RETHINKING MARXISM, 2021
Vol. 33, No. 2, 246–262, https://doi.org/10.1080/08935696.2021.1893108

Platform Capitalism, Platform Cooperativism, and the Commons

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This essay explores the potential for transitioning from platform capitalism to a commons-oriented postcapitalist ethical economy. Platform capitalism is an "updated" version of capitalism advanced by online software platforms. Trebor Scholz juxtaposes platform cooperativism with platform capitalism, aiming to outdo the latter by means of communal ownership, democratic governance, and the equitable distribution of value. Bauwens and Kostakis criticize platform cooperativism as insufficient insofar as it operates under a closed copyright system. They argue instead for incorporating platform cooperativism into a broader model of open cooperativism, premised on the principles of commons-based peer production. The essay concludes with a critical appraisal of Bauwens and Kostakis's model of open cooperativism.

Key Words: Commons, Open Cooperativism, Platform Capitalism, Platform Cooperativism, Postcapitalism

The development of information and communication technologies in the last decades has given rise to three novel economic models: platform capitalism, platform cooperativism, and commons-based peer production or open cooperativism. This essay's goal is to critically engage in the discussion over the potential transition from platform capitalism to a commons-oriented postcapitalist ethical economy.

The essay begins by describing the main features of platform capitalism, which lies at the intersection of digitization and neoliberalism. Platform capitalism is a digital version of capitalism built upon online platforms to facilitate the commercialization of goods and services for the purpose of profit maximization. Next, the essay outlines some major lines of criticism of platform capitalism, as raised by a number of scholars. It focuses in particular on the juxtaposition of platform capitalism with platform cooperativism. Introduced by Trebor Scholz, platform cooperativism is a digital version of traditional cooperativism that applies the algorithms of platform capitalism to online cooperative business models designed to promote decentralization, democratic co-ownership, and equitable value distribution. The essay then demonstrates and critiques the work of Bauwens and Kostakis, who argue for a commons-oriented ethical economy based on the democratic self-institutionalization of society. Bauwens and Kostakis claim that

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platform cooperativism cannot survive capitalist competition as long as it operates under a closed copyright system. Therefore, it needs to integrate into a broader model of what they call open cooperativism, premised on the principles of commons-based peer production.

The commons advance a simple yet radical idea: great improvements in production could be achieved by reducing barriers to knowledge exchange. Collaboration and openness could result in a constantly improving collective repository of best ideas and practices; hence, the open-source technologies of the digital commons.

Platform Capitalism

Digitization has propelled the globalization of neoliberalism from 1980 onward. Information and communication technologies have allowed corporations to downsize, outsource, and crowdsource production with the aim to cut costs and become more competitive. It has been common business practice in the last several decades for a company to hire another company (outsourcing) or individuals (crowdsourcing) to perform tasks, handle operations, or provide services that are either usually executed or had previously been done by the company's own employees. Jeff Howe (2008) defines crowdsourcing as follows:

> Simply defined, crowdsourcing represents the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call. This can take the form of peer-production (when the job is performed collaboratively) but is also often undertaken by sole individuals. The crucial prerequisite is the use of the open call format and the large network of potential laborers.

The internet, software technology, and telecommunication devices have allowed corporations to outsource production with the aim to decrease their production and transactions costs and increase productivity, thereby becoming more competitive (Howe 2008). Crowdsourcing is centralized inasmuch as companies control production and profit from freelancers and peer producers and is distributed inasmuch as freelancers and peer producers can earn a living. Prominent examples are digital platforms such as Amazon Mechanical Turk, Upwork, and Freelancer, where businesses and freelancers (designers, developers, copywriters, translators, and so forth) connect and collaborate remotely. Another example is the "skills" marketplace TaskRabbit, which matches freelancers with local demand, allowing consumers to buy labor for everyday tasks, including cleaning, moving, delivery, and handyperson work. In short, crowdsourcing constitutes the so-called "gig economy": that is, a labor market comprising freelance work.

