social emancipation. When forces of commonification at the social base reach a certain stage of development, the revolutionary act of force shall give birth to the new commons-based society.

The theories of the intellectual commons provide substantial justifications for the promotion of commons-oriented institutions in contemporary societies. The deontological and consequentialist arguments in support of the intellectual commons, as exhibited in the epistemological chapter, inform the analysis of the normative chapter of the thesis. Hence, the deontological and political arguments of the epistemological chapter are employed to support the moral

significance of personhood, work and community within the intellectual commons. Accordingly, the consequentialist arguments of the epistemological chapter are further analysed to highlight the moral significance of commons-based value.

10.5. RESEARCH RESULTS ON THE INTERRELATION BETWEEN CULTURAL COMMONS, LAW AND SOCIETY FROM THE RENAISSANCE TO OUR AGES

This section exhibits the results of the research in regard to RQ3 of the study concerning the historical evolution of cultural commons and their interrelation with law and society, as elaborated in the fourth historical chapter of the thesis.

The historical chapter of the thesis is a case study of the relation between the cultural commons and the law in Europe and the United States of America from the Renaissance to our ages. The chapter examines the ways in which the cultural commons have been shaped across the last six centuries and, in turn, have shaped law and society. It sketches out an agonistic history of the intellectual commons, by approaching the evolution of the latter as a result of battles between owners and commoners over countervailing modes of sharing and enclosure, collaboration and competition, self-governance and domination. From such a standpoint, art and culture have been interpreted as terrains of contestation between forces of commonification and commodification in interaction with institutions, norms and law.

The basic tenet of the chapter is that creativity and sociality are essential aspects of the human being. In the terrain of intellectual activity, those characteristics are manifested in patterns of sharing and modes of collaborative artistic creation. Yet, the manifestations of socialised creativity and inventiveness in the historical periods of the case study have been determined to a large extent by the dominant ways that intellectual production, distribution and consumption were organised. In modernity and in our ages, socialised creativity and

inventiveness are framed and organised according to the rule of capital, which institutionalises the enclosure and commodification of information, knowledge and culture in order to safeguard, circulate and accumulate its social power. The conclusion drawn from the historical analysis of the chapter is that legal institutions from the Renaissance to our ages have systematically disregarded the prominent role of sharing and collaboration in art and culture, thus suppressing the social potential of the intellectual commons, instead of accommodating it.

In the modern and postmodern history of art and culture narrated in the chapter, forces of commonification evolve alongside and in constant interrelation to forces of commodification, forming dominant and alternative social practices in production. Given that each historical period embodies in germ form the transitive characteristics of the modes of production in the period to come, commons-oriented tendencies evident in the past and present of intellectual production have the potential to fully unleash the capacities of the social intellect in the future. According to the current analysis, the collaborative aspects of cultural production have nowadays become more prevalent. Hence, the outcomes of the historical chapter provide additional moral justifications for an intellectual commons law, which will accommodate the potential of contemporary commons-based aspects of cultural production, distribution and consumption.

10.6. RESEARCH RESULTS ON VALUE CIRCULATION AND VALUE POOLING WITHIN AND BEYOND THE INTELLECTUAL COMMONS

This section presents the results of the research in regard to RQ4 of the study concerning the ways that social value is generated, circulated, pooled together and redistributed within and beyond the communities of the intellectual commons and concerning the dialectics between commons-based and monetary values. These results are exhibited in full detail in chapters 5-8 of the thesis, which constitute the core research of the overall study. In addition, the moral

significance of commons-based value is being dealt with in the ninth normative chapter of the thesis.

The social research of the study provides empirical evidence about the existence of distinct sequences and circuits of social value circulating within and beyond the communities of the intellectual commons. Evidence further shows that these commons-based value circuits come in specific interrelations with monetary value circuits, resulting in value crises in the intellectual commons.

The results of the research provide insights concerning the nature, dimensions, sequences and circuits of commons-based value. In this regard, social value refers to sets of practices which are considered as important by communities or society in general. In the context of the intellectual commons, social value is manifested in specific forms across the economic, *stricto sensu* social, cultural and political dimensions of productive communal activity. The sequences of value transformation are those of generation, circulation, pooling together and redistribution. In each social dimension, the circuits of commons-based value take two forms, i.e. one form in contestation with capitalist forms of value and one form co-opted by capitalist forms of value. Taking the foregoing into account, the circuits of commons-based value generally take the form of the following formulae:

Table 10.3 The Formulae of Commons-Based Value Circulation

Dimensions	Circuits	Formulae
Economic	Contested	Collaboration → Use value → Gift → Common Pool Resource → Gift [CL→UV→G→CPR→G]
	Co-opted	Competition → Exchange-Value → Commodity → Private Appropriation → Commodity [CP→EV→C→PA→C]
	Contested	Productive Contribution → Merit → Trust →

Stricto Sensu Social		Communal Cohesion → Social Cohesion [PP→MR→T→CC→SC]
	Co-opted	Financial Contribution → Control of Infrastructure → Monetary Exchange → Social Capital → No Redistribution [F→MR→M→SCa→SC/N]
Cultural	Contested	Sharing → Mutual Aid → Shared Ethos → Communal Identity → Mutuality Ethics [S→MA→SE→CI→ME]
	Co-opted	N/A
Political	Contested	Participation → Self-Empowerment → Collective Empowerment → Community Self-Governance → Collective Empowerment [P→SE→CE→CSG→CE]
	Co-opted	Deliberation → Self-Empowerment → Collective Empowerment → No Accumulation → No Re-Distribution [D→SE→CE]

Source: Author

Value flows recorded through the research show that the intellectual commons produce and re-distribute to society immense amounts of value. In addition, the circuits of commons-based value constitute the intellectual commons as value spheres interdependent and, yet, distinct from the dominant value system of commodity markets. Interdependence is manifested in the penetration of intellectual commons communities by the universality of money as the general equivalent of social value. Transvestment of value between these two worlds is thus unilateral. Most forms of social value generated by commons-based practices are generally capable of being transformed into money and commodities, whereas the opposite conversion has not been observed in practice. Given that commodity markets are the dominant system of value

circulation in our societies, the unilateral flow of social value from the communities of the intellectual commons towards society without the existence of any counter-balancing flows to compensate the expenditure of productive communal activity leads to value crises. Such crises exert significant pressure upon commons-based practices and direct communities towards forms of commodification. Hence, depending on the quantity and quality of their penetration by monetary values, the communities of the intellectual commons evolve either in contested or co-opted form vis-à-vis the power of capital.

Rather than being mere economic mechanisms for the allocation of resources, commodity markets have strong ethical repercussions, since they are capable of distributing rewards and retributions in the form of monetary remuneration or monetary scarcity to individuals and communities. In the framework of commodity market dominance, lack of transvestment renders commons-based values invisible, monetary scarcity obstructs the reproduction of intellectual commons' communities and value crises discredit the intellectual commons as social practices worth protecting and promoting. Given that, as already stated, the intellectual commons literally yield enormous value to society, their artificial devaluation and consequent displacement from affirmative policy choices is a detrimental social construct accruing from the ideological fixation on the commodity market as the exclusive and most efficient human mechanism for the allocation of resources and values. Following the outcomes of the social research, the normative chapter of the thesis highlights the moral significance of commons-based value and provides utilitarian arguments for the justification of proactive legal rules in favour of the intellectual commons.

10.7. RESEARCH RESULTS ON THE JUSTIFICATION OF AN INTELLECTUAL COMMONS LAW

This section presents the results of the research in regard to RQ5 of the study concerning the moral dimension of the intellectual commons. Whereas arguments regarding the social potential of the intellectual commons are

developed throughout the study, their consolidation into an integrated normative model of intellectual commons is unveiled in the ninth normative chapter of the thesis.

The normative chapter of the thesis aims to provide adequate moral justifications for an affirmative law of the intellectual commons. In order to achieve its purpose, the analysis in this chapter collects and consolidates arguments regarding the social potential of the intellectual commons from all other chapters of the study. According to its analysis, the intellectual commons are held to be important from a normative perspective, because they embody in their practices the following morally significant characteristics in relation to the aspects of personhood, work, value and community:

Table 10.4 The Justification of an Intellectual Commons Law

Aspects	Characteristics	Justification
Personhood	Freedom of Science and Culture Human Dignity Personal Autonomy Self-Development	Deontological
Work	Work / Commons Mix Joint Authorship Collective Work Inherent Sociality of Intellectual Work No-Harm to Others No-Spoilage of the Commons	Deontological
Value	Static Efficiency Dynamic Efficiency Infrastructure as a Commons Efficiency in Production Quality in Production	Utilitarian

	Superiority of the Mode of Production Accommodation of Multiple Incentives Efficient Allocation	
Community	Counter-Enclosure Counter-Domination Collective Empowerment Social Justice Fairness Freedom of Expression Democratisation of Intellectual Production	Political

Source: Author

Whereas the sets of arguments in relation to commons-based value follow a utilitarian line of justification, arguments related to personhood and work in the intellectual commons are primarily of a deontological nature. Finally, arguments related to communal practices within the intellectual commons highlight the political significance of commons-based production, distribution and consumption of intangible resources. In combination, the foregoing argumentation forms a holistic normative model for the moral justification of the intellectual commons as a social totality.

