

Social Democratic and Critical Theories of the Intellectual Commons: A Critical Analysis

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Abstract: 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. Yet the discourse over intellectual commons and their contested relationship with contemporary laws and institutions has not been confined only to academia but has rather become a more general social issue. Social democratic and critical theories of the intellectual commons are re-conceptualisations of the social intellect as the productive force of our intellectual commonwealth. As emerging theoretical paradigms, they eventually come to contrast with the dominant notions of the social intellect, which basically advocate the establishment of private monopolies over intellectual works. By deciphering contemporary shifts and dynamics in the ways we produce and distribute information, knowledge and culture, such theories are thus better placed to inspire and orientate social movements, recast agendas of policy-making, and construct alternative narratives to existing socio-legal arrangements, capable of accommodating the potential of the intellectual commons.

Keywords: Intellectual Commons, Commons-based Peer Production, Social Democracy, Partner State, Critical Theory, Marxism, Political Economy

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1. Introduction

Commons in general are social processes of both pooling resources in common and reproducing the communal relations around these productive processes. Intellectual commons in particular are related to processes of mainly intellectual, as demarcated from those of chiefly manual, human activity. In other words, intellectual commons refer to social structures related primarily to intellectual productive activity in terms of the production, distribution and consumption of information, communication, knowledge and culture.

Social democratic and critical theories of the intellectual commons are re-conceptualisations of the social intellect as the productive force of our intellectual commonwealth, i.e. the information, knowledge and culture our generation shares and collaboratively (re)produces on the basis of the collaboratively produced intellectual resources of prior generations. As an emerging theoretical paradigm, these theories eventually come to contrast with the dominant notions of the social intellect, which basically advocate the establishment of private monopolies over intellectual works. Whereas monopoly theories of the social intellect provide the theoretical justification for contemporary systems of intellectual property, social democratic and criti-

cal theories of the intellectual commons have accommodated a growing critique of such institutions and the economic models generated around them as inappropriate in terms of embracing novel forms of intellectual production/distribution/consumption and, therefore, as in need of deep reform. By deciphering contemporary shifts and dynamics in the ways in which we produce and distribute information, knowledge and culture, such theories are thus better placed to inspire and orientate social movements, recast agendas of policy-making, and construct alternative narratives to existing socio-legal arrangements that are capable of accommodating the potential of the intellectual commons.

The present article introduces the social democratic and critical theories that have been formulated in relation to the intellectual commons. The foregoing theories are examined in regard to their characteristics in terms of the following analytical categories:

- Epistemology.
- Agency.
- Structure.
- Internal Dynamics.
- External Dynamics.
- Normative Criteria.
- Perspective on Social Change.

According to the perspective taken in this article, social democratic theories constitute proposals for the forging of a partnership between a transformed state and the communities of the commons, putting forward specific transition plans for a commons-oriented society. On the other hand, critical theories approach 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 its conclusion, the article unveils a critical comparison of these two theoretical frameworks, with the aim of formulating a strong theory of the intellectual commons.

2. The Growth of Academic Interest on the Concept of the Commons

The emergence of social democratic and critical theories are part of a wider growth of academic and general social interest on the concept of the commons, especially the intellectual commons. In fact, over the past twenty years, theorising about the intellectual commons has undeniably become a popular activity not only among scholars that deal with the dialectics between information/communication technologies and society but also among the wider scientific community.

A search for the topic “commons” in articles indexed in the Social Sciences Citation Index (SSCI) from 1968¹ until today shows a huge rise of academic interest about the commons in social sciences in recent years². In Figure 1, one can observe that there was a relatively low academic article output about the commons in the pe-

¹ 1968 notes the year when Garrett Hardin published the article “The Tragedy of the Commons” in the *Science* journal, which was bound from then on to become extremely popular in relevant scientific and political debates about the commons and their potential (Hardin 1968).

² Data only concerns the Social Sciences and Arts and Humanities research domains. Results have been refined to exclude articles regarding the topic “House of Commons”.

riod 1968-1987 (250). Yet the years 1988-1997, when Elinor Ostrom published her seminal work “Governing the Commons” (Ostrom 1990), constitute a turning point, in which theoretical analysis of the commons begins to gather attention (479). Then, from 1998 to 2016, the number of articles on the topic rises exponentially (4203). Especially in the period 2008-2016, the article output about the commons reaches an average of 347 per year.

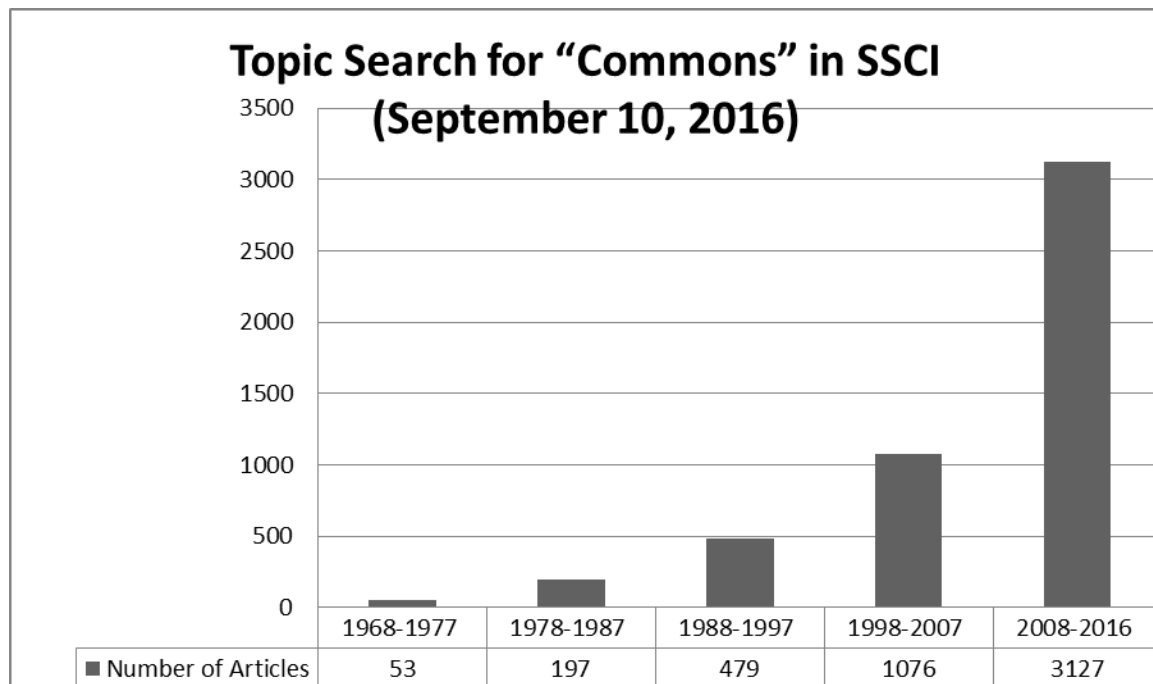


Figure 1: Development of the number of published articles on the topic of the Commons.

Commons and their theorisations have not come to the forefront of academic attention coincidentally. This circumstance is an empirical indicator of a rising interest in social sciences for sets of social relations for the management of resources developing beyond the state and/or the commodity markets. Most likely, such a rise may be an effect of the social and ecological crises that are in themselves repercussions of the deep contradictions encountered in these two prevalent institutions governing our lives in common.