Digitization, however, does not automatically translate into increased productivity and the rise of overall employment. Recent research indicates that productivity growth has dropped across the globe since the 1970s (Norman et al. 2017). Brynjolfsson and McAfee (2014) further show that digitization resulted in the decoupling of productivity from employment by exacerbating unemployment in the late 1990s. Digitization has produced skill-biased technical change. Machines tend all the more to replace routine jobs made up of well-defined tasks easily performed by algorithms. Bookkeepers, cashiers, construction workers, inventory managers, telephone operators, and musicians are now substituted with computers. The current trend is toward labor-market polarization between high-income cognitive jobs and low-income manual occupations and services, with a hollowing out of routine middle-income jobs. Frey and Osborn (2013, 2015) show that while wages and educational attainment are inversely related to an occupation's probability of computerization, automation is expected to disrupt the labor force in both upward and downward directions in the future. They estimate that 47 percent of currently existing jobs could become automated within a medium-range time horizon.

Historically, technology replaces obsolete jobs with new ones. At present, however, digitization of low-skilled labor decreases relevant labor demand on the part of businesses, pushing wages even lower in low-income jobs and thereby increasing income inequality (Brynjolfsson and McAfee 2014; Kuttner 2013). A survey conducted by the International Labor Organization found that in 2017, on average across five crowdsourcing platforms, a worker earned $4.43 per hour when only paid work was considered and $3.31 per hour when total paid and unpaid hours were considered, with the minimum wage in the United States at $7.25 per hour (Berg et al. 2018).

Brynjolfsson and McAfee (2014) take a step further by arguing that talent-biased technical change produces "winner-take-all" markets that widen income inequality all the more by increasing the gap between the superstars in a field and everyone else. The U.S. CEO-to-worker pay ratio rose from 46-to-1 to 331-to-1 during the last two decades while median income has stagnated for the last four decades and the minimum wage is lower than it was sixty years ago (Stiglitz 2012). Brynjolfsson and McAfee adopt a technology-driven explanation of income polarization on the basis of a neoclassical labor-market theory, according to which wages approximate the marginal productivity of labor. Technical change is supposed to be biased toward scarce talents in the general population, producing a small number of winners. However, this income polarization is due not to a technology-driven scarcity of talents in the general population but to asymmetric capitalist power relations exacerbated by technical change that has created network effects in the digital space, thereby increasing neo-feudal monopoly profits, rents, and CEO salaries.

The 2008 financial crisis has exacerbated the low-wage crisis of the last several decades and, combined with the expansion of neoliberalism and digitization, has

given rise to a novel economic model often termed the "sharing economy," which is coemergent with the "gig economy." Whereas the latter concerns the buying and selling of freelance labor, the former refers to the renting or exchange of idle assets such as cars, bikes, rooms, and so on. Both the "gig" and the "sharing" economy are instances of the crowdsourcing model enabled by capitalist online platforms (Bock et al. 2016; Codagnone, Biagi, and Abadie 2016a, 2016b; Sundararajan 2016).

The term "sharing economy" departs from the early development of a number of nonprofit peer-to-peer initiatives based on the moral values of a gift economy with support from information and communication technologies. Nowadays, the term "sharing economy" has evolved to refer liberally to a collaborative economy wherein individuals are coordinated through online software platforms for the production, distribution, trade, and consumption of goods and services, typically in a peer-to-peer fashion. The so-called "sharing economy" stretches across various sectors of the economy, such as peer-to-peer lending and crowdfunding, house renting, ride and car sharing, and trading.

Yet the online commercialization of the gift economy in the last decade renders the term "sharing economy" a fallacy. Using the term "sharing economy" for commercialized platforms obscures the differences between these platforms and commons-based peer production, in which gift-economy sharing really does happen. This essay instead adopts the term "platform capitalism" to refer to intermediaries (companies) acting as matchmakers in multisided platforms (MSPs) that extrapolate value creation and exchange primarily by enabling direct interactions between two or more customer or participant groups. Prominent examples of MSPs and the participants they connect include Alibaba.com and eBay (buyers and sellers), Airbnb (owners and renters of dwellings), Uber (professional drivers and passengers), and Facebook (users, advertisers, third-party game and content developers, and affiliated third-party sites). Online platforms help companies either realize monopoly rents on big data, advertisement space, and cloud-based computing (Facebook, Google, Amazon); sell products and services (Amazon); extract fees by enabling peer-to-peer and peer-to-business transactions (eBay, Alibaba.com, Airbnb, Uber); or a combination of the above (e.g., Amazon; Kenney 2014; Lobo 2014; Schmidt 2015; Pasquale 2017, 312; Srnicek 2017).