According to the approach employed in the thesis, an independent body of intellectual commons law is conceived as an enabling legal institution for commons-based practices of knowledge sharing and collaborative creativity and innovation. In its conclusion, the ninth normative chapter enlists the fundamentals of such a body of law, which warrant that the potential of the intellectual commons will be adequately accommodated. The first crucial step is the re-constitution of the public domain as a common space of sharing, collaboration, innovation, and freedom of expression through policies for its

protection, expansion and enrichment. Secondly, a commons-oriented legal framework ought to unconditionally recognise and protect the creative practices within commons-based peer production and guarantee the characteristics of societal constitutionalism encountered in intellectual commons' communities. Finally, commons-oriented legal institutions ought to treat the freedom to take part in science and culture as the rule to the exception of private rights of exclusivity upon intellectual works, by introducing sets of extensive rights to access, work upon and transform information, knowledge and culture for non-commercial purposes.

10.8. RESEARCH RESULTS ON THE MORALITY OF THE INTELLECTUAL COMMONS

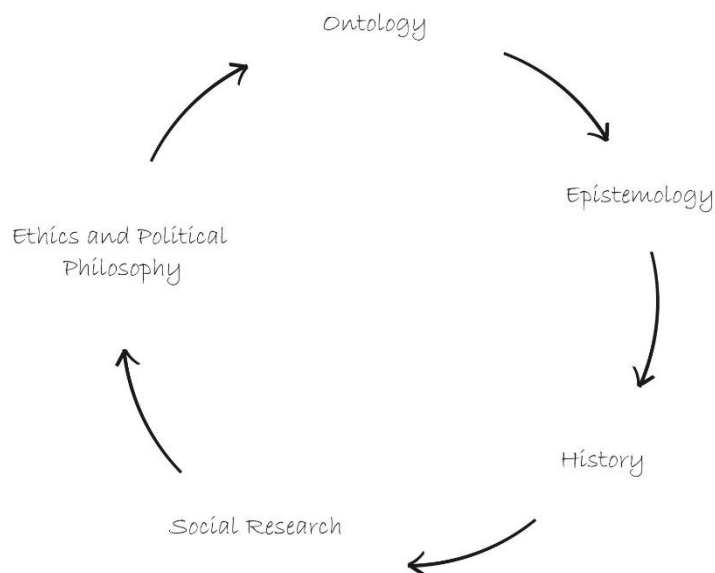
The results on the sub-questions of the study allow us to proceed with the main result of the thesis. In this context, let us re-state the main research question: Why are the intellectual commons morally significant and how should they be regulated so that their social potential is accommodated?

In brief, the results of the current thesis assert that the intellectual commons are a social regime for the regulation of intellectual production, distribution and consumption, which bears moral significance. Until now, positive law at the international, transnational and national level has failed to address the social potential of the intellectual commons. Morality, therefore, requires that such potential is appropriately accommodated by the law. The appropriate means to achieve this aim is the enactment of an independent body of statutory rules, which protects the intellectual commons from encroachment by private enclosures and promotes commons-based practices in the form of a non-commercial sphere of creativity and innovation in all aspects of intellectual production, distribution and consumption.

At a meta-level of analysis, the moral justification of the intellectual commons in the thesis evolves from the ontological to the normative level of analysis in

spiral form. In particular, the ethical argumentation of the thesis commences with ontological, epistemological and historical analyses, proceeds with social research and concludes with the normative perspective of the intellectual commons. The latter is constructed through a back and forth movement between morally significant aspects of the intellectual commons discovered at previous levels of analysis and ethical judgements stipulated in the ninth normative chapter. This cycle of moral justification is exhibited in the table below:

Figure 10.1 The Cycle of Moral Justification



Source: Author

In each level of analysis, the moral justification of the intellectual commons is conducted by adhering to the critical methodological choices stated below:

Table 10.5 The Methodology of Moral Justification

Level of Analysis	Methodology
Ontological	Processual Ontology
Epistemological	Critical Theory

Historical	Critical History of Law
Empirical	Critical Realism & Critical Political Economy
Ethical and Political	Critical Jurisprudence

Source: Author

Throughout the study, the social potential of the intellectual commons is utilised as the overarching basis for their moral justification. This approach is taken for several reasons. To begin with, the concept of the social potential is orientated towards social change in line with the critical perspective of the thesis. For this reason, the whole ethical argumentation of the study is based on the dialectical relation between the potentiality and actuality of the intellectual commons, i.e. not evaluating them on what they currently are but on what they are capable of becoming. Furthermore, the concept of the social potential cuts across all levels of analysis. It thus becomes the focus of the ontological, epistemological, historical and empirical research of the study. Most important, the concept of the social potential is capable of encompassing deontological, consequentialist and political modes of moral justification in an all-inclusive manner. Hence, it renders possible the formulation of a holistic normative model of the intellectual commons, which benefits from all the foregoing modes of justification.

Along these lines, the social potential of the intellectual commons constitutes the nexus for the connection of the research results of all levels of analysis featured in the study. Each level of analysis features a presentation of the actuality and potentiality of the intellectual commons. The normative level of analysis offers a moral evaluation of both of these aspects and provides arguments to justify the intervention of the law. The consolidation of the results of the sub-questions into the main result of the thesis are described in the following table:

Table 10.6 The Social Potential of the Intellectual Commons

Level of Analysis	Actuality of the Intellectual Commons	Potentiality of the Intellectual Commons
Ontological	Characteristics of Commons-Based Peer Production ⁷⁹	Tendencies of Commonification ⁸⁰
Epistemological	<ul style="list-style-type: none"> - Addressing state and market failure, - Increasing private profit, - Democratising intellectual production, - The real movement of communism within the current capitalist formation. 	<ul style="list-style-type: none"> - Complement to markets and the state, - Component of capital accumulation, - Partnership with the state, - Alternative to capital.
Historical	Alternative mode of contemporary intellectual production, distribution and consumption suppressed by intellectual property law.	Main mode of intellectual production, distribution and consumption promoted by intellectual commons law.
Empirical	<ul style="list-style-type: none"> - Contested and co-opted circuits of commons-based value. - Value crises within the sphere of the intellectual commons. 	<ul style="list-style-type: none"> - Contested circuits of commons-based value. - Transvestment of monetary into commons-based value.
Ethical and Political	<p>Protection by the law through:</p> <ul style="list-style-type: none"> - The principle of the exceptional nature of exclusivity, - The principle of the 	<p>Promotion by the law through:</p> <ul style="list-style-type: none"> - The principle of the freedom of non-commercial creativity and innovation,

	<p>lawfulness of exclusivity,</p> <ul style="list-style-type: none"> - The principle of the proportionality of exclusivity, - The principle of the temporality of exclusivity, - Statutory rules for the protection of the public domain. 	<ul style="list-style-type: none"> - Statutory rules for the expansion of the public domain, - Extensive rights to access, work upon and transform information, knowledge and culture for non-commercial purposes.
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Source: Author

According to the main result of the thesis described above, the contemporary formations of the intellectual commons feature elements of inherent moral value, produce outcomes of net social benefit and underpin freedom, justice and democracy in ways, which justify their protection by the law. Furthermore, their potential to expand the foregoing characteristics of moral significance ethically requires to be accommodated by the law. In order to address the morality of the intellectual commons, the central argument of the thesis is that an intellectual commons law ought to be adopted in relative independence from intellectual property law. Such a field of law should embody statutory rules for the protection and promotion of the intellectual commons and effectively construct a non-commercial sphere of collaborative creativity and innovation in parallel to intellectual property enabled-commodity markets.

10.9. CONCLUDING REMARKS AND POLITICAL IMPLICATIONS

In contemporary societies, the powers of the social intellect are dominated by the actuality of capital, commodity markets of intangible goods and intellectual property law. The effective enclosure and private ownership of intangible resources renders possible the imposition of commodity markets as the primal

modes of regulation in our networked information economy. Intellectual property law conjoins the intellectual commons and the commodity markets into a unity of valorisation under the rule of capital. The ratio legis of intellectual property law reveals a delicate balance between private rights and the common interest. In particular, intellectual property law purports to strike an appropriate balance between the interests of authors, inventors or other right-holders in the exploitation of exclusive rights and society's opposing interest in the open access and free use of intellectual resources. The limited duration and the exceptions and limitations to intellectual property rights permit the incremental production of intangible resources. The doctrine of the public domain and the divide between exclusive rights and unprotected subject matter, such as ideas, discoveries and data, constitute a form of recognition of the intellectual commons by the law, albeit reduced to act as component to capital accumulation. From such a perspective, intellectual property law can be characterised as a semi-property / semi-commons institution, based on the recognition of both exclusive private rights and privileges of shared or common use upon intangible resources (Heverly 2003; Smith 2007)⁸¹. Nevertheless, such commons-oriented institutional characteristics within the body of intellectual property law do not seem to provide a sufficient counterweight to its inherently property-oriented essence. The semi-property prevails over the semi-commons element.