Yet, in relation to the intellectual commons, other factors may also apply. Today, the epicentre of wealth creation in our societies has rapidly shifted from tangible to intangible assets. Intellectual production is more than ever considered to be the engine of social progress. As a result, the focus of business, policy-making and civil society has shifted to the regulation of intellectual production/distribution/consumption. Moreover, rapid techno-social developments have led to the convergence of media and communications into 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 with free access to all, by devising collaborative peer-to-peer modes of production and management of intellectual resources (Bollier and Helfrich 2015, 76).

2.1. An Overview of Social Democratic Theories of the Intellectual Commons: 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 to propose reconfigurations of these relations which will best serve social welfare (Kostakis and Bauwens 2014). 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, along with the effects and counter-effects that causally lead to the internalisation of the characteristics of one structure to the unity of the other. Crucial in the ontology of social democratic theories are the socio-historical formations of the networked information society as social totality, which constitute ensembles which are more than the sum of the elements that synthesise them. In order to engage with their object of analysis, social democratic theorists mainly draw their methodological tools from political economy, sociology, science and technology studies, and media studies. Overall, they 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 a part (Chang 2014, 193). It follows that individual agency is shaped by social structures that, at the same time, frame and empower individual activity (Giddens 1984). Dynamics between agency and structure within the intellectual commons are thus considered to develop in a bi-directional mode, both in a top-down and bottom-up dialectic. Commoners construct and constantly reproduce and evolve the productive communities of the intellectual commons, whereas at the same time these communal structures and institutions constrain and enable sharing and collaboration, leading to the emergence of new properties. Whereas they share the view of rational choice theorists of the intellectual commons that human behaviour is determined by a multiplicity of incentives (Benkler 2002, 369; 2006, 462; Kostakis and Bauwens 2014, 40), social democratic theorists claim that the element of reciprocity is the foundation of social life, emerging within the social matrix as the determinant characteristic of the behaviour of socially integrated individuals (Bauwens 2015, 67-69). Embedding norms of reciprocity and co-operation in social systems and structures hence creates a virtuous cycle of self-reinforcement of the behaviours that need to be promoted, and also plays a major role in achieving intended social changes (Benkler 2011, 161-162).

According to social democratic perceptions, the gradual accumulation of commons-oriented reforms, primarily through state intervention, is the most appropriate road to commons-based societies. In Michel Bauwens' words:

[The social democratic set of proposals] is the next great reform of the system, the wise course of action, awaiting its P2P "neo-Keynes", a collective able to translate the needs of

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

2.2. Point of Entry : The Technological Revolutions and their Potential

Most often, social democratic theorists begin their analysis of the intellectual commons by examining the ways in which technological progress reconfigures forces or relations of production and social power. Having previously been brought to attention by Marx in *Capital*, the connection between technology and social change in capitalism acquired a central position in modern economics through the work of Joseph Schumpeter. Deeply influenced by the Schumpeterian economic explanation of capitalist mutations through the forces of innovation, social democratic thinkers have given it a far-reaching political dimension, claiming that technological revolutions tend to destroy old socio-political relations and create them anew (Perez 2003, 23, 37; Kostakis and Bauwens 2014, 3-4). According to this view, if the potential of the technological revolutions is fully exploited by political means, then freer and more egalitarian societies will dawn.

The social democratic saga, with the liberatory potential of the “information society”, was ignited in the 1960s in the United States, with the formation of the “Commission on the Year 2000”, chaired by theorist Daniel Bell. Inspired by Marshal McLuhan’s theory, which reduced the history of humanity into an accession of media technologies (McLuhan 1964), the Bell Commission identified three key technologies which would become the motor of social change in the future: computing, media and telecommunications (Bell 1968). Consolidating this approach ten years later, Bell claimed that humanity is gradually transcending industrialism and entering into a phase in which the economy is service-dominated and social relations are “organized around knowledge, for the purpose of social control and the directing of innovation and change” (Bell 1974, 20). Much later on, Manuel Castells provides a grand narrative about the advent of the post-industrial society. Castells’ main claim is that our age is characterised by the accession of industrialism by informationalism, a social process in which all realms of human practice are increasingly determined by the usage of information technology, organised at the global level in information networks and based on symbol processing (Castells 2000a, 2000b). On the level of power, informationalism restructures and decentralises the power of capital and the resistance to it in networked morphologies (Castells 2009, 2012). In terms of the intellectual mode of production, Castells exclaims that “[f]or the first time in history, the human mind is a direct productive force, not just a decisive element in the production system” (Castells 2000a, 31).

The social impact of the Internet and the world wide web has fomented the imagination of social democratic theorists. Michel Bauwens contends that a totally novel (and, for the time being, primarily intellectual) mode of networked production among peers is emerging, which he has labelled as peer production. Compared to the markets of the mind, this mode of production is cooperative, voluntary, egalitarian and non-commodified (Bauwens 2005a). Alongside this, Yochai Benkler comprehensively combines the organisational peer-to-peer characteristics of the new mode of production with the social force of the commons. Commons-based peer production is, for Benkler, in juxtaposition to market and firm-based modes due to its communal and non-commercial nature (Benkler 2002, 2006). Both commentators consider that the

emergence of the networked information society is causally connected with the material allocations, social arrangements and power shifts that underpin the novel mode of intellectual production. As Benkler writes, “[t]he declining price of computation, communication, and storage have, as a practical matter, placed the material means of information and cultural production in the hands of a significant fraction of the world’s population” (2006, 3). Echoing Castells’ mass self-communication theory, Benkler further asserts that the technological infrastructure of the networked information society enables low cost and efficient communication and information exchange among peers across space and time, which facilitate “the coordination of widely distributed potential sources of creative effort and the aggregation of actual distributed effort into usable end products” (Ibid., 176). It is mainly through these technological developments that creativity and innovation by social relations of reciprocity, redistribution, and sharing has become more attractive and effective than ever before (Ibid., 462). Hence, behind the surge of the intellectual commons, social democratic thinkers see the empowering effect of technology.

2.3. 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 therefore 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 that 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” (2013, 260-1). In relation to intellectual resources, social democratic thinkers reimagine information networks, the public domain, fair use rights and the intellectual commons primarily as a space free from unwarranted interventions by the market and the state (Lessig 2006, Wu 2010, 306). Unencumbered access to such an intellectual public space is considered as fundamental for exercising individual freedoms that are 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 insusceptible to excessive control by powerful market players, thus safeguarding its public character (a public character not in the sense of state ownership and provision but in the sense of the commons) from concentrated powers (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 out-competes market- or state- based modes in terms of democratic participation and decision-making within the economy (Benkler 2002, 2006). Simultaneously, it gives the opportunity to overcome, at least to a certain extent, power inequalities between order-givers and order-takers observed in corporate forms of organisation (Benkler 2003, 1249). Furthermore, certain theorists maintain that the 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 co-operative economy of material resources (Restakis 2010, 2015). Finally, the intellectual commons provide information and communication infrastructures vital for the exercise of democratic rights and liberties in a self-governing and transparent manner. Hence, the more that commons-based peer production reproduces the building blocks of our networked information environment, the greater the chance that the power of corporations and states do not overcome the power of citizens in this sphere of activity (MacKinnon 2012, xxi).

Overall, social democratic thinkers favour the consolidation of a commons sector in the networked information economy on normative grounds, claiming that such a power shift will promote individual and collective empowerment, democratise the economy and society, contribute to social justice, and increase overall social welfare. Nevertheless, social democratic theories fork in regards 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.

2.4. 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 political crisis by reconfiguring power relations and, correspondingly, by democratising our culture, public sphere and polity. The political potential of the intellectual commons lies to a large extent on their capacity to empower “decentralised individual action” (Benkler 2006, 3). In this context, a more participative and transparent process of making culture has a democratising impact on the world of ideas and symbols, which constitutes the cultural base of our societies, whereas at the same time it encourages critical thinking and creativity (Fisher 2001, 193).