In platform capitalism, digitization and networking on the internet expand the monetization of goods and services, thus rendering all kinds of on-demand commercial exchange more viable and efficient. In contrast to "pipeline" businesses that create value by controlling a production line where inputs at one end of the chain transform into outputs at the other end, platform capitalism incorporates the classic value-chain model into a digital landscape marked by three major shifts: (1) from resource control to the orchestration of the network of producers and consumers; (2) from internal optimization to network interaction; (3) from a focus on customer value to a focus on ecosystem value (Van Alstyne, Parker, and Choudary 2016). Whereas industrial capitalism consists in

supply-side economies of scale, platform capitalism depends on demand-side economies of scale based on network effects—that is, social networking and demand aggregation generated by the applications and algorithms that control big data (Van Alstyne, Parker, and Choudary 2016). In other words, platform capitalism "installs" a top-down orchestration of bottom-up networking between producers and consumers.

Platform capitalism is considered to have transformed consumers into microentrepreneurs who trade, share, swap, and rent products and services, thus unlocking the untapped value or excess capacity of underutilized assets and services (cars, rooms, consumer goods, labor, capital, Wi-Fi, etc.). The on-demand economy of online platforms has created a twenty-four-hour global marketplace that is supposed to reduce waste and transactions costs, deepen human capital specialization, and increase the efficiency of labor markets, employment, asset management, and pricing, thus resulting in higher levels of productivity, innovation, environmental sustainability, and inclusive growth (Codagnone, Biagi, and Abadie 2016b; Sundararajan 2016).

A neoliberal economic account represented by some thought leaders in Silicon Valley conceives of the emergence of platform capitalism as the natural transition toward a more autonomous, deregulated, and flexible market in which companies and independent contractors are both freer to work outside the conventional framework of time and place (Codagnone, Biagi, and Abadie 2016a, 13; Pasquale 2017, 309–11). Freelancers can now obtain more creative, autonomous, and flexible work, thus leading to a more balanced private life. Platform capitalism can finally sustain a decentralization of power that translates into economic democracy and participatory culture, thus leading to the highest possible freedom for firms, households, and individuals (Bruns 2008, 227–8; Jenkins 2008, 275; Tapscott and Williams 2006, 267).

However, an increasing amount of criticism has recently been raised against platform capitalism (Codagnone, Biagi, and Abadie 2016a, 2016b; Felstiner 2011; Fuchs 2014; Huws 2014; Smith and Leberstein 2015; Scholz 2012, 2016a, 2016b; Schor 2014; Sundararajan 2016). This essay will next outline some of the major lines of criticism, focusing on the counternarrative of platform cooperativism, introduced by Trebor Scholz.

Against Platform Capitalism

Arun Sundararajan (2016) mistakenly argues that the so-called "sharing economy" consists in crowd-based "networks" rather than centralized institutions or "hierarchies." While it is true that platform capitalism might have helped decentralize economic activity, by no means does this point to a truly decentralized economy. Online platforms are available to front-end users but are controlled by centralized back-end server infrastructures, managed hierarchically by

decisions made in Silicon Valley and executed by black-box algorithms (Scholz 2016b, 26). In terms of income distribution, consumers and providers pay a fee for exchanging products and services online, thus bringing enormous profits to the owners of the platforms. The big money goes to the oligarchy of shareholders and owners, and the scraps to on-demand workers. In short, platform capitalism is based on a central authority that leverages the market power of network effects to extract rents from participants.

In Marxist terms, platform capitalism sustains the commodification of the general intellect in a networked society (Castells 2009, 2010), socially reproduced via information and communication technologies (Fuchs 2014). Network effects consist in the use value produced by the sociability of internet users on social media, online platforms, search engines, blogs, and mobile applications. Trebor Scholz (2016b, 4) has termed the commodification of network effects "crowd fleecing," meaning a new form of exploitation put in place by four or five upstarts to draw on a global pool of millions of workers in real time.

It may be attractive for some to envisage the prospect of transforming workers into microcapitalists or flexible freelance workers. However, platform capitalism on average puts workers at a disadvantage by transforming labor into an auction and obliging exploited amateurs to push professional prices down by selling their services cheaper. In the name of entrepreneurship, labor flexibility, individual autonomy, and freedom of choice, platform capitalism shifts the burdens of risk (unemployment, illness, old age) onto the workers' shoulders. It offers no minimum wage, no security, no health insurance, no pension, no unemployment insurance, no paid vacation, and no paid sick days (Scholz 2016b). The elimination of worker rights and democratic values like accountability and consent signify a lack of dignity for workers who are put in a position of an unfavorable information and power asymmetry (Newlands, Lutz, and Fieseler 2016, 9, 14).