On the other hand, the intellectual commons is a non-legal concept referring to any communal regime of shared use of intangible resources, which constructs common spaces of collective creativity and innovation. In contradistinction to the power of exclusion conferred by the institution of property, institutions of the intellectual commons deal with the management and equitable allocation of rights of usage over resources. In these institutional arrangements, sharing of intangible resources among members of a community or among all members of society displaces private or state enclosure and communal decision-making displaces the accumulation of political power at singular points of agency. The concept of the intellectual commons is thus broad enough to include both the

open access regime of the public domain and spaces of regulated use encountered in “copyleft” licencing regimes. Rather than proposing reforms within the property-oriented framework of contemporary expansive intellectual property laws, the current thesis advances a normative line of argumentation in favour of an independent body of law for the regulation of the intellectual commons, i.e. both the open access commons of the public domain and any other type of regime orientated towards the shared use of intellectual works. The appropriate protection and promotion of these two sectors of our intellectual commonwealth aspires to construct a vibrant non-commercial zone of creativity and innovation in parallel to intellectual property enabled commodity markets of intellectual works.

The compatibility of an intellectual commons law with contemporary intellectual property laws provides a hard reality-check for commons-oriented policy-makers. Transnational and international intellectual property law treaties form a sophisticated framework of legal rules, which prevail over contradicting national laws. This framework entrenches the property-oriented regulation of intellectual production, distribution and consumption at the global level and leaves space for reform only at the sidelines of intellectual property law, let alone radical changes such as the enactment of independent commons-oriented rules. Hence, the ambitious aim for the establishment of an intellectual commons law inevitably entails shifts in transnational correlations of power, which render possible the reform of intellectual property laws towards their becoming compatible with the construction of the non-commercial sphere of the intellectual commons.

10.10. LIMITATIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH

This study builds upon previous theoretical and empirical work on the reform of intellectual property law and the protection of the public domain⁸². At the same time, it calls attention to the limitations of intellectual property law

reformism, which remains confined within the property-oriented legal framework of the current condition. As an alternative, the current analysis supports the radicalisation of intellectual property law reformism through a shift in focus of the relevant discourse towards the intellectual commons as an independent source of moral value and object of law worth being affirmatively protected and promoted.

Of course, the approach described above has its own limitations. Debating on the morality of an imaginary body of law still to come in force in any jurisdiction in the world runs the risk of becoming wishful thinking, given the limited penetration of commons-oriented policy-making and the negative correlations of power in the relevant centres of decision-making. Yet, this study does not attempt to re-invent the wheel in the relevant field of law. Rather, its much more modest purpose is to re-imagine the commons-based elements already present within intellectual property law, such as the public domain and the exceptions and limitations of exclusive rights, and re-construct them in a novel and systematic way into an independent commons-oriented body of law with its own moral justification, general principles, ratio legis, doctrines of law and jurisprudence.

Given the immense extent of such a project, this study cannot but end far from fully describing how the law of the intellectual commons ought to look like. Future legal research ought to focus on the following fields of commons-oriented policy-making, as these have been stressed out both in this study and in the relevant literature:

A. The affirmative recognition of the public domain by positive law as a common space for the exercise of the freedom of science and culture, encompassing all uses upon intellectual works not restricted by exclusive rights (Benkler 1999: 361).

B. The expansive definition of the public domain by positive law, encompassing all categories of intangible resources and all types of social uses, which are

important for intellectual production, social justice and democracy due to their infrastructural nature.

C. The protection and realisation of the freedom of the public to access and use the public domain, both as negative liberty and as social right vis-à-vis the state to ensure to everyone an adequate minimum of such access and use.

D. The specification of the freedom of science and culture in positive law through the enactment of new private rights to access, work upon and transform protected intellectual works to create derivative or new intellectual works for purposes of non-commercial creativity and innovation within and beyond the limitations of international intellectual property law treaties.

E. The institutionalization of the balancing act between, on the one hand, the freedom to take part in science and culture and, on the other hand, exclusive rights engraved in intellectual property laws, through the enactment of appropriate principles of law and institutional mechanisms, which will guarantee the exceptional nature of enclosures upon intangible resources.

F. The principled reform of intellectual property laws at the national and international level on the grounds of striking a fair balance and averting conflicts between the fundamental freedom of the public to take part in science and culture, as specified in affirmative statutory rules of an intellectual commons law, and the human rights of authors to their works.

Taking the foregoing into account, it is evident that a significant amount of further research is required to specify legal provisions compatible with existing international intellectual property law treaties and ready to be adopted by national parliaments and international organisations in the direction of an intellectual commons law. The mere role of this study is to spark off the relevant debate.

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Appendix 1 Overview of Focus Groups' Interviewees

Focus Group	Interviewee Number	Gender	Age in Years	Education	Profession	Role
Focus Group #1 - Embros Theatre	Interviewee #1.1	M	48	University	Cinema Critic	Member
	Interviewee #1.2	M	40	Highschool	Private Employee	n/a
	Interviewee #1.3	M	54	n/a	Poet / Musician	Member
	Interviewee #1.4	M	47	n/a	Unemployed	Everything
	Interviewee #1.5	F	47	University	Actor	Member
	Interviewee #1.6	M	42	Master	Agriculturist	Member
	Interviewee #1.7	F	58	University	Actor / Director	Member
	Interviewee #1.8	M	57	University	Artist	n/a
	Interviewee #1.9	F	62	University	Artist	Member
	Interviewee #1.10	F	38	University	n/a	Member
	Interviewee #1.11	M	46	University	Civil Engineer	n/a
Interviewee	M	35	University	Physicist	Board Member	

Focus Group #2 - Libre Space Foundati on	#2.1					
	Interviewee #2.2	M	60	University	Software Programmer	Board Member
	Interviewee #2.3	M	30	University	Software Programmer	Developer
	Interviewee #2.4	M	29	University	Software Programmer	Developer
	Interviewee #2.5	M	37	Master's	Web Engineer	Board Member
	Interviewee #2.6	M	37	N/A	Sleep Technologist	Vice Chairman / Social Media / Communication
	Interviewee #2.7	F	40	MSc	Software Developer / Engineer	Contributor
Focus Group #3 - Hackersp pace	Interviewee #3.1	M	35	Highschool	Freelancer	Member
	Interviewee #3.2	M	28	Highschool	Unemployed	Member
	Interviewee #3.3	M	37	University	Programmer	Founding Member
	Interviewee #3.4	M	32	Master	Programmer	Member
	Interviewee #3.5	M	40	Master	SW and Electronics Engineer	Member
	Interviewee	M	38	Master	Researcher	Research

Focus Group #4 - P2P Lab	#4.1					Fellow
	Interviewee #4.2	F	27	University	Civil Engineer	Member
	Interviewee #4.3	M	30	University	Researcher	Member
	Interviewee #4.4	F	29	Master	Researcher	Research Fellow
	Interviewee #4.5	M	32	PhD	Academic	Research Coordinator
	Interviewee #5.1	M	37	University	Businessman	n/a
Focus Group #5 - Impact Hub	Interviewee #5.2	M	28	University	Freelancer	Member
	Interviewee #5.3	F	29	University	n/a	Community Lead
	Interviewee #5.4	F	36	Technical Education	Dietologist	Hostess
	Interviewee #5.5	M	26	University	Businessman	Member
	Interviewee #6.1	M	41	PhD	Researcher	Board Member / Founder
Focus Group #6 - Commons Lab	Interviewee #6.2	M	40	Master	Programmer	n/a
	Interviewee #6.3	n/a	n/a	PhD	n/a	n/a
	Interviewee #6.4	M	45	Technical University	Unemployed	Member
	Interviewee #6.5	M	36	Master	Software	Member

	#6.5				Engineer	
Focus Group #7 - Self- Managed ERT	Interviewee #7.1	M	53	Technical School	Technician	Image and Sound Technician
	Interviewee #7.2	M	61	Highschool	SELF- MANAGED ERT Employee	Sound Engineer
	Interviewee #7.3	M	24	Student	Student	Radio Producer
	Interviewee #7.4	M	50	University	Author	Organizing the information program
	Interviewee #7.5	M	60	Polytechnic al University	Civil Engineer	Show Producer
	Interviewee #7.6	F	49	Highschool	Computer User	Information Field
	Interviewee #7.7	F	34	Master	Unemployed	Journalist
	Interviewee #7.8	M	27	Master	Journalist	Journalist
	Interviewee #7.9	M	48	University	Journalist	Member
	Interviewee #7.10	F	50	University	Journalist	Chief editor / news presentation
	Interviewee #7.11	M	23	University	MS Student	Member

Focus Group #8 - Sarantap oro.gr	Interviewee #8.1	M	41	University	Urban Planning Engineer	Community Coordinator
	Interviewee #8.2	M	38	Master	Production Engineer	Amke Coordinator
	Interviewee #8.3	M	42	Master	Freelancer	Administrator / Amke Member
	Interviewee #8.4	M	40	University	Informatics	Network Administrator
	Interviewee #8.5	F	37	University	Environment al Engineer	Founder

Consent for Participation in Interview Research

Title of Research

Value Circulation in Intellectual Commons' Communities in Times of Crisis:
The Case of Greece

Researcher

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4052713, info@lawandtech.eu.