In the networked information environment, individual and collective participation in cultural production is enabled by (a) the lower cost of engaging in cultural production, which has led to wide social diffusion of the means of such production in terms of both equipment and software; (b) the provision of easier, wider and more equal access to the mass of prior cultural achievements archived at the world wide web on a non-commercial openly accessible basis; (c) the facilitation of knowledge sharing, cultural exchange and collaboration between creators through contemporary information and communication infrastructures; and (d) the increased technical capacity of remixing prior art into new forms of cultural expression (Benkler 2006; Lessig 2008; Broumas 2013, 430). On this basis, Benkler has proposed that commons-based peer production in the cultural domain reshapes “both the ‘who’ and the ‘how’ of cultural production relative to cultural production in the twentieth century” (Benkler 2006, 275). In addition, it 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 (Ibid., 277).

Apart from the cultural domain, political implications of the intellectual commons also extend to the transformation of both the public sphere and the modes of social mobilisation and political organisation. In the industrial era, the public sphere has been 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): horizontal communication networks have developed the capacity to circulate news, opinions and ideas at the social base, contributing to social awareness over the exertion of arbitrary state/corporate power and counter-influencing dominant agenda-setting patterns.

Accordingly, the properties of contemporary information and communication technologies are reshaping the political mobilisation, organisation and action of the 21st century at the grass-roots. In regard to the interrelation between communication processes and social movements, Manuel Castells claims that “the characteristics of communication processes between individuals engaged in the social movement determine the organizational characteristics of the social movement itself: the more interactive and self-configurable communication is, the less hierarchical is the organization and the more participatory is the movement” (Castells 2012, 15). The dialectics between contemporary information/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).

2.5. 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 possible only under the establishment of a partnership between the state and the social sphere of the intellectual commons and the commons in general (Bauwens and Kostakis 2014, 2015; Bauwens, Restakis and Dafermos 2015).

Elaborating on Cosma Orsi's approach (Orsi 2005, 2009), Bauwens and Kostakis define the partner state as "a state form for the transition period towards a social knowledge economy, in which the resources and functions of the state are primarily used to enable and empower autonomous social production" (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 (Ibid.). Thus, 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", which preserves and combines the positive aspects of each sector for social welfare and ecological sustainability (Bollier and Weston 2013, 262). In this context, the partner state acquires the role of the arbiter, who ensures "an optimal mix amongst government regulation, private-market freedom and autonomous civil-society projects" (Bauwens and Kostakis 2015).

According to social democratic theories, the partner state becomes the central planner for the transition to a commons-oriented society. In this respect, specific sets of policies have to be carved out with the core aim to establish institutions which guarantee that the social value produced and circulated by practices of commoning is not appropriated by capital but rather accumulated again in the sphere of the intellectual commons (Bauwens 2015, 53). This virtuous cycle of value circulation/accumulation is expected to make an alternative political economy possible, and to pull intellectual commons' communities out of the margins and to the centre of the economy. As Bauwens and Kostakis assert, "the potential of the new mode is the same as those of the previous proto-modes of production – to emancipate itself from its dependency on the old decaying mode, so as to become self-sustaining and thus replace the accumulation of capital with the circulation of the commons" (Bauwens and Kostakis 2015). A commons-oriented political economy of the social intellect consists of interrelated layers of economic activity, all of which are underpinned by positive state policies. At its core are the intellectual commons' communities and their co-ordinating institutions, which usually take the form of special purpose foundations

and other non-profit entities (Bauwens 2015, 32). Its periphery, where capital-intensive activities take place, especially in relation to the production of material goods or labour-intensive services, is occupied by social and solidarity co-operatives, which are connected together by bonds of reciprocity and mutuality. Finally, its relation with the market is configured by the rise of an ethical entrepreneurship, which is 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. An Assessment of Social Democratic Theories of the Intellectual Commons: The Commons as Substitute to the Welfare State

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

Table 1 : Key Characteristics of Social Democratic Theories of the Intellectual Commons.

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 1. above). Specifically, 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, reproduced around and within the intellectual commons.

Social democratic theories, especially when founded on liberal philosophical premises and rational choice methodologies, often cross the thin line that separates dialectical thinking concerning the interrelation of society and technology from one-dimensional techno-deterministic approaches of the intellectual commons. Having internalised the hegemonic idea about the end of history and the demise of radical social agency, certain social democratic intellectuals are prone to technological determinism as a means to sustain utopian thinking. In the absence of social forces that have the capacity to bring about a freer and more egalitarian future, they tend to fetishise the non-human force of technological development as the vanguard of social change. In relation to the intellectual commons, contemporary social democratic approaches are laden with popular versions of techno-deterministic utopian thinking,

which obfuscate the social potential of intellectual commons' communities (Rifkin 2014; Mason 2015). Even the most sophisticated social democratic theories over-emphasise the role of contemporary information and communication technologies in shaping the intellectual commons, thus tending to neglect the wider antagonistic element in their dialectical relation with capital. 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.

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 in regard to transformative politics. In certain cases, by disregarding the interdependencies between the intellectual commons and the material realm, social democratic theorists fall prey to cyber-optimism, underestimating 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 this 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. This relation is one of constant contention, the only outcome of which can be the penetration, co-optation and subsumption of the dominated by the dominant pole of the dialectical relationship. In its current phase of development, capital operates as a voracious colonising force constantly invading realms of life in common for the purpose of growing and reproducing its monetary value. 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. In a social terrain dominated by commodity markets, social value is primarily circulated and accumulated in the form of money and through the exploitation of labour. In such a terrain, forces of intellectual commoning are incapable of outcompeting forces of commodification, due to the fact that the former base their sustainable reproduction on non-monetary values. Therefore, no matter how extensively the intellectual commons counter-influence the processes of capital circulation/accumulation in the networked information economy, commons-based peer production is constantly co-opted in multiple ways as component to the dominant mode of capitalist intellectual production/distribution/consumption.

Apart from the vulnerabilities and failures of the notion of the intellectual commons as co-existing with capital, the social democratic conception of the partner state is also in itself a contradiction. The contradictory essence of the state as the condensation of competing social forces precludes the materialisation of a specific socio-historical state form that will partner with the commons. Instead, state policies regarding the commons are and will each time in future be the specific contradictory outcome of the contention between the dominated social force of the commons and the dominant social force of capital 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. In addition, the state is today extensively dependent on capital circulation/accumulation, both in terms of the sustenance of its own operations and in its mission to sustain wider processes of social reproduction. Such dependence in the networked information economy limits the capacity and scope of

commons-oriented state policies. 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. By claiming that this market-enabling role of the state to the detriment of the commons can be completely reversed, without revealing the complex dialectics within social antagonism which can render this colossal reversal possible, social democratic theorists of the partner state obfuscate more than they illuminate.

3.1. An Overview of Critical Theories of the Intellectual Commons: Main Question and Methodology

Critical approaches search for the elements of the intellectual commons that have the potential to abolish all forms of domination and exploitation and exhibit tendencies towards a state of non-domination: a stateless and classless society. Critical theorists posit commons-based peer production within the wider social antagonism between the dominant force of capital and the countervailing forces of commoning. Furthermore, following Marx, they consider the intellectual commons as part of the real movement of communism, constantly at work at the base of contemporary capitalist society, which abolishes dominant social relations and creates the new world (Marx 1970 [1845]). Without any ground for conciliation between the two opposing forces, the mission of critical intellectuals is to elaborate on the ways that the intellectual commons and the commons in general can be armoured in their dialectic relation with capital, so as to acquire anti-capitalist dynamics and transcend the current ensemble of social relations. Hence, according to their radical approach towards social change, critical theorists state that when the forces of commoning at the social base reach a certain stage of development, the revolutionary act of force shall give birth to the new commons-based society (Marx 1992 [1885], 833).

