

CHAPTER 3

Theories of the Intellectual Commons

3.1. Introduction

Over the past twenty years, theorising about the intellectual commons has undeniably become a popular activity, not only among scholars who 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 with 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 a 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.

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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) since 1968⁸ shows a huge rise of academic interest in the commons in social sciences in recent years.⁹ 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, during which Elinor Ostrom published her seminal work *Governing the Commons* (Ostrom 1990), constitute a turning point, in which theoretical analysis of the commons began to gather attention (479). Then, between 1998 and 2016, the number of articles on the topic rose exponentially (4,203). In the period 2008–2016 in particular, the article output about the commons reached an average of 347 per year.

Commons and their theorisations have not come coincidentally to 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 that 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

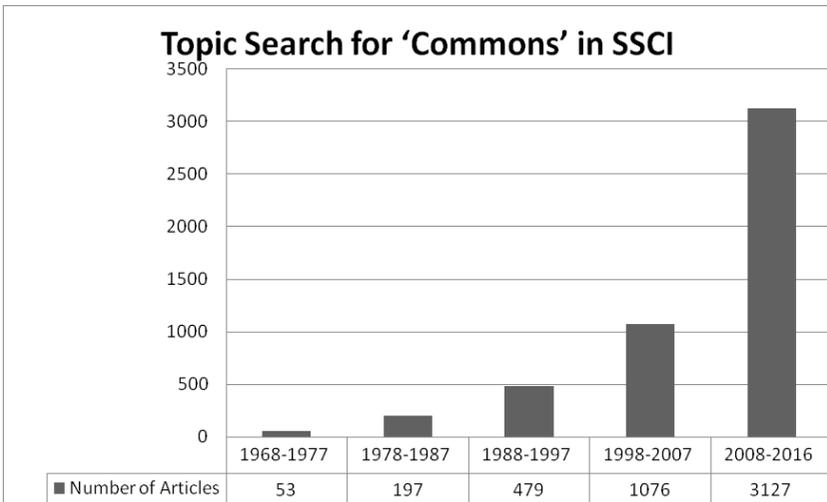


Figure 3.1: Development of the number of published articles on the topic of the commons.

Source: Social Science Citation Index

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 all to access, 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-organise 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 synthesise appropriate frameworks that 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 the clarity and precision of definitions, concepts and arguments used, where 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. 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 with 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 to be 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 crystallised in social norms.

3.3.2. *The Institutional Analysis and Development Framework*

Rational choice theories were initially developed by Ostrom and her collaborators for the scientific analysis of the natural commons. These theories were consolidated in a detailed theoretical framework, termed institutional analysis and development (IAD). The method of research followed by IAD scholars has progressively escalated 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 and sustainability of commons' institutions (Hess and Ostrom 2007a, 6).

In relation to the natural commons, Elinor Ostrom 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 similar way that 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; they 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 influence 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, and 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 2007b, 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, 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 this type of rule. On the other hand, communally enacted licences 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 nested 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 2010b).

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 2007b, 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*

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 policymakers as a complement to state and/or market regulation of intellectual production, distribution and consumption.

A critical approach to 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 preconstructed 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

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

Table 3.1: The intellectual commons as patch to capital.

Source: Author

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 also in part socially determined, being nowadays more and more under pressure by legal and technological enclosures. Furthermore, they disregard the fact that the commons ultimately refer to social relations in the context of communities and that the formulation of the 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 that conceives of 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, 660–661; Macey 2010, 763). Thus, the IAD framework fails to fully grasp the shared ethics, values, goals, narratives and meanings that 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 of commoners primarily as extractors of resource units or free-riders of the efforts of others, and 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 behavioural 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 to be more effective modes of organisation in social contexts where they outcompete 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 and 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 and individual and collective empowerment, tend to be ranked lower in the utilitarian calculus of rational choice theories and their positive social outcomes 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 of providing proposals that best serve market needs. Along these lines, they engage in 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 that 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 to either 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 decentralised 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 to be 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 pool 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 2006, 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 for 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 resurging 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 *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. Even in 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 characterised by the abundance of user-generated content and online content platforms that facilitate peer-to-peer sharing and collaboration and, ultimately, empower 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, calling 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, and 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' (Pralhad 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, corporations become capable of overcoming their hierarchical top-down and inflexibly bureaucratic structures of organisation, of transcending their boundaries and of developing more appropriate means to unleash collective capacities for creativity and innovation. In this context, for-profit entities that grasp the zeitgeist of the information age 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 commons-based peer production as having 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 that 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 communities.¹² 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’ and 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 monetisation of online collaborative communities are two significant elements that synthesise 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 2002a, 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-à-vis its main competitors (Tapscott and Williams 2006, 79–83).