Short Project Description

The current research investigates how social value is generated, circulated, pooled together and redistributed within and beyond communities of the intellectual commons. The purpose of the research is to examine and compare value circulation in communities of the intellectual commons. To reach this goal, focus groups comprising of participants in eight intellectual commons' communities, which have been and/or are active in the crisis-stricken Greek society, will be interviewed.

The present research is part of the researcher's PhD, which is titled "Intellectual Commons and the Law: Constructing an Institutional Ecology for Commons - Based Peer Production". The project is not funded in any way by third parties.

Information about the Interview and Other Research Materials

The interview will be a focus group interview. Apart from you, the focus group will comprise of four to seven other participants in your community. The researcher will meet with the focus group to conduct an interview of approximately 2 hours. An audio recording will be made of the interview. A written transcript of the interview will be produced. During the interview we might take some photos that will work as visual field-notes related to the physical place in which the interview will occur. Upon request, you can be

provided access to the interview audio and transcription file and the photos taken during the interview.

Participation in the Research Project

Your participation in this research study is entirely voluntary. You are free at any time to choose not to answer a question, not to express your point of view, or not to disclose personal data. If you file a relevant request before the conclusion of the interview, any datum related to your participation shall be erased from the recording and/or deleted from the transcription. You are free to withdraw from the interview at any time before its conclusion without any negative consequence, and without being required to justify your decision. After the interview you will be requested to fill-in a printed questionnaire on the basis of anonymity. If you withdraw from the interview, at your request the recording of your contribution to the interview, any relevant photos and your response to the relevant questionnaire will be destroyed wherever possible.

Confidentiality

Any audio, photos, documents, information and data produced during the interview, including the signed consent forms and printed questionnaires, will be preserved in digital and/or hard-copy format in a portable hard disk in a secure location, to which only the researcher will have access. Interviews will be recorded on a digital audio recording devices that will be in the sole possession of the researcher for recording and transcription purposes. What you will say before, during and after the interview will remain strictly confidential. The researcher who interviews you will be aware of your identity, but will not disclose this information to any other third party. Confidentiality will be provided as stipulated under the law.

Use of Interviews

The interview will be audio recorded and transcribed. Excerpts from the interview may be used in academic and non-academic publications related to the research project. Such excerpts may be translated into English. There will

not be any publication of photos taken, the latter only being used as visual field-notes related to the physical space in which the interview will take place. The results of the research will also be disseminated in academic and non-academic publications and may also be published online.

Acquisition of Consent

If you have questions about the research or about your rights as a participant, you may contact the researcher.

By signing the present document, you acknowledge that you have read the information on the research project included above and you accept, consent and unreservedly agree with the way in which the interview will be employed and the questionnaire will be completed in the framework of the research project and with the use of the materials of the interview and the questionnaire.

Participant:

Genre: M / F, Age: _____, Education: _____, Profession:

Role in the Community: _____.

Name of Participant

Signature

Date

Researcher:

Antonios Broumas

Name of Researcher

Signature

Date

A signed copy of this document will be given to the participant.

QUESTIONNAIRE

**Value Circulation in Intellectual Commons' Communities
in Times of Crisis: The Case of Greece**

Q.1. Production in your community is mainly based on:

- Competition
- Collaboration
- Both
- Other [please describe]

Q.2. What is produced in your community is valued for:

- Its use
- What it brings in exchange
- Both
- Other [please describe]

Q.3. What is produced in your community circulates as:

- 9. Commodity
- 10. Gift
- 11. Both
- 12. Other [please describe]

Q.4. What is produced in your community is:

- ⤴ Pooled in common
- ⤴ Privately appropriated
- ⤴ Both
- ⤴ Other [please describe]

Q.5. Membership in your community is granted on the basis of:

- 1. One's contribution to the community

2. A membership fee or other financial contribution
3. Both
4. Other [please describe

Q.6. One's status in your community depends on:

1. The merit of their contribution
2. Their ownership and/or control of community infrastructure or assets
3. Both
4. Other [please describe

Q.7. Social bonds within your community are based on:

1. Trust
2. Monetary exchange
3. Both
4. Other [please describe

Q.8. Please rate the cohesion of your community:

1. Very Good
2. Good
3. Fair
4. Poor
5. Very Poor

Q.9. In your community information, knowledge and culture are:

1. Shared among members in their productive activities
2. Privately kept by members in their productive activities
3. Both
4. Other

Q.10. Members in your community pursue their productive goals through:

1. Mutual Aid
2. Competition

3. Both
4. Other [please describe

Q.11. Have members of your community developed shared ethics through their participation in the community?

1. Definitely yes
2. Yes, a bit
3. Maybe not
4. Probably not

Q.12. Has your community developed a common cultural identity?

1. Definitely yes
2. Yes, a bit
3. Maybe not
4. Probably not

Q.13. Do members participate in decision-making regarding the productive process in your community and/or its governance as a whole?

1. Definitely yes
2. Yes, a bit
3. Maybe not
4. Probably not

Q.14. Do you believe that participation in your community creates a feeling of self-empowerment to its members?

1. Definitely yes
2. Yes, a bit
3. Maybe not
4. Probably not

Q.15. Do you believe that your community as a whole is a project with characteristics of collective citizens' empowerment?

1. Definitely yes
2. Yes, a bit
3. Maybe not
4. Probably not

Q.16. Would you characterise your community as self-governed?

1. Definitely yes
2. Yes, a bit
3. Maybe not
4. Probably not

Q.17. Do you feel that your community makes a valuable contribution to society?

1. Definitely yes
2. Yes, a bit
3. Maybe not
4. Probably not

Q.18. The productive output of your community is redistributed to society in the form of:

1. Gifts
2. Commodities
3. Both
4. Other [please describe]

Q.19. Do you believe that your community positively contributes to trust in social institutions and overall social cohesion?

1. Definitely yes
2. Yes, a bit
3. Maybe not
4. Probably not

Q.20. Do you believe that your community helps to spread ethics of mutual aid in society?

1. Definitely yes
2. Yes, a bit
3. Maybe not
4. Probably not

Q.21. Do you believe that your community acts as an example of collective empowerment for other social groups and society in general?

1. Definitely yes
2. Yes, a bit
3. Maybe not
4. Probably not

Q.22. How much does your community rely on monetary exchange to sustain itself?

1. A lot
2. A bit
3. Not much
4. Not at all

Q.23. Do you face resource scarcity and problems of sustainability in your community due to limited access to monetary remuneration?

1. Definitely yes
2. Yes, a bit
3. Maybe not
4. Probably not

Q.24. Does the scarcity of money influence the every-day practices of your community?

1. Definitely yes
2. Yes, a bit

3. Maybe not
4. Probably not

Q.25. Does resource scarcity and the pursuit of monetary remuneration produce conflicts related to value in your community?

1. Definitely yes
2. Yes, a bit
3. Maybe not
4. Probably not

Appendix 4 Interview Guide

Question Number	Question Type	Question Content
1.	Main Question	Can you describe the role that values play in your community?
1.1.1	Probing Question [1 st alternative]	Can you give examples of incidents in your community which show the types of values your community depends on?
1.1.2	Probing Question [2 nd alternative]	Can you name some of these values?
1.2	Follow-Up Question	How do you personally define value, taking into account your experience about values in your community?
2	Main Question	What types of resources does your community produce?
2.1.1	Probing Question	When you produce together with other members of your community, how would you classify your relation across the pendulum between competition and collaboration? Which of the two poles, i.e. competition or collaboration, prevails and why?
2.1.2	Follow-Up Question	As contributor in your community, how do you evaluate what is produced in your community? In specific, do you consider it important more for the value its use confers to others, for what it can bring in exchange to you or for both?
3	Main Question	How does your community distribute resources produced among members or to third parties? Are they sold, shared without remuneration or

		both?
3.1	Probing Question	Can you give specific examples of how members distribute resources among themselves or to third parties?
3.2	Follow-Up Question	Would you characterise such offers of resources produced as gifts, commodities or both?
4	Main Question	Can you give examples of resources accessed, shared and pooled in common by members in the activities of the community?
4.1	Probing Question	Which is the type of these resources? Are they mainly tangible, intangible or both?
4.2	Follow-Up Question	What is in your opinion the importance of pooled resources for the productive activity of your community?
5	Main Question	How was it when all of you entered the community: What were your experiences?
5.1	Probing Question	In such contexts, what does one have to do to be accepted in your community?
5.2	Follow-Up Question	In which respects did you feel or not feel that you had to positively contribute to the activities and goals in order to be recognized in the community? How was this in each of your cases?
6	Main Question	Which role does the merit of one's contribution to the community play to the attitude of the other members towards him / her?
6.1	Probing Question	Can you give examples of members who enjoy high esteem in the community because of the merit of their contribution?
6.2	Follow-Up Question	Can you name other criteria, such as ownership and/or control of community infrastructure or assets, which influence, according to your

		experience, members' social status in the community?
7	Main Question	How important do you consider trust among members for the well-being of the community and why?
7.1	Probing Question	Can you give examples which show that trust among members plays an important role for the well-being of the community?
8	Main Question	Can you evaluate the cohesion of your community according to your experience from participating in it?
8.1	Probing Question	Which is in your opinion the reason that your community has this level of cohesion?
8.2	Follow-Up Question	Which is in your opinion the interrelation between, on the one hand, the social contributions of the members of your community, their merit, trust among members and, on the other hand, the cohesion of your community?
9	Main Question	How important is the practice of sharing considered by members of your community?
9.1	Probing Question	Can you give specific examples of resources shared in your community?
9.2	Follow-Up Question	How does sharing change the mind-frame and practice of members which engage in it?
10	Main Question	Which cultural beliefs and values motivate members in your community to share and help each other?
10.1	Probing Question	Can you give concrete examples of members helping one another in the activities of the community?
10.2	Follow-Up	Which is the role of mutual aid among members