In relation to methodology, critical theories follow a critical political economic approach of the commons as systems of social forces/relations embedded into the antagonisms of capitalism. Such analyses are predisposed in favour of changing the existing politico-economic order from the perspective of the counter-tendencies already at work for a commons-based society (Smythe 1984, 205). As Christian Fuchs puts it, “[c]ritical theory [...] not simply discusses norms, but analyses how society is related to processes of oppression, exploitation and domination, which implies a normative judgment in solidarity with the dominated and for the abolishment of domination” (2011, 12). Critical theories of the intellectual commons follow a dialectical methodology in the sense that they systematically explore “processes of becoming” in their objects of analysis, as well as how the latter are patterned as a potentiality to phase from one stage of their development into another. 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, replete with inherent contradictory tendencies (Fuchs 2011, 21). Hence, society in general and the interrelation between the intellectual commons and capital in particular is also conceived as negativity, i.e. as a dynamic system of both domination and resistance between conflicting forces. 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). In this context, commons-based peer production is considered as a mode of intellectual production, through which meanings, perceptions, truths, knowledge and culture are produced as alternatives to their hegemonic counterparts. Therefore, the intellectual commons is conceptualised as having properties which attribute to it the potential to provide intellectual and cultural bases for social reproduction against and beyond capital.

3.2. Point of Entry: Commons and their Enclosures

The starting point of engagement with the intellectual commons is, for critical theories, the history of their enclosure by capital. Karl Marx himself first became interested in political economy by observing the criminalisation of a commoning practice in his birthplace at Trier (Marx 1970 [1859], 10; Linebaugh 2014, 202). In part VIII of his first volume of *Capital*, Marx states that this process of accumulation, which he addresses as primitive, has not only taken the form of an expropriation from peasants of their means of subsistence and production, but has also been the main pre-condition for the advent of wage labour within the capitalist mode of production. The whole process was conducted by extremely violent means both under the guise of state law and beyond, whereby, in his words, “the proletariat [was] created by the breaking-up of the bands of feudal retainers and by the forcible expropriation of the people from the soil” (Marx 1990 [1867], 896). Yet the enclosure of the pre-capitalist commons has not been just an accession between competing modes of production. Instead, it has also destroyed the communal relations built around the commons and, from their ashes, created brand new ways of life. As Karl Polanyi describes, “[t]he lords and nobles were upsetting the social order, breaking down ancient law and custom [...] They were literally robbing the poor of their share in the common, tearing down the houses which, by the hitherto unbreakable force of custom, the poor had long regarded as theirs and their heirs’. The fabric of society was being disrupted” (Polanyi 2001 [1944], 37).

Extending Marx’s narrative on the advent of capitalist society up to her times, Rosa Luxemburg has stressed that the enclosure of the commons is a central element in the capitalist economy. In “The Accumulation of Capital” she draws attention to the constant tension between capital and the commons, by arguing that “[c]apitalism is the first mode of economy [...] which tends to engulf the entire globe and to stamp out all other economies, tolerating no rival at its side. Yet at the same time it is also the first mode of economy which is unable to exist by itself, which needs other economic systems as a medium and soil” (Luxemburg 2003 [1913], 447). In this process

of ongoing accumulation, “the primitive associations of the natives are the strongest protection for their social organisations and for their material bases of existence”, and therefore, “capital must begin by planning for the systematic destruction and annihilation of all the non-capitalist social units which obstruct its development” (Ibid., 350). Hence, Luxemburg conceives the expropriation of common wealth by capital not only as an ongoing, never-ending process but also as a distinct second form in which capital accumulates its social power, apart from the form of exploitation. Nowadays, contemporary critical theorists more or less agree that the enclosing processes of proletarianisation, commodification and monetisation continue throughout the historical course of capitalism. The renaissance of the debate regarding the twin concepts of enclosures and commons was re-ignited in the 1990s, when the Midnight Notes Collective published their leaflet on the new enclosures of the commons that sweep the planet (Midnight Notes Collective 1990). Correspondingly, David Harvey has grounded Luxemburg's thoughts to the present by claiming that the commons are an “outside” to the capitalist economic system, and that capital perpetually colonises the commons through accumulation by dispossession, a crucial form of which are the ever-expansive intellectual property rights over information, knowledge and culture (Harvey 2003, 137). In this grand movement of enclosure, the communities of the commons are dissolved through the force of the state and replaced by the community of money and the circulation of commodities (Harvey 2010, 294). According to Harvey, the inherent tendency of capital to expand and subsume new natural and social terrains makes the existence of such an “outside” imperative for its survival. Therefore, capital is in a deadlock, both depending on the well-being of the commons and at the same time corrupting it.

Massimo De Angelis extends Harvey's approach by claiming that the commons is a sphere that constitutes not only an “outside” but also an opposing force to capital. De Angelis first extends his political economic perspective from the confined domain of the economy to the general processes of social reproduction (2007, 26). From this wider perspective, he argues that capital is not all-encompassing but rather one among the many systems of social reproduction (Ibid., 13). In this context, the commons constitute “an alternative realm in which material and social life is re-produced outside capital” (Ibid., 32). The confrontation between capital and the commons takes the form of a clash between dominant and alternative value practices and systems, which in the case of the latter emanate and circulate through the social body by means of socio-political struggles. De Angelis considers the enclosure of the commons as the default generative mode of capital, i.e. “the one that creates markets, that is, creates people and communities ‘willing’ to buy and sell commodities, creates ‘proletarians’”, whereby the value practices of the commons are forcefully integrated in the dominant value system of capital by state force (Ibid., 80). An important mode of the so-called new enclosures is the enclosure of the life and intellectual commons in the form of the imposition of intellectual property rights over genetic structures and intangible resources, which give their holders the power to direct and shape the evolution of science, technology and culture, or even life itself (Ibid., 148-9).

The potential of the commons for social emancipation also constitutes the crux of Hardt and Negri's seminal trilogy on contemporary social antagonisms, which was published in the 2000s and has since then exerted a major influence on critical thought. Inspired by Foucault's conception of power as constructive and pervasive in all spheres of social life, Hardt and Negri believe that there is no “outside” to the dominance of capital (2009, 119-121). Instead, resistance, alternatives and the potential for post-capitalist futures emerge from within the inherent tendencies of the

capitalist mode of production. Following Marx's analysis, these thinkers claim that, at its current stage of development, the productive force of the social intellect is gradually coming into conflict with the existing capitalist relations of intellectual production (Hardt and Negri 2009, 143). In their own words, "contemporary capitalist production by addressing its own needs is opening up the possibility of and creating the bases for a social and economic order grounded in the common" (Ibid., x). Hence, the transition to a post-capitalist society is unveiled when the productive forces set in motion by capital reach a certain point of development at which they out-grow the straight-jacket of existing social arrangements. According to the Marxian analysis regarding the tension between the forces and the relations of capitalist production, it is at this stage of development that private property becomes a fetter on production, which eventually leads to "disorder into the whole of bourgeois society" (Marx and Engels 2015 [1848]). In this light, Hardt and Negri conceptualise the enclosures of the intellectual commons, in the form of private monopolies over information, knowledge and culture, as fetters to the productive capacities of the social intellect. In their view, the segmentation and expropriation of the intellectual commons by capitalist control inevitably destroys the virtuous cycle of commoning, so that capital becomes increasingly a fetter on commons-based peer production (Hardt and Negri 2009, 145-146).