A number of authors have built on the Marxian notion of the proletariat, arguing that digitization has created a new and more diverse type of proletariat. Ursula Huws (2003) speaks of a new class of information-processing workers—the cybertariat. In the same vein, Guy Standing (2011) and Nick Dyer-Witherford (1999, 88, 96) claim that poorly paid, insecure, and deskilled service workers constitute a new type of precariat. Andre Gorz (1980, 69) holds that automation and computerization have rendered underemployed, probationary, contracted, casual, temporary, and part-time workers a "post-industrial neo-proletariat." Platform capitalism is a technologically advanced form of exploitation, in most cases resulting in a "race to the bottom" with regard to wages and living standards.

Platform capitalism has colonized the public and private sphere to such an extent that it has integrated communication and information technologies into a global cybermarket, blurring the boundaries between "virtual" and "real," "work" and "play," "production" and "consumption," "private" and "public." Dallas Smythe (1977; 1981, 22–51) speaks of the "audience commodity," which portrays the media audience as a commodity sold to advertisers. Especially today,

social media commodifies the sociality of users on the internet by converting this activity into data sold to advertisers. Collections of personal data are used in the creation of targeted advertisements, with users' click-and-buy processes generating profit for advertising companies. Off-the-job time becomes a marketing playground that serves the reproduction of commodities. Everything, from leisure, play, and friendship to love and sexuality, becomes a twenty-four-hour commodity market.

Alvin Toffler (1980) coined the term "prosumers" to describe the class of consumers who have evolved beyond passive consumption. *Prosumers* of social media, for instance, produce commodities in the form of personal data. Christian Fuchs (2014) holds that the use value produced via social networking and the use of search engines transforms into a surplus value for social-media corporations, thus creating a new form of exploitation. Prosumers on the internet are a new type of exploited digital worker who produces (surplus) value that turns into monopoly rents for platform capitalism.

Not only do digitization and automation result in unemployment and precarious labor but they also render prosumers part of the working class, transforming society into the cyberfactory of online digital labor, both waged and unwaged. Whereas waged online labor is performed on crowdsourcing platforms, unwaged online labor refers to almost any social activity on the internet, including chatting, posting, searching, reviewing, and commenting (Fuchs 2014; Scholz 2012). Thus, broadly defined, digital labor fuels platform capitalism.

Platform capitalism is crowdsourced to prosumers who produce an economy of likes via digital labor. Big data turns the internet into advertising real estate. Big data fuels the customization of demand by advertisers and marketers who count on analytics to successfully predict buying intentions. The internet and social media serve as agencies of attention and reputation, but only celebrities and superstars can handsomely redeem their accumulated reputational currency through social branding. Everyone else is engaged in mere relations of big-data production, benefiting from the services provided by search engines and social media in a disproportionate exchange for their privacy. Not only does digital industrialism replicate the core division of industrial capitalism, between directors and executants, but it also further colonizes time and space by turning human data into a commodity reproduced by users themselves. As a result, people are reduced into a manageable "mainstream" set of trends, categories, and numbers, unwittingly contributing to the approaching dehumanization of artificial intelligence.

Microtasking—that is, the decomposition of work into small parts—such as that in crowdsourcing platforms like Amazon Mechanical Turk is a further expansion of Taylorist logic in the field of digital labor that disconnects the worker from the overall product of his work, thus rendering her a mere cog in the machine of a faceless production. Labor alienation, exploitation, precarity (see Huws 2014; Standing 2011), and insecurity are the sheer outcomes of the strategic nullification

of labor law in platform capitalism by corporations that make use of legal gray zones to misclassify employees as independent contractors, to pay no taxes, and to violate local laws, labor laws, and privacy and antidiscrimination laws (Scholz 2016b; Codagnone, Biagi, and Abadie 2016a, 26–39). Finally, there is strong evidence that insecure employment and precariousness result in psychological morbidity (Virtanen et al. 2005).