	Question	for the well-being of the community?
11	Main Question	How have participants changed their minds through their participation in the community about what is ethically valuable?
11.1	Probing Question	How has participation in the community changed members' practices of producing together?
11.2	Follow-Up Question	Can you describe elements of shared ethics developed among members of your community?
12	Main Question	In which respects do you believe that you share a common identity with other members of your community?
12.1	Probing Question	What does this identity stand for?
12.2	Follow-Up Question	Can you give examples which show the existence of a common identity in your community?
13	Main Question	How are decisions taken in your community regarding its productive process and/or its governance as a whole?
13.1	Probing Question	To what degree do members participate in such decision-making?
13.2	Follow-Up Question	Which institutions are in place for members' participation in decision-making?
14	Main Question	How important do you believe that community members view participation in decision-making?
14.1	Probing Question	Please describe your own feelings during such participatory activity.
14.2	Follow-Up Question	How do you evaluate such participation in relation to members' self-empowerment?
15	Main Question	How does the degree of members' participation in decision-making change the relation of the members with the community?

15.1	Probing Question	How would you evaluate your community as an environment enabling members to unfold their personal capabilities in a collective way?
16	Main Question	How do you evaluate your community in terms of self-governance? Why?
17	Main Question	What kind of contribution does your community make to society?
17.1	Probing Question	How do you evaluate the contribution of your community to society?
18	Main Question	In which form is the productive output of your community redistributed to society?
18.1	Probing Question	Is the productive output of your community redistributed to society in the form of gifts, commodities or both? Can you give concrete examples?
18.2	Follow-Up Question	Which form of distribution to society prevails?
19	Main Question	How and to what extent do you believe that your community positively contributes to trust between individuals and/or social groups and, generally, social cohesion?
20	Main Question	Would you characterise your community's shared ethics as mainstream or alternative in relation to current social standards, and why?
20.1	Probing Question	How and to what extent do you believe that your community influences perceptions of certain social groups about ethics and practices of doing?
20.2	Follow-Up Question	Can you give concrete examples which show that your community helps to strengthen mutual aid among social groups or in society in general?
21	Main Question	How and to what extent does your community act

		as an example of collective empowerment for other social groups and society in general? Are there similar communities following or promoting your ways of doing?
22	Main Question	What role does monetary exchange play within your community?
22.1	Probing Question	How are members of your community and the community as a whole rewarded for offering products / services of value to third parties outside the community or to society in general? Give concrete examples?
23	Main Question	How do you solve the shortage of resources, which are not produced within the community and need to be bought from the market to sustain your community?
23.1	Follow-Up Question	According to your experiences, how and to what extent does the scarcity of money influence the every-day practices and the overall sustainability of your community?
24	Main Question	Which value conflicts does resource scarcity and the pursuit of monetary remuneration create in your community?
24.1	Probing Question	Can you give examples of disagreements between members regarding the role of exchange value and money within your community? How have such disagreements been solved?
24.2	Follow-Up Question	According to your experiences, how can exchange value and money influence and change value practices within your community?

Appendix 5 Coding Guide

Category Number	Theme/Code	Category Name	Category Description	Qualitatively Coded Data	Quantitatively Coded Data	Discrepancy
1.	Theme	Value in General				
1.1	Code	Monetary Values	Interviewees, when thinking about value in regard to their community, relate it to economic values.	•		
1.2	Code	Cultural Values	Interviewees, when thinking about value in regard to their community, relate it to ethical values.	•		
1.3	Code	Social Values	Interviewees, when thinking about value in regard to their community, relate it to social values.	•		
1.4	Code	Political Values	Interviewees, when thinking about value in regard to their community, relate it to	•		

			political values.			
2.	Theme	Commons-Based Economic Value				
2.1	Theme	Commons-Based Economic Value Generation				
2.1.1	Code	Collaboration as the main economic value generating practice in the community	Economic value in the community is generated through collaboration among members.	•	•	•
2.1.2	Code	Competition as the main economic value generating practice in the community	Economic value in the community is generated through competition among members.	•		
2.1.3	Code	Collective Appropriation as the main economic value generating practice in the community	Economic value is generated through collective appropriation of private resources by the community.	•		
2.2	Theme	Commons-Based Economic Value Form				
2.2.1	Code	Use Value as the main economic value-form	Economic value in the community mainly takes	•	•	•

		in the community	the form of use value.			
2.2.2	Code	Exchange Value as the main economic value-form in the community	Economic value in the community mainly takes the form of exchange value.			
2.3	Theme	Commons-Based Economic Value Circulation				
2.3.1	Code	Commodity-form of economic value circulation within the community	Economic values circulate as commodities within the community.			
2.3.2	Code	Gift-form of economic value circulation within the community	Economic values circulate as gifts within the community.	•	•	•
2.4	Theme	Commons-Based Economic Value Pooling				
2.4.1	Code	Common Pool Resource-form of economic value accumulation within the community	Economic values produced by the community accumulate as common pool resources.	•	•	•
2.4.2	Code	Private Appropriation-form of economic	Economic values produced by the			

		value accumulation within the community	community accumulate as privately owned and controlled resources.			
2.5	Theme	Commons-Based Economic Value Redistribution				
2.5.1	Code	Commodity-form of economic value redistribution to society	Economic values are re-distributed in the form of commodities to society.	•		
2.5.2	Code	Gift-form of economic value redistribution to society	Economic values are re-distributed in the form of gifts to society.	•	•	•
2.5.3	Code	Use Value-form of economic value redistribution to society	Economic values are re-distributed in the form of use values to society.	•		
2.5.4	Code	Economic Development-form of economic value redistribution to society	Economic values are re-distributed in the form of economic development to society.	•		
3.	Theme	Commons-Based Social Value				

3.1.	Theme	Commons-Based Social Value Generation				
3.1.1	Code	Contribution in productive activity as the main social value generating practice in the community	Membership in the community is recognized by other members on the basis of the contribution of productive activity to communal production.	•	•	•
3.1.2	Code	Monetary exchange as the main social value generating practice in the community	Membership in the community is recognized by other members on the basis of an institution's financial contribution.	•		
3.1.3	Code	Contribution in kind as the main social value generating practice in the community	Membership in the community is recognized by other members on the basis of an institution's contribution in infrastructure.	•		
3.2	Theme	Commons-				

	e	Based Social Value Form				
3.2.1	Code	Merit as the main social value-form in the community	The merit of one's contribution confers one's status in the community vis-à-vis other community members.	•	•	•
3.2.2	Code	Control of the means of production as the main social value-form in the community	One's control of the means of production confers one's status in the community vis-à-vis other community members.	•		
3.2.3	Code	The quantity of one's productive contribution as the main social value-form in the community	The quantity of one's contribution confers one's status in the community vis-à-vis other community members.	•		
3.2.4	Code	Personal capabilities as the main social value-form in the community	One's personal capabilities confers one's status in the community vis-à-vis other community members.	•		
3.3.	Theme	Commons-Based Social Value				