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

Critical theorists claim that the advent of informational capitalism has created the pre-conditions, on the one hand, for the penetration by the capitalist mode of production of facets of social activity previously untouched by capital, and, on the other hand, for the emergence of mass intellectuality as a direct force of production. From this point, certain theorists then proceed to the assertion that such transformations in production lead to (i) the redundancy of the law of value, and (ii) the development of those cognitive and organisational skills by collective labour which will give it the subversive potential to displace capital and posit itself at the co-ordinating centre of social (re)production.

Critical theorists approach and analyse the intellectual commons in terms of their connection to labour and its antagonism with capital. Certain intellectuals within the critical camp draw attention to the centrality of "immaterial labour" in contemporary arrangements of production. Immaterial labour is conceptualised as the labour "that produces the informational and cultural content of the commodity" (Lazzarato 1996, 132). It refers to the collaborative production and fixation of informational and cultural artefacts and the provision of related services, while it is perceived as combining both manual, intellectual and organisational skills and as taking the form of networks and flows between labourers (Ibid., 136-137). In order to accommodate heavily gendered affective work, the notion of immaterial labour has been extended to include "the creation and manipulation of affect", which includes all types of caring labour (Hardt 1999; Hardt and Negri 2000, 293). In addition, the incorporation of information and communication technologies in industrial processes, the transformation of manufacturing into a service, and the increasing tendency to invest in the subjectivity of workers in the industrial sector have also been claimed to attribute the characteristics of immaterial labour to the field of industrial production (Lazzarato 1996, 133). Hence, the contemporary hegemonic role of "immaterial labour" within capitalist production is perceived to be the outcome of transformations in the quality and nature of labour brought about by the wide implementation of information and communication tech-

nologies (Hardt and Negri 2000, 289). As Hardt and Negri write, “[o]ur economic and social reality is defined less by the material objects that are made and consumed than by co-produced services and relationships. Producing increasingly means constructing cooperation and communicative commonalities” (2000, 302). By constantly producing intangible resources, such as ideas, knowledge, symbols, meanings, communication, and social and affective relationships, intellectual labour transgresses the economic and penetrates the political and cultural realms, ultimately (re)producing forms of life in common. At this stage, production becomes biopolitical, in the sense that the struggle between labour and capital is diffused into the wider processes of social reproduction (Hardt and Negri 2004, 94-95). We thus enter a post-industrial form of “cognitive capitalism”, in which the collective production of information, knowledge and culture becomes the central stage of value extraction and accumulation by capital. The conflictual character of this process is more eloquently reflected in the strengthening of private monopolies over intellectual resources and in the transformation of the latter into fictitious commodities (Vercellone 2007, 2008).

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” (1992 [1894], 114). 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” (1992 [1894], 114), “general social knowledge”, “the power of knowledge, objectified” or “the general productive forces of the social brain” (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 (*Ibid.*, 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” (*Ibid.*, 699). What capital appropriates is then “[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” (*Ibid.*, 701). Hence, in the age of the general intellect, the intellectual commons become the ultimate source of capital's profit (Marx 1992 [1894], 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. The extensive automation and mechanisation of production marks the corollary of capital's domination over living labour through technology and the massive reduction of its need for labour power. The intellectual commons and their productive forces are subsumed under the capitalist processes of 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 (1973, 700; 1992 [1894], 114). 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.

Furthermore, “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 techno-scientific systems at work in production, gives rise to a subjective social force which has the potential to transcend private property relations through sharing and collaboration. Hence, the rise of the general intellect gives birth, albeit still in spermiatic 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 old³.

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 to most terrains of social (re)production (Witheyford 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 and constituting the “know-how” for the operation of post-Fordist production (Virno 1996, 265). Michel Bauwens concurs that “[v]alue creation today is no longer confined to the enterprise, but beholden to the mass intellectuality of knowledge workers, who through their life-long learning/experiencing and systemic connectivity, constantly innovate within and without the enterprise” (Bauwens 2005a). Ignited by means of communication and cooperation, mass intellectuality is thus perceived to possess the cognitive and organisational skills which give it the subversive potential to displace capital and posit itself at the co-ordinating centre of social (re)production. The new type of worker acts within production as a social cyborg, “a hybrid of machine and organism that continually crosses the boundaries between material and immaterial labor” (Hardt and Negri 1994, 280). 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. Whereas, at this point, “capital becomes merely an apparatus of capture, a phantasm, an idol”, the association of cyborg producers “is posed independently of the organization capacity of capital”, gradually weaving communist relations at the social base (Ibid., 282).

³ The idea that alternative social dynamics are constantly at work within existing social arrangements, though expressed through mass struggles, is as old as emancipatory social movements themselves. The Industrial Workers of the World close the preamble of their constitution with the phrase: “[b]y organizing industrially we are forming the structure of the new society within the shell of the old” (IWW, Preamble to the IWW Constitution, Accessed June 1, 2016. <http://www.iww.org/culture/official/preamble.shtml>).

To sum up, “post-operaist” thinkers such as Hardt and Negri assert that the emergence of the general intellect in capitalist production gives birth to a new revolutionary vanguard. Instead of the industrial proletariat of the Leninist era, the subversive subjectivity of our times is the social cyborg workers' association, which supervises the techno-scientific bases of post-Fordist production. Its subversiveness lies in its relatively autonomous organisation of productive processes on the basis of non-commodified use value circulation/accumulation, self- and collective empowerment, mass communication, sharing and collaboration. 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” (1990 [1867], 929).

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

Critical theorists assume that contemporary processes of commoning share an uncertain future. Whereas such processes run the danger of being subsumed by capital, at the same time they have the potential to subvert its domination and open up post-capitalist alternatives.

From a critical perspective, the intellectual commons constitute “a sublation of the mode of the organisation of the productive forces” within capitalism, rather than a properly full-fledged post-capitalist mode of production (Fuchs 2014, 170). The emerging contradiction between the forces and relations of production clearly observed today in the form of the resurgent commons may, as has happened repeatedly in the past, just as well lead to the sublation of capital to a superior level of organisation and the consolidation of its powers over societies, instead of pointing towards an exodus from its domination (Tronti 1972). Therefore, not only in relation to the particular case of the intellectual commons but also to wider social change, the opportunity to move beyond capitalist societies is ultimately determined by the shift of co-relations of power brought about through social struggles and political 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” (Witheford 2006).

By holding that capital has subsumed social reproduction in its entirety, “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 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 while facing internal contradictions due to the dialectical relation between the forces of commoning and the dominant force of capital. For Massimo De Angelis, the commons constitute spheres of social reproduction

which are mutually exclusive and in constant confrontation with capital. These spheres are reproduced on the basis of circulating and accumulating alternative value practices beyond the value practices of money accumulation, commodity circulation and profit-maximisation. Such confrontation materialises in the form of struggles between the opposing value systems of the commons and capital. Depending on the outcome of social antagonism in each socio-historical moment, the commons are either enclosed, dismantled and their elements inserted as input in the circuits of capital circulation/accumulation, or defended and even expanded to more terrains of social reproduction. The beginning of history beyond capital, if realised, will only take place when societies overcome the “law of value”⁴, which reduces everything to capital's measurement, and posit the values of commoning as dominant (De Angelis 2007, 135, 150, 247). For Caffentzis and Federici, “commoning” is a social practice which constitutes the organising base for human communities since their inception and, therefore, predates the state and capital forms of governance and power. They conceive anti-capitalist commons as “autonomous spaces from which [we] reclaim control over our life and the conditions of our reproduction, and [...] provide resources on the basis of sharing and equal access, but also as bases from which [we] counter the processes of enclosure and increasingly disentangle our lives from the market and the state” (Caffentzis and Federici 2014, 101). For the commons to acquire anti-capitalist tendencies and 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 (Ibid., 102-103).