The utilisation 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 2004a). 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 2010b, 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 right-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, the 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. The 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 that has the potential to counter the dynamic inefficiencies produced by the unbalanced enclosures of intellectual property-enabled markets over competition (Lessig 2002a, 6–7; Boyle 2003, 63–64). 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 characterised 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, while 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 coordinate 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 2010b, 692; OECD 2013, 22).

As far back as 1945, Friedrich von Hayek 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 coordinate 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 organising 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-à-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 to press managers to open

up their business models to the innovative power of the crowd. Innocentive, one of the most prominent examples, boasts 40,000 solved scientific problems and \$40 million in posted awards for its 365,000+ workforce from nearly 200 countries.¹³

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-organisation 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

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 render 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 a 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

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

Table 3.2: A commons fix for capital.

Source: Author

over infrastructure and the powers it confers to its owners is considered either a benevolent contribution or a new type of social corporate responsibility, or even 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 that 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 reorganise 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 analyse the dynamic relations that unfold between the commons, the market and the state, with the aim of proposing 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). Commons construct and constantly reproduce and evolve the productive communities of the intellectual commons, while at the same time these communal structures and institutions constrain and enable sharing and collaboration, leading to the emergence of new properties. While 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 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's 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 reimagine 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 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 that 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 outcompetes 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 2003a, 1249). Furthermore, certain theorists maintain that the mutualisation of intellectual resources within the commons-based mode of peer production comes along with processes of mutualisation of material resources and the rise of a distinct cooperative 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 when it comes 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, while 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 (i) 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, (ii) 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, (iii) the facilitation of knowledge sharing, cultural exchange and collaboration between creators through contemporary information and communication infrastructures, and (iv) 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 was characterised 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 decentralised 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 reshaping the political mobilisation, organisation and action of the twenty-first century at the grass roots. With 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 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, while, 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 reconfigured in order to produce a 'triarchy' that 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 of establishing institutions that 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 centre of the economy (Bauwens and Kostakis 2015). A commons-oriented political economy of the social intellect consists of inter-related layers of economic activity, all of which are underpinned by positive state policies. At its core are the intellectual commons communities and their coordinating 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 cooperatives, 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 mobilised 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*

Overall, social democratic approaches employ political economic tools for the examination of the intellectual commons, emphasise 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 below). In particular, 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.

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

Table 3.3: Partnering with the state for the transition to a commons-based society.

Source: Author

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 that obstruct its realisation, '[t]he technology will not overcome [the industrial giants'] resistance through an insurmountable progressive impulse. The reorganisation 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 criticised on the basis of over-emphasising the realm of the networked information environment and the digital commons with 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, owing 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 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 to be 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 1970). 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 to 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 analyse 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 to either dominant or subversive orientations. In this context, commons-based peer production is considered 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 that 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 labour (workers) in such a way 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 1992, 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 1992, 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 that 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 old.¹⁴

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 spillover effects on most terrains of social (re)production (Dyer-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-valorisation’, 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 organisation (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 technoscientific 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 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, in relation not only 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 organisation (Hardt and Negri 2009, 150). In Nick Dyer-Witheford’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' (Wittheford 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 mobilise 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 owing 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 of 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 fulfil 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 that 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 (Dyer-Witheford 2006; Kostakis, Niaros, Dafermos and Bauwens 2015).

In conclusion, critical theorists believe that the contemporary battles for the defence and diffusion of the commons, whether taking place in the intellectual or the material realm, are an integral part of a wider reconception 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 twenty-first century will be centred on 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

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 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 to social arrangements, openly embracing the aim of radical social change

Epistemology	Critical political economy
Agency	Social intellect
Structure	Community of struggle
Internal dynamics	n/a
External dynamics	Commons/capital antagonism and sublation
Normative criteria	Political (subversive)
Social change	The commons as alternative to capital

Table 3.4: The commons as alternative to capital.

Source: Author

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 that position as largely determinant of their essence and their future. Hence, the focus of their analysis is centred 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.

Owing 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 supporting their intuitions with adequate empirical evidence. Furthermore, the intellectual commons and capital are often Manichaeistically 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 'com[ing] 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 2013 176–200).

Methodological vulnerabilities are inevitably reflected in the content of critical theories. The often Manichaean 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 problematise over issues of collective action, organisation, coordination and consolidation related to communities of commoning and to engage in informed discourses regarding their shortcomings. Hence, political economic analysis centred 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 conceptualisation 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 since 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 hypotheses on the subjective element of social counter-power – that it 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 to 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.

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 oriented towards what the current state of affairs should become. In this context, the normative horizon of such a theoretical endeavour stretches to nothing short of the realisation 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:

	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

Table 3.5: Comparison of theories and approaches.

Source: Author

- Epistemology – The methodological choices that 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, and 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 reinvent 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 programme 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 theorising. Instead, they presuppose tectonic shifts in the 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 manifestations 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 offers a theorisation of the intellectual commons across history, by unfolding the evolution of the regulation of cultural commons from the Renaissance to postmodernity. 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.