		Circulation				
3.3.1	Code	Trust as form of social value circulation within the community	Social bonds in the community are based on trust among members.	•	•	•
3.3.2	Code	Monetary exchange as form of social value circulation within the community	Social bonds in the community are based on monetary exchange among members.			
3.3.3	Code	Power Conflict-form of social value circulation within the community	Social bonds in the community are based on power conflicts among members.	•		
3.4	Theme	Commons-Based Social Value Pooling				
3.4.1	Code	No form of social value accumulation within the community	Social values produced by the community do not accumulate in any form.	•		
3.4.2	Code	Cohesion as the main form of social value accumulation within the community	Social values produced by the community accumulate in the form of communal cohesion.	•	•	•
3.4.3	Code	Social capital as the main	Social values produced by	•		

		form of social value accumulation within the community	the community accumulate in the form of social capital.			
3.4.4	Code	Communal Capital-form of social value accumulation within the community	Social values produced by the community accumulate in the form of communal capital.			
3.5	Theme	Commons-Based Social Value Redistribution				
3.5.1	Code	Lack of social value redistribution to society	Social values are not redistributed to society to society.			
3.5.2	Code	Cohesion-form of social value redistribution to society	Social values are redistributed to society in the form of increased social cohesion.	•	•	•
3.5.3	Code	Reciprocal Contribution-form of social value redistribution to society	Social values are redistributed to society in the form of reciprocal contribution to social groups and society.	•		
3.5.4	Code	Network-form of	Social values are re-	•		

		social value re-distribution to society	distributed to society in networked-form.			
4.	Theme	Commons-Based Cultural Value				
4.1	Theme	Commons-Based Cultural Value Generation				
4.1.1	Code	Sharing as the main cultural value generating practice in the community	Cultural value in the community is generated mainly through practices of sharing among members.	•	•	•
4.1.2	Code	Private enclosure as the main cultural value generating practice in the community	Cultural value in the community is generated mainly through practices of private enclosure of resources by members.			
4.2	Theme	Commons-Based Cultural Value Form				
4.2.1	Code	Mutual aid as the main cultural value-form in the community	Cultural value in the community mainly takes the form of mutual aid among	•	•	•

			members.			
4.2.2	Code	Competition as the main cultural value-form in the community	Cultural value in the community mainly takes the form of competition between members.			
4.3	Theme	Commons-Based Cultural Value Circulation				
4.3.1	Code	Lack of cultural value circulation	Cultural values produced by the community do not take any form of cultural value circulation.			
4.3.2	Code	Shared ethos as the main form of cultural value circulation within the community	Members in the community have developed a shared ethos.	•	•	•
4.4	Theme	Commons-Based Cultural Value Pooling				
4.4.1	Code	Lack of cultural value pooling	Cultural values produced by the community do not take any form of cultural			

			value accumulation.			
4.4.2	Code	Common cultural identity as the main form of cultural value accumulation within the community	Cultural values produced by the community accumulate in the form of a common cultural identity.	•	•	•
4.5	Theme	Commons-Based Cultural Value Redistribution				
4.5.1	Code	Lack of cultural value redistribution to society	Cultural values are not redistributed to society.			
4.5.2	Code	Mutuality-form of cultural value redistribution to society	Cultural values are redistributed to society in the form of increased mutuality ethics.	•		
4.5.3	Code	Ethos of Political resistance-form of	Cultural values are not redistributed	•		

		cultural value re-distribution to society	to society in the form of an ethos of political resistance.			
4.5.4	Code	Symbol and Art-form of cultural value re-distribution to society	Cultural values are re-distributed to society in the form of symbols and art.	•		
5.	Theme	Commons-Based Political Value				
5.1	Theme	Commons-Based Political Value Generation				
5.1.1	Code	Lack of political value generation	Political values are not produced in the community.			
5.1.2	Code	Participation as the main political value generating practice in the community	Political value in the community is generated mainly through members' participation in communal decision-making.	•	•	•
5.1.3	Code	Deliberation as the main political value generating	Political value in the community is generated mainly			

		practice in the community	through deliberation.			
5.2	Theme	Commons-Based Political Value Form				
5.2.1	Code	Lack of political value	Political value in the community does not take any form.			
5.2.2	Code	Self-empowerment as the main political value-form in the community	Political value in the community mainly takes the form of individual self-empowerment.	•	•	•
5.3	Theme	Commons-Based Political Value Circulation				
5.3.1	Code	Lack of political value circulation	Political value is not circulated within the community.			
5.3.2	Code	Collective empowerment as the main form of political value circulation within the community	Political value is circulated within the community in the form of members' collective empowerment.	•	•	•
5.4	Theme	Commons-Based Political				

		Value Pooling				
5.4.1	Code	Lack of political value accumulation	Political values within the community do not take any form of political value accumulation.			
5.4.2	Code	Self-governance as the main form of political value accumulation within the community	Political values produced within the community accumulate in the form of communal institutions of self-governance.	•	•	•
5.4.3	Code	Fusion-form of political value accumulation within the community	Political values produced within the community accumulate in the form of a melting pot of political values.			
5.5	Theme	Commons-Based Political Value Redistribution				
5.5.1	Code	Lack of political value redistribution to society	Political values are not redistributed to society.	•		

5.5.2	Code	Collective empowerment as the form of political value redistribution to society	Political values are re-distributed in the form of increased collective empowerment to society.	•	•	•
5.5.3	Code	Freedom of Information-form of political value redistribution to society	Political values are re-distributed in the form of free information to society.	•		
5.5.4.	Code	Media pluralism-form of political value redistribution to society	Political values are re-distributed in the form of media pluralism to society.	•		
5.5.5	Code	Melting Pot-form of political value redistribution to society	Political values are re-distributed in the form of a melting pot generating and diffusing new political values to society.	•		
5.5.6.	Code	Social Transformation-form of political value redistribution to society	Political values are re-distributed in the form of a vision to transform society.	•		

6	Theme	The Dialectic between Commons-Based and Monetary Value Circulation				
6.1	Theme	Reliance of Intellectual Commons' Communities on Monetary Exchange				
6.1.1	Code	Lack of reliance of the community on monetary exchange	The community does not rely on monetary exchange to sustain itself.	•		
6.1.2	Code	Limited reliance of the community on monetary exchange	The reliance of the community on monetary exchange to sustain itself is limited.	•	•	•
6.1.3	Code	Relative reliance of the community on monetary exchange	The community relies to a certain extent on monetary exchange to sustain itself.	•		
6.1.4	Code	Extensive reliance of the community on monetary exchange	The community relies heavily on monetary exchange to sustain itself.			
6.2	Theme	The Impact of Monetary scarcity on				

		Intellectual Commons' Communities				
6.2.1	Code	Reliance on resource sharing to cope with monetary scarcity	The community copes with monetary scarcity through practices of sharing non-monetary resources.	•	•	•
6.2.2	Code	Reliance on financial donations to cope with monetary scarcity	The community copes with monetary scarcity through financial donations.	•		
6.2.3	Code	Reliance on external funding to cope with monetary scarcity	The community copes with monetary scarcity through funding from external sources.	•		
6.2.4	Code	Reliance on members' unremunerated productive activity to cope with monetary scarcity	The community copes with monetary scarcity through the unremunerated productive activity of its members.	•		
6.2.5	Code	Reliance on expropriated resources to	The community copes with	•		

		cope with monetary scarcity	monetary scarcity through practices of expropriating resources by private entities and/or the state.			
6.2.6	Code	Reliance on commodity market exchange to cope with monetary scarcity	The community copes with monetary scarcity through practices of commodity market exchange.	•		
6.3	Theme	The Influence of Monetary Scarcity on Practices of Commoning				
6.3.1	Code	Lack of influence of monetary scarcity on practices of commoning within the community	Practices of commoning within the community are not influenced by monetary scarcity.			
6.3.2	Code	Limited influence of monetary scarcity on practices of commoning within the community	Monetary scarcity has limited influence on practices of commoning within the community.	•	•	•
6.3.3	Code	Relative influence of monetary scarcity on	Monetary scarcity has relative influence on			

		practices of commoning within the community	practices of commoning within the community.			
6.3.4	Code	Extensive influence of monetary scarcity on practices of commoning within the community	Monetary scarcity has extensive influence on practices of commoning within the community.	•		
6.4	Theme	The Extent of Conflicts in Intellectual Commons' Communities related to the Role of Monetary Exchange				
6.4.1	Code	Lack of conflicts regarding the role of monetary exchange within the community	Decisions regarding the role of monetary exchange within the community do not produce value-laden conflicts.			
6.4.2	Code	Limited conflicts regarding the role of monetary exchange within the community	Decisions regarding the role of monetary exchange within the community produce limited value-laden conflicts.	•		
6.4.3	Code	Relative conflicts regarding the	Decisions regarding the role of	•	•	•

		role of monetary exchange within the community	monetary exchange within the community produce relative value-laden conflicts.			
6.4.4	Code	Extensive conflicts regarding the role of monetary exchange within the community	Decisions regarding the role of monetary exchange within the community produce extensive value-laden conflicts.			

LIST OF REFERENCES

1. The term “commons-based peer production” has been coined by Yochai Benkler (2002, 2004) to pinpoint the emergent phenomenon of collaborative production of intangible resources among multiple creators “without relying on either market pricing or managerial hierarchies to coordinate their common enterprise” (Benkler and Nissenbaum 2006: 394).
2. According to Marx, “[t]he crude materialism of the economists who regard as the natural properties of things what are social relations of production amongst people, and qualities which things obtain because they are subsumed under these relations [...] imputes social relations to things as inherent characteristics, and thus mystifies them (Marx 1973: 687). Hence, a reified perception of a social relation is a perception “that a relation between people takes on the character of a thing and thus acquires ‘phantom objectivity’, an autonomy that seems so strictly rational and all-embracing as to conceal every trace of its fundamental nature: the relation between people” (Lukács 1971: 83). Positivist ontologies of the intellectual commons tend to be fertile to such conceptual misunderstandings.
3. “What Des-Cartes did was a good step. You have added much several ways, and especially in taking the colors of thin plates into philosophical consideration. If I have seen further it is by standing on the shoulders of Giants” (Newton I., Letter to Robert Hooke, 1675).
4. As a general rule, data and information do not per se fall under the scope of copyright or patentable subject matter or, instead, do not per se fulfill other criteria of copyright protection or patentability. Nonetheless, the commodification of information flows and the subsequent investment of time, money and effort for the compilation of databases

have pushed for the introduction of statutory private monopolies over information, the most prominent of which is the European Union Directive on the legal protection of Databases [1996]. By virtue of the latter an exclusive “sui generis” right for producers of non-original databases has been established throughout the European Economic Area, which, instead of protecting units of data per se, grants its holders the right to exclude others from the extraction and/or re-utilisation of the whole or of a substantial part of the contents of the databases under protection.