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

⁴ De Angelis extends the Marxian “law of value” so as to include, apart from the subsumption of labour by capital, all the ways in which capital co-opts facets of social reproduction (De Angelis 2007, 155-157).

the power to gain control over the means of production and subsistence (Caffentzis 2013, 249). They predict that the class struggles of the 21st century will be centred in the generation or destruction of the commons. According to Žižek, the contemporary struggles for the commons constitute struggles for the collective survival of humanity from its annihilation. Therefore, capitalist enclosures of the commons create the social conditions for the establishment of wider coalitions between different social agents on the basis of shared communist perspectives (Žižek 2008, 420-429; 2010, 212-215). In this respect, two alternative futures loom for humanity: “[e]ither: social movements will face up to the challenge and re-found the commons on values of social justice in spite of, and beyond, [...] capitalist hierarchies. Or: capital will seize the historical moment to use them to initiate a new round of accumulation” (De Angelis 2009).

4. An Assessment of Critical Theories of the Intellectual Commons: The Commons as Alternative to Capital

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

Table 2 : Key Characteristics of Critical Theories of the Intellectual Commons.

In relation to the criteria applied in this analysis, critical approaches are distinguished from the other three families of theories in that they conceptualise the intellectual commons as contested terrains of domination and resistance in juxtaposition to capital (see Table 2, above). In general, critical intellectuals engage in an examination of the ways that the intellectual commons can be exploited by corporations in order to (re)produce relations of domination and oppression, or employed by society for the advancement of freedom, equality and democracy. Consequently, such theories hold a strong prescriptive/normative approach of social arrangements, openly embracing the aim of radical social change for the transition to commons-based societies. In this context, the commons are viewed as unified social processes and relations which exhibit continuity between the realms of the manual and the intellectual. In juxtaposition to the other three approaches, critical thinkers perceive the intellectual commons as posited within social antagonism between the forces of labour and capital, and consider such positions 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.

Due to their subversive approach, critical theories of the intellectual commons reveal vulnerabilities of an essence different to those exhibited in the other three families of commons theories analysed above. In terms of methodology, the majority of critical thinkers do not spend much energy in supporting their intuitions with adequate empirical evidence. For instance, the hypothesis that the Marxian “law of value” is nowadays becoming irrelevant, thus corroding the relation of capital, is left un-

founded on any significant factual evidence. Hence, a great deal of work still has to be done to amass empirical data, so that the critique of dominant theories of the social intellect, which advocate the imposition of private monopolies over intellectual works, acquires substance and depth. Furthermore, the intellectual commons and capital are often manicheistically conceived as polar opposites in their dialectic relationship, even though dialectical schemata between the two almost never take such simplified forms of direct juxtaposition and conflict. In addition, structuralist epistemological influences within certain critical viewpoints result in deterministic tendencies and a very thin conception of social subjectivity as casuistically generated by structural dynamics with limited capacity to counter-act. Indicative of such tendencies is the intuition that the key to “come out the other side” of capitalism is ultimately not the emancipatory potential of the forces of commonification, but rather the internal contradictions of capital, which have to be pushed all the way through to their full materialisation in order for meta-capitalist societies to come into being. 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.

Methodological vulnerabilities are inevitably reflected in the content of critical theories. The often manichean conception of social antagonism as solely taking place between the forces of labour and capital and the need to engage in a radical critique of existing social arrangements pushes critical intellectuals to focus more on the dominant pole of the dialectic (capital) and much less on alternatives embodied in the commons. As a corollary, critical perspectives of the intellectual commons generally fail to problematise over issues of collective action, organisation, coordination and consolidation related to communities of commoning, or 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, and thereby acts as a co-opted imaginary contributing to the commodification of ever-increasing terrains of social activity. The reduction, rather than subsumption, of all forms of social power to capital ignores their counter-acting elements and relative autonomy, whereas it obscures the attempts to understand the dynamics of social counter-power and the social relations underpinning it.

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

produced either by the structural contradictions of capital or by social struggles are ideologically loaded. Structural dynamics frame and condition collective social subjects, but subversive subjectivities are ultimately forged within and through struggles, where their substratum, i.e. communal relations of solidarity and collaboration and alternative value systems, can actually come into 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. In this respect, the commons should not be viewed as utopian ends of history in a manichean battle of good and evil, or right and wrong, between itself and capital. After all, history teaches us that the commons have to a large extent been apt to rigid hierarchies, vulnerable to regressive social ethics and full of distinctions based on sex, race, beliefs and other segregations. In fact, for millenia humanity lived mainly in small communities with strong social ties of sharing and communitarian material bases for their subsistence, which were however ridden by the social pathologies mentioned above. On the contrary, the perpetuity of social struggles against domination should be taken for granted to the extent that the price for freedom indeed is the eternal vigilance of its holders.

5. 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. Commencing from their epistemological premises, social democratic and critical theories of the intellectual commons have been examined in terms of their approach to the fundamental categories of agency, structure and the internal/external dynamics between them, but also in terms of their normative choices and their overall approach to social change. The following table compares the two 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.

	Social Democratic Theories	Critical Theories
Epistemology	Political Economy	Critical Political Economy
Agency	Social Individual(s)	Social Intellect
Structure	Productive Community	Community of Struggle
Internal Dynamics	Bottom-Up / Top Down Emergence	n/a
External Dynamics	Co-existence of Commons with Capital	Commons / Capital Antagonism and Sublation
Normative Criteria	Deontological [reformist]	Deontological [subversive]
Social Change	The Commons as Substitute to the Welfare State	The Commons as Alternative to Capital

Table 3 : Cross-Examination of Social Democratic and Critical Theories of the Intellectual Commons.

The fundamental choices regarding the categories of a strong theory of the intellectual commons ought to mindfully harvest the most appropriate elements of both theoretical approaches according to the following criteria:

- **Epistemology:** Social democratic and critical approaches of the intellectual commons 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:** Even though they offer robust analyses of dominant social forces and relations in the field of intellectual production, social democratic and, especially, critical methodologies generally omit to deal with the political economy of the forces/relations of commonification. A shift of focus is therefore needed, so that the intellectual commons and their dialectics with capital are adequately understood and analysed.
- **Dynamics:** Whereas critical theorists focus more on bottom-up dynamics within the sphere of the intellectual commons, social democratic theorists emphasise top-down processes of social change. Taking into account the influence of agency and structure in social systems, an inclusive analysis of the intellectual commons should approach them as evolving through dialectically related processes of both bottom-up and top-down change.
- **Normativity:** As far as normative evaluations and their reflection on social change is concerned, social democratic and critical theorists must 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 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.

The main contribution of social democratic and critical theorists in the wider discourse over the commons is their accentuation to the fact that radical transformations in relation to the commons cannot be pushed forward purely by theorising. Instead, they presuppose tectonic shifts in co-relations of power between incumbent economic forces and the emerging commoners' movements. Therefore, our transition to commons-based societies may only come as a result of social and political action. As the commons cannot be separated in their tangible/intangible expressions, in this project no division of labour between the intellectual and the socio-political is possible. Participants can only be commoners of the mind as much as of the soul and body.

References

- Arvidsson, Adam and Nicolai Petersen. 2013. *The Ethical Economy: Rebuilding value after the crisis*. New York: Columbia University Press.
- Bauwens, Michel. 2005a. The Political Economy of Peer Production. *ctheory.net*. Accessed June 1, 2016. <http://www.ctheory.net/articles.aspx?id=499>
- Bauwens, Michel. 2005b. P2P and Human Evolution: Placing Peer to Peer Theory in an Integral Framework. *Integral World*. Accessed June 1, 2016. <http://www.integralworld.net/bauwens2.html>
- Bauwens, Michel. 2015. A Commons Transition Plan. In *Commons Transition: Policy Proposals for an Open Knowledge Society: Foundation of Peer-to-Peer Alternatives*, edited by Michel Bauwens, George Dafermos, John Restakis, 13-96. Accessed June 1, 2016. http://cdn5.commonstransition.org/wp-content/uploads/2015/03/Commons-Transition_-_Policy-Proposals-for-a-P2P-Foundation.pdf
- Bauwens, Michel and Vasilis Kostakis. 2014. From the Communism of Capital to Capital for the Commons: Towards an Open Co-operativism. *tripleC: Communication, Capitalism & Critique* 12 (1): 356-361.
- Bauwens, Michel and Vassilis Kostakis. 2015. Towards a New Reconfiguration Among the State, Civil Society and the Market. *Journal of Peer Production* 7: 1-6. Accessed June 1, 2016. <http://peerproduction.net/issues/issue-7-policies-for-the-commons/peer-reviewed-papers/towards-a-new-reconfiguration-among-the-state-civil-society-and-the-market/>
- Bauwens, Michel, John Restakis and George Dafermos. 2015. *Commons Transition Policy Proposals*. <http://commonstransition.org/>
- Bell, Daniel. 1974. *The Coming of Post-Industrial Society: A Venture in Social Forecasting*. London: Heinemann.
- Benkler, Yochai. 2002. Coase's Penguin, or, Linux and The Nature of the Firm. *Yale Law Journal* 112 (3): 369-446. Accessed June 1, 2016. <http://www.yalelawjournal.org/article/coases-penguin-or-linux-and-the-nature-of-the-firm>
- Benkler, Yochai. 2003. Freedom in the Commons: Towards a Political Economy of Information. *Duke Law Journal* 55 (6): 1245-1276.
- Benkler, Yochai. 2004. Sharing Nicely: On Shareable Goods and the Emergence of Sharing as a Modality of Economic Production. *The Yale Law Journal* 114 (2): 273-358.
- Benkler, Yochai. 2006. *The Wealth of Networks: How Social Production Transforms Markets and Freedom*. New Haven: Yale University Press.
- Benkler, Yochai. 2011. *The Penguin and the Leviathan: How Cooperation Triumphs over Self-Interest*. New York: Crown Business.
- Bhaskar, Roy. 2008. *Dialectic: The Pulse of Freedom*. London: Routledge.
- Bollier, David. 2007. The Growth of the Commons Paradigm. In *Understanding Knowledge as a Commons: From Theory to Practice*, edited by Charlotte Hess and Elinor Ostrom, 27-40. Cambridge, MA: MIT Press.
- Bollier, David and Burns Weston. 2013. *Green Governance: Ecological Survival, Human Rights and the Law of the Commons*. Cambridge: Cambridge University Press.
- Bollier, David and Silke Helfrich. 2015. Commons. In *Degrowth: A Vocabulary for a New Era*, edited by Giacomo D'Alisa, Federico Demaria and Giorgios Kallis, 75 – 78. London: Routledge.
- Broumas, Antonis. 2013. Governing Media through Technology: The Empowerment Perspective. In *Routledge Handbook of Media Law*, edited by Monroe Price, Stefaan Verhulst and Libby Morgan. New York: Routledge.
- Caffentzis, George. 2010. The Future of “The Commons”: Neoliberalism’s “Plan B” or the Original Disaccumulation of Capital? *New Formations* 69 (1): 23-41.
- Caffentzis, George. 2013. In *Letters of Blood and Fire: Work, Machines and the Crisis of Capitalism*. Oakland: PM Press.

- Caffentzis, George and Silvia Federici. 2014. Commons Against and Beyond Capitalism. *Community Development Journal* 49 (1): 92 – 105.
- Castells, Manuel. 2000a. *The Information Age: Economy, Society and Culture, Volume I: The Rise of the Network Society*. Oxford: Blackwell.
- Castells, Manuel. 2000b. Materials for an Exploratory Theory of the Network Society. *British Journal of Sociology* 51 (1): 5-24.
- Castells, Manuel. 2008. The New Public Sphere: Global Civil Society, Communication Networks, and Global Governance. *Annals, AAPSS* 616: 78-93.
- Castells, Manuel. 2009. *Communication Power*. Oxford: Oxford University Press.
- Castells, Manuel. 2012. *Networks of Outrage and Hope: Social Movements in the Internet Age*. Cambridge: Polity Press.
- Chang, Ha Joon. 2014. *Economics: The User's Guide*. New York: Bloomsbury.
- De Angelis, Massimo. 2007. *The Beginning of History, Value Struggles and Global Capital*. London: Pluto Press.
- De Angelis, Massimo. 2009. The Tragedy of the Capitalist Commons. *Turbulence* 5: 32-34. Accessed June 1, 2016. <http://turbulence.org.uk/turbulence-5/capitalist-commons/>
- De Angelis, Massimo. 2012. Crises, Capital and Cooptation: Does Capital need a Commons Fix? In *The Wealth of the Commons: A World Beyond Market and State*, edited by David Bollier and Silke Helfrich. Amherst, MA: Levellers Press.
- Fattori, Tommaso. 2013. Commons and Commonification of Public Services. In *Protecting Future Generations through Commons*, edited by Saki Bailey, Gilda Farrell and Hugo Matte. Strasbourg: Council of Europe Publishing, 257-277.
- Fisher, William. 2001. Theories of Intellectual Property. In *New Essays in the Legal and Political Theory of Property*, edited by Stephen Munzer, 169–173. Cambridge: Cambridge University Press.
- Fuchs, Christian. 2011. *Foundations of Critical Media and Information Studies*. London: Routledge.
- Fuchs, Christian. 2014. *Digital Labour and Karl Marx*. London: Routledge.
- Fuster Morell, Mayo. 2014. Governance of Online Creation Communities for the Building of Digital Commons: Viewed through the Framework of Institutional Analysis and Development. In *Governing Knowledge Commons*, edited by Brett Frischmann, Michael Madison and Katherine Strandburg. New York: Oxford University Press.
- Giddens, Anthony. 1984. *The Constitution of Society*. Berkeley, LA: University of California Press.
- Habermas, Jurgen. 1962. *The Structural Transformation of the Public Sphere*. Translated by Thomas Burger and Frederick Lawrence. Cambridge: Polity Press.
- Hardt, Michael and Antonio Negri. 1994. *Labor of Dionysus: A Critique of the State-Form*. Minneapolis: University of Minnesota Press.
- Hardt, Michael. 1999. Affective Labor. *Boundary 2* (2): 89-100.
- Hardt, Michael and Antonio Negri. 2000. *Empire*. Cambridge, MA: Harvard University Press.
- Hardt, Michael and Antonio Negri. 2004. *Multitude, War and Democracy in the Age of Empire*. London: Penguin.
- Hardt, Michael and Antonio Negri. 2009. *Commonwealth*. Cambridge, MA: The Belknap Press.
- Hardt, Michael and Antonio Negri. 2012. *Declaration*. New York: Argo Navis.
- Harvey, David. 2003. *The New Imperialism*. Oxford: Oxford University Press.
- Harvey, David. 2010. *The Enigma of Capital and the New Crises of Capitalism*. Oxford: Oxford University Press.
- Hyde, Lewis. 2007. *The Gift: Creativity and the Artist in the Modern World*. New York: Vintage.
- Juris, Jeffrey. 2008. *Networking Futures: The Movements Against Corporate Globalization*. Durham, NC: Duke University Press.