5. According to the Berne Convention for the Protection of Literary and Artistic Works [1886], copyright applies only to expressions of ideas that have been fixed in a tangible medium and not to ideas themselves (art. 2 § 1 of the Berne Convention). The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) [1994] further clarifies the scope of copyright: “[c]opyright protection shall extend to expressions and not to ideas, procedures, methods of operation or mathematical concepts as such” (art. 9 § 2 of the TRIPs Agreement). Along the same lines, US copyright law explicitly excludes ideas from its protective scope by providing that: “[i]n no case does copyright protection for an original work of authorship extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work” (17 U.S.C., Sec. 102(b), 1982). In relation to patentability, article 27 § 1 of the TRIPs Agreement includes in the scope of patentable subject matter only inventions, whether products or processes of technology, which “are new, involve an inventive step and are capable of industrial application”. In a more detailed manner, the European Patent Convention [1973] excludes from the scope of patentable subject matter (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, and (d) presentations of information (art. 52 § 2 of the EPC).

6. Due to the fact that patentability criteria apply only to technological applications of scientific knowledge, scientific advancements cannot in themselves be patented, except in their embodiment as useful / industrial applications. It is after all to this end that the publication of the knowledge underlying an invention as freely accessible is a prerequisite for the granting of private monopoly rights over technological applications in most patent systems.
7. According to an alternative approach, which focuses on the freedom to use intellectual works instead of intellectual works themselves, the public domain can be defined as “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” (Benkler 1999: 362).
8. 1968 notes the year, when Garrett Hardin published the article “The Tragedy of the Commons” in the Science journal, which was bound from then on to become extremely popular in relevant scientific and political debates about the commons and their potential (Hardin 1968).
9. Data only concerns the Social Sciences and Arts and Humanities research domains. Results have been refined to exclude articles regarding the topic “House of the Commons”.
10. Nevertheless, Benkler distances himself from the rational choice framework on the grounds that it fails to “give a complete answer to the sustainability of motivation and organization for the truly open, large-scale nonproprietary peer production projects” (Benkler 2002: 378).
11. O'Reilly T., Battelle J., (2004). Opening Welcome: State of the Internet

Industry. San Francisco, California, October 5.

12. Based on an all-inclusive conception of labour, which extends to every aspect of social reproduction, this distinct form of social value appropriation is also defined by certain critical thinkers as exploited free labour (Hardt 1999: 93, Hardt and Negri 2004: 147). To the extent that the accumulation of social power by capital can take many forms, accumulation by exploitation being just one of them, the interpretation of all forms of value capture from the virtuous circle of the intellectual commons and their insertion in the circuits capital circulation / accumulation as exploitation is ideologically framed, since it disregards the fact that the intellectual commons reproduce a form of life distinct to the reproduction of capital and are thus not a by-product of capitalist organisation and exploitation but, instead, an assemblage of alternative circuits of power circulation / accumulation.
13. See Innocentive (2015). Facts and Stats, available at: <http://www.innocentive.com/about-innocentive/facts-stats> [accessed on January 1st, 2019].
14. The idea that alternative social dynamics are constantly at work within existing social arrangements, though expressed through mass struggles, is as old as emancipatory social movements themselves. The Industrial Workers of the World close the preamble of their constitution with the phrase: "[b]y organizing industrially we are forming the structure of the new society within the shell of the old" (IWW, Preamble to the IWW Constitution, available at: <http://www.iww.org/culture/official/preamble.shtml> [accessed on January 1st, 2019]).
15. De Angelis extends the Marxian "law of value" so as to include, apart from the subsumption of labour by capital, all the ways in which capital

co-opts facets of social reproduction (De Angelis 2007: 155-7).

16. For a comic-book version of the argument across the history of music see Boyle and Jenkins 2017.
17. An analysis of the origins and sources of Shakespearean inspiration is available at: <http://www.shakespeare-online.com/sources/> [accessed on January 1st, 2019].
18. According to Greek mythology, Prometheus was the Titan god of forethought who moulded humanity out of clay, gave fire to humans and invented the useful arts. Prometheus symbolises the beginnings of the creation of humanity and the birth of human order and logic out of chaos.
19. More information about Picasso's African-influenced Period - 1907 to 1909 available at: <http://www.pablocassio.org/africanperiod.jsp> [accessed on January 1st, 2019].
20. Between 250 and 4.000 French francs.
21. In the United Kingdom public libraries surged after the 1850 Public Libraries Act (13 and 14 Vict c.65) gave local boroughs the power to establish openly accessible public libraries. In the United States public libraries spread rapidly in the form of a social movement after the establishment of the American Library Association in 1876 and the engagement of wealthy businessmen, such as Andrew Carnegie. The public library system in Continental Europe was characterised by the central role of national libraries.
22. Entitled as "A Bill for the Encouragement of Learning by Vesting the Copies of Printed Books in the Authors, or Purchasers, of such Copies,

during the Times therein Mentioned” [8 Ann. c. 21].

23. Indicatively Defoe 1704: 21-22.

24. Entitled as “An Act for preventing the frequent Abuses in printing seditious treasonable and unlicensed Bookes and Pamphlets and for regulating of Printing and Printing Presses” [14 Car. II. c. 33].

25. See preamble of the Statute.

26. The natural law conception of copyright as blackstonian property was also later rejected by the English House of Lords in its 1774 judgment in *Donaldson v. Beckett* [Eng. Rep. 837 (H.L.)].

27. The amendment read “[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries” [US Constitution, article I, section 8, clause 8, enacted September 17, 1787].

28. In its generalization, Max has described this contradiction as follows: “Only in the eighteenth century, in ‘civil society’, do the various forms of social connectedness confront the individual as a mere means towards his private purposes, as external necessity. But the epoch which produces this standpoint, that of the isolated individual, is also precisely that of the hitherto most developed social (from this standpoint, general) relations. The human being is in the most literal sense a political animal not merely a gregarious animal, but an animal which can individuate itself only in the midst of society” (Marx 1973: 223).

29. In its classic definition, *détournement* has been conceptualised as “[t]he integration of present or past artistic productions into a superior construction of a milieu (Internationale Situationniste 1958). Debord and

Wolman considered that “Détournement not only leads to the discovery of new aspects of talent; in addition, clashing head-on with all social and legal conventions, it cannot fail to be a powerful cultural weapon in the service of a real class struggle. The cheapness of its products is the heavy artillery that breaks through all the Chinese walls of understanding. It is a real means of proletarian artistic education, the first step toward a literary communism” (Debord and Wolman 1956).

30. According to UNESCO, in the period 2004-2013 the global flows of cultural goods have doubled, whereas consumption shifted to online services (UNESCO 2016).
31. The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) was adopted in 1994. It was negotiated at the end of the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) in 1994 and was signed as Annex 1C to the Agreement establishing the World Trade Organization. TRIPs entered into force on 1 January 1995. The WIPO Copyright Treaty (WCT) and WIPO Performances and Phonograms Treaty (WPPT) were both adopted in 1996. The WCT entered into force on 6 March 2002; the WPPT entered into force on 20 May 2002.
32. In relation though to the “species” of intellectual property, the eighteenth century jurist William Blackstone has taken a more ambivalent approach than his writings regarding the archetypical legal form of property over material things: “ from the instant of publication, the exclusive right of an author or his assigns to the sole communication of his ideas immediately vanishes and evaporates; as being a right of too subtile and unsubstantial a nature to become the subject of property at the common law, and only capable of being guarded by positive statutes and special provisions of the magistrate (Blackstone 1838: 326-7).

33. Engraved in article 9 of the Berne Convention since 1967, the three-step test obliges member-states to enact copyright limitations on the condition that (i) such limitations only refer to certain special cases, (ii) they do not conflict with a normal exploitation of the work and (iii) do not unreasonably prejudice the legitimate interests of the author. Since its enactment in the text of the Convention, the three-step test has been transposed in all major inter- and trans-national legal instruments of copyright law, including the TRIPs Agreement, the WIPO internet treaties and the EU copyright directive.
34. See WIPO 2003, Geiger et al 2010.
35. As De Angelis writes, interpreting Marx, “[a] tendency [...] is always the emergent property of clashes of forces (De Angelis 2007: 168).
36. More information about the Embros Theatre and its vibrant daily activities can be found at the community’s website, available at: www.embros.gr [accessed on January 1st, 2019].
37. The self-description of the community is available at: <https://www.hackerspace.gr/> [accessed on January 1st, 2019].
38. Available at: <https://libre.space/> [accessed on January 1st, 2019].
39. The online transmission of the ERTOpen programme can be accessed at: <http://www.ertopen.com/radio> [accessed on January 1st, 2019].
40. More on the mission and activities of the Athens Impact Hub available at: <http://athens.impacthub.net/en/impact-making-unit/> [accessed on January 1st, 2019].
41. More information about CommonsFest can be found at:

https://el.wikipedia.org/wiki/%CE%A6%CE%B5%CF%83%CF%84%CE%B9%CE%B2%CE%AC%CE%BB_%CF%84%CF%89%CE%BD_%CE%9A%CE%BF%CE%B9%CE%BD%CF%8E%CE%BD-Commonsfest

[accessed on January 1st, 2019].