- Kostakis, Vassilis and Michel Bauwens. 2014. *Network Society and Future Scenarios for a Collaborative Economy*. Basingstoke: Palgrave Macmillan.
- Kostakis, Vassilis, Vassilis Niaros, George Dafermos and Michel Bauwens. 2015. Design Global, Manufacture Local: Exploring the Contours of an Emerging Productive Model. *Futures* 73: 126-135.
- Lazzarato, Maurizio. 1996. Immaterial Labor. In *Radical Thought in Italy*, edited by Paolo Virno and Michael Hardt. Minneapolis: University of Minnesota Press.
- Lessig, Lawrence. 2006. Re-crafting a Public Domain. *Yale Journal of Law and the Humanities* 18 (3): 56-83. Accessed June 1, 2016. <http://digitalcommons.law.yale.edu/yjlh/vol18/iss3/4>.
- Lessig, Lawrence. 2008. *Remix: Making Art and Commerce Thrive in the Hybrid Economy*. New York: Penguin.
- Lievrouw, Leah. 2011. *Alternative and Activist New Media*. Cambridge: Polity Press.
- Linebaugh, Peter. 2014. *Stop, Thief! The Commons, Enclosures and Resistance*. Oakland: PM Press.
- Luxemburg, Rosa. 2003 [1913]. *The Accumulation of Capital*. London: Routledge.
- MacKinnon, Rebecca. 2012. *Consent of the Networked: The Worldwide Struggle for Internet Freedom*. New York: Basic Books.
- Marx, Karl. 1970 [1845]. *The German Ideology*. New York: International Publishers Co.
- Marx, Karl. 1970 [1859]. *A Contribution to the Critique of Political Economy*. Ryazanskaya S., (tr.), Moscow : Progress Publishers.
- Marx, Karl. 1973 [1939]. *Grundrisse: Foundations of the Critique of Political Economy*. London: Penguin.
- Marx, Karl. 1990 [1867]. *Capital: A Critique of Political Economy, Volume I*. London: Penguin.
- Marx, Karl. 1992[1885]. *Capital: A Critique of Political Economy, Volume II*. London : Penguin.
- Marx, Karl. 1992 [1894]. *Capital : A Critique of Political Economy, Volume III*. London: Penguin.
- Marx, Karl and Friedrich Engels. 2015 [1848]. *The Communist Manifesto*. London: Penguin.
- Mason, Paul. 2012. *Why it's Kicking Off Everywhere: The New Global Revolutions*. London: Verso.
- Mason, Paul. 2015. *Post-Capitalism: A Guide to Our Future*. London: Penguin.
- McLuhan, Marshall. 1964. *Understanding Media: The Extensions of Man*. London: Routledge & Kegan Paul.
- Midnight Notes Collective. 1990. *The New Enclosures*. 10. Accessed June 1, 2016. <http://www.midnightnotes.org/newenclos.html>
- Mosco, Vincent. 2009. *The Political Economy of Communication*. London: Sage.
- Netanel, Neil. 2008. *Copyright's Paradox*. Oxford: Oxford University Press.
- Orsi, Cosma. 2005. The Political Economy of Solidarity: Production. *Federico Caffè Centre Research Report* 5. Roskilde University.
- Orsi, Cosma. 2009. Knowledge-Based Society, Peer Production and the Common Good. *Capital & Class* 33: 31-51.
- Ostrom, Elinor. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.
- Perez, Carlotta. 2003. *Technological Revolutions and Financial Capital: The Dynamics of Bubbles and Golden Ages*. Cheltenham: Edward Elgar.
- Polanyi, Karl. 2001 [1944]. *The Great Transformation: The Political and Economic Origins of Our Time*. Boston: Beacon Press.
- Restakis, John. 2010. *Humanizing the Economy: Co-operatives in the Age of Capital*. Gabriola Island: New Society Publishers.
- Restakis, John. 2015. Public Policy for a Social Economy. In *Commons Transition: Policy Proposals for an Open Knowledge Society*, edited by Michel Bauwens, George Dafermos and John Restakis. Foundation of Peer-to-Peer Alternatives, 97-162. Accessed June 1,

2016. http://cdn5.commonstransition.org/wp-content/uploads/2015/03/Commons-Transition_Policy-Proposals-for-a-P2P-Foundation.pdf.
- Rifkin, Jeremy. 2014. *The Zero Marginal Cost Society: The Internet of Things, the Collaborative Commons, and the Eclipse of Capitalism*. New York: St Martin's Press.
- Smythe, Dallas. 1984. New Directions for Critical Communications Research. *Media, Culture & Society* 6 (3): 205-217.
- Teubner, Gunther. 2013. Societal Constitutionalism and the Politics of the Common. *Finnish Yearbook of International Law* 21: 111-124. Portland, OR: Hart Publishing.
- Tronti, Mario. 1972. Workers and Capital. *Telos* 14: 25-62.
- Vercellone, Carlo. 2007. From Formal Subsumption to General Intellect: Elements for a Marxist Reading of the Thesis of Cognitive Capitalism. *Historical Materialism* 15 (1): 13-36.
- Vercellone, Carlo. 2008. *The New Articulation of Wages, Rent and Profit in Cognitive Capitalism*. Queen Mary University School of Business and Management. Accessed June 1, 2016. <https://halshs.archives-ouvertes.fr/halshs-00265584/document>
- Virno, Paolo. 1996. Notes on the General Intellect. In *Marxism Beyond Marxism*, edited by Saree Makdisi, Cesare Casarino and Rebecca Karl, 265-272. London: Routledge.
- Weston, Burns and David Bollier. 2013. Establishing Commons Trusts to Manage Common Assets for Future Generations. In *Protecting Future Generations through Commons*, edited by Saki Bailey, Gilda Farrell and Hugo Matte, 169-188. Strasbourg: Council of Europe Publishing.
- Witheford, Nick. 1999. *Cyber-Marx, Cycles and Circuits of Struggle in High-Technology Capitalism*. Urbana, IL: University of Illinois Press.
- Witheford, Nick. 2006. "The Circulation of the Common". Paper presented at *Immaterial Labour, Multitudes and New Social Subjects: Class Composition in Cognitive Capitalism*. Cambridge University. Accessed June 1, 2016. <http://www.fims.uwo.ca/people/faculty/dyerwitheford/Commons2006.pdf>
- Wu, Tim. 2002. Network Neutrality, Broadband Discrimination. *Journal of Telecommunications and High Technology Law* 2 (2): 141-179.
- Wu, Tim. 2010. *The Master Switch: The Rise and Fall of Information Empires*. New York: Alfred A. Knopf.
- Žižek, Slavoj. 2008. *In Defense of Lost Causes*. London: Verso.
- Žižek, Slavoj. 2010. How to Begin from the Beginning. In *The Idea of Communism*, edited by Costas Douzinas and Slavoj Žižek, 209-226. London: Verso.

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