42. See more at: <http://www.p2plab.gr/en/archives/category/projects>
[accessed on January 1st, 2019].

43. The table with the relevant interviewee data is attached as Appendix 1 to the Thesis.

44. The consent letter used in the conduct of the research is attached as Appendix 2 to the Thesis.

45. The interview guide applied in this research is attached as Appendix 4 to the Thesis.

46. The self-completion questionnaire handed out to interviewees is attached as Appendix 3 to the Thesis.

47. The final version of the coding guide, after the completion of the codification process, is attached as Appendix 5 to the Thesis.

48. The Coop Box is a spin-off from Commons Lab. It is a information technology donation network with computers at its ends, whose aim is to construct a donation commons for commons' communities, social and solidarity economy projects and wider social movements in Greece.

49. De Angelis and De Peuter / Witheford have also described the circulation of commons-based value in the form of abstract formulas (De Angelis 2017:192, De Peuter and Witheford 2010: 45).

50. This finding concurs with Jakob Rigi's assumption that peer to peer reciprocity does not generally follow the logic of quantifiable equivalence observed in conventional gift economies (Rigi 2013: 404).
51. For the notion of transvestment see Bauwens and Niaros 2017: 24.
52. See the conclusion of Chapter 4 for an elaboration of this argument in the contemporary social context of post-modern intellectual production, distribution and consumption.
53. See Chapter 3 for the role of sharing and collaboration in commons-based peer production.
54. See Chapters 5-8 for the influence of social structure upon individual commoners.
55. See Chapter 3 for the importance of the public domain as input in intellectual production.
56. See Chapter 4 for the historical significance of sharing and collaboration in cultural production, especially in the contemporary context.
57. According to Blackstone, property is "that sole and despotic dominion which one man claims and exercises over the external things of the world, in total exclusion of the right of any other individual in the universe" (Blackstone 2001/1765-1769: 3).
58. See Chapter 4 for an analysis of the characteristics of the mode of contemporary cultural production.
59. See Chapter 4 for an analysis of the relevant argument.

60. In this context, Robert Nozick has posited his famous philosophical enquiry as follows: “If I own a can of tomato juice and spill it into the sea so that its molecules mingle [...] do I thereby come to own the sea?” (Nozick 1974: 175).
61. As Edwin Hettinger points out, “(g)iven this vital dependence of a person’s thoughts on the idea of those who came before her, intellectual products are fundamentally social products. Thus, even if one assumes that the value of these products is entirely the result of human labour, this value is not entirely attributed to any particular labourer (or small group of labourers)” (Hettinger 1989: 38).
62. Locke himself has explicitly criticized the harm caused by the extensive duration of exclusive rights upon intellectual works in his *Liberty of the Press* essay, demanding that “nobody should have any peculiar right in any book which has been in print fifty years, but any one as well as another might have the liberty to print it, for by such titles as these which lie dormant and hinder others many good books come quite to be lost” (Locke 1997/1695: 333).
63. See Chapters 5-8 for an empirical analysis of the circulation and pooling of commons-based forms of value.
64. In the words of Jessica Litman, “[t]he public domain should be understood [...] as a device that permits the rest of the system to work by leaving the raw material of authorship available for authors to use” (Litman 1990: 970-977).
65. John Stuart Mill has written that law has “made property of things which never ought to be property, and absolute property where only a qualified property ought to exist” (Mill 1848 / 1909: 208).

66. "Human intelligence is like water, air and fire", exclaimed William Langland, "it cannot be bought and sold, [it is] made to be shared on earth in common" (Langland 1370-1390). In his letter to Henry Dearborn, Thomas Jefferson wrote that "(t)he field of knowledge is the common property of mankind, and any discoveries we can make in it will be for the benefit of yours and of every other nation, as well as our own" (Jefferson 1807).
67. "When something is noncommodifiable, market trading is a disallowed form of social organisation and allocation", writes Margaret Jane Radin, "(s)ome things are completely commodified- deemed suitable for trade in a laissez- faire market. Others are completely noncommodified- removed from the market altogether. But many things can be described as incompletely commodified- neither fully commodified nor fully removed from the market" (Radin 1987: 1855).
68. In this context, Marella points out that "property forms a continuum from individual to collective property and that alongside this continuum different bundles of rights exist in varying degrees [...] In the structure of legal entitlements associated with the commons, the right to exclude is strongly reduced and the right to access obviously expands" (Marella 2017: 74).
69. Along these lines, Benkler asserts that "(g)overnment will not, in the first instance, prevent anyone from reading or using this part or that of the information environment. Information will, in this sense, be "free as the air to common use." Departures from this base-line must be limited to those instances where government has the kind of good reasons that would justify any other regulation of information production and exchange: necessity, reason, and a scope that is no broader than necessary" (Benkler 1999: 357).

70. From such a perspective, Yochai Benkler comments that “(a) commercial information production system operating in a society such as ours [...] will tend to cause unequal distribution of private power over information flows. This raises two concerns. First, power over information flows that mirrors economic power in society will tend to prevent effective political challenge to the prevailing order, however inimical that order may be to a majority of the polity [...] The second concern with the distributive effects of commercial concentration is that a lopsided distribution of private power in society can be “censorial.” It can inhibit free exchange of information and ideas and prevent many people from expressing themselves” (Benkler 1999: 380).
71. In this context, Severine Dussolier writes that a healthy and thriving public domain is worthy of promotion because it “plays an essential role for cultural and democratic participation, economic development, education and cultural heritage” (Dussolier 2011: 69).
72. From such a standpoint, Peter Drahos asserts that “the intellectual commons are a form of political expression that need to be defended as such” (Drahos 2006). In the particular context of free and open source software, Chris Kelty invites us to consider “coding, hacking, patching, sharing, compiling, and modifying of software [as] forms of political action”, which “both express and “implement” ideas about the social and moral order of society” (Kelty 2008: 10). These forms of political expression are reflected in the alternative cultures of repairing, making, hacking, open science and cultural mix, which thrive in intellectual commons’ communities.
73. Bennoune, Karima (2017). Report of the Special Rapporteur in the Field of Cultural Rights. United Nations (A/HRC/34/56), para. 43, available:

<http://daccess-ods.un.org/access.nsf/Get?Open&DS=A/HRC/34/56&Lang=E>
[accessed on January 1st, 2019].

74. The institution of the public domain is a form of social regulation, which has different, if not contrasting, characteristics, function and purpose than commodity markets and operates as means to ameliorate the detrimental consequences to intellectual production, distribution and consumption of extensive enclosures brought about by the latter.
75. See World Conference on Human Rights (2013). Vienna Declaration. Programme of Action. 25 June 1993, A/CONF, Vol. 157, p. 23, para. 8.
76. In the words of Nancy Kranich, “(f)or democracy to flourish, citizens need free and open access to information [...] The commons elevates individuals to a role above mere consumers in the marketplace, shifting the focus to their rights, needs, and responsibilities as citizens” (Kranich 2008: 547-549).
77. As Christophe Geiger writes, “the term “exception” implies a hierarchy. If the use is not exactly covered by the definition of the exception, one must return to the principle of exclusivity. In order to illustrate this figuratively, one could say that an exception is a kind of an island in a sea of exclusivity. The term – limitation implies a different grading. The scope of exclusivity is determined by its limitations. Beyond these borders, the author is no longer in control of his work. In order to use the same picture again, the right would then have to be considered as an island of exclusivity in a sea of freedom” (Geiger 2004: 268).
78. See UNESCO 2005.
79. As described in table 2.2 of the thesis, the characteristics of commons-

based peer production are non-excludability, non-rivalry and zero marginal costs of sharing, cumulative capacity, non-monetary incentives and voluntary participation, self-allocation of productive activity and consensus-based coordination, communal value spheres, and communal ownership of produced resources.

80. As described in table 2.2 of the thesis, the tendencies of commonification are open access, sharing, collaboration, self- and collective empowerment, circular reciprocity and self-governance.

81. A semi-commons is a regime which combines exclusive and shared uses of a resource.

82. Indicatively, see Benkler 2006; Bessen and Meurer 2008; Boldrin and Levine 2008; Boyle 1996, 2008; De Rosnay and De Martin 2012; Drahos 1996; Dussollier 2011; Fisher 1988, 2004; Geiger 2004, 2010, 2017; Guibault and Hugenholtz 2006; Koren 2017; Lessig 2004, 2008; Lemley 1997, 2015; Leval 1990; Litman 1990; Netanel 2008; Rose 1986, 1994, 2003; Samuelson 2003, 2017; Von Lohmann 2008; Woodmansee and Jaszi 1994.

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