Toward Platform Cooperativism

Trebor Scholz (2016a; 2016b, 23-24) juxtaposes platform capitalism with platform cooperativism on a mission to bring together the roughly 170 years of the cooperative movement with commons-based peer production, a term first coined by Yochai Benkler (2006, 59–90) to describe a non-market sector of information, knowledge and cultural production, not treated as private property but as an ethic of open sharing, self-management and cooperation. The idea is to use the algorithmic design of apps like Uber in the service of a cooperative business model premised on communal ownership, democratic governance, transparency, sustainability, and the distribution of surplus value among multiple stakeholders (Scholz 2016a, 2016b). Workers, instead of earning paltry fees from precarious labor that makes investors rich, would rather design, manage, and own apps themselves. Platform cooperativism operates on the model of a multistakeholder cooperative of consumers, providers, investors, and producers. It aims to reunite existing cooperatives and labor unions under digital self-governance.

Platform cooperativism today covers the entire economic landscape. The last decade has witnessed the actual emergence of platform co-ops across a broad range of sectors, including e-commerce, cleaning services, culture work, finance, software development, and transportation. As many as 274 case studies of platform cooperativism have been documented so far.[1] In the following, I illustrate the cases of Stocksy and Fairmondo with the aim to delve deeper into the organizational principles of platform cooperativism.

Stocksy is a platform cooperative that accepts and provides royalty-free stock photography and video via an online marketplace that creates sustainable careers for artists through co-ownership, profit sharing, and transparent business practices (Scholz 2016a, 78). Bruce Livingstone and Brianna Wettlaufer founded Stocksy in 2013 with the aim to put power back into the hands of artists (Cortese 2016). Stocksy pays photographers 50 to 75 percent of sales.[2] That is

1. For more, see "#PlatformCoop Directory," Internet of Ownership website, accessed 19 December 2020, https://ioo.coop/directory.

2. See "Stocksy," P2P Foundation Wiki, last modified 28 July 2016, https://wiki.p2pfoundation.net/Stocksy.

well above the going rate of 15 to 45 percent that is typical in the stock-photography field. The company also distributes 90 percent of its profit among its photographers at the end of each year.

At the time of launch, Stocksy had about 220 contributing photographers, with plans to grow to approximately 500 photographers in its first year. Stocksy now has over 900 contributing members selected from over 10,000 applications. Its revenue doubled from 2014 to 2015, to $7.9 million. In its first four years of business, Stocksy paid out over $20 million to its nearly 1,000 artists during the period from 2013 to 2017. After starting with six founding members, Stocksy's staff numbered fifty by early 2018.

Stocksy is a multistakeholder cooperative divided into three membership classes: founders, staff members, and artists (Gordon-Farleigh 2019). Dividends totaling 90 percent of profits are awarded to artists, and 5 percent goes to the founders and staff. Every member has an equal voting share. Governance does not follow a vote-by-committee approach but rather a transparent, flat decision-making process, with members participating through an online system. The board includes directors from each class, and any member can propose resolutions.

Fairmondo is an online marketplace that aims to challenge the big players in e-commerce, such as Amazon and eBay (Scholz 2016a, 79). Founded in Germany in 2012, Fairmondo is a multistakeholder cooperative open to both professional and private sellers, and the products on offer have no general restrictions unless they are illegal or run counter to Fairmondo's core values, such as fairness and sustainable consumption. Its governance model is based on a legally binding commitment to uncompromising transparency and democratic accountability.[3] Democratic control is guaranteed through the one-member, one-vote principle. The managing board is elected by the employees. Decision making is based on a majority consensus.

Fairmondo was financed through crowdfunding, with over 2,000 members investing over €600,000 in shares. There is a cap of €25,000 for the value of shares that anybody can hold. Thus, disproportionate financial investments or investments by noncooperative associations are prohibited. Dividends are distributed as broadly as possible, with 25 percent going to co-op members through shares, 25 percent distributed through "Fair Funding Points" (voluntary work rewarded by points that legally stake a claim on future surpluses), 25 percent donated to a number of nonprofits chosen by Fairmondo members, and the last 25 percent pooled into a common fund used for the development of the wider Fairmondo project. Internal stakeholders (partners, staff, etc.) operate under a defined salary-range ratio of 1 to 7 from lowest to highest paid.

3. See "Case Study: Fairmondo," Commons Transition Primer website, accessed 19 December 2020, https://primer.commonstransition.org/4-more/5-elements/case-studies/case-study-fairmondo.

The cases illustrated above adhere to the seven principles of platform cooperativism classified as follows by Scholz (2016b, 18–21): (1) voluntary and open membership; (2) democratic member control; (3) member economic participation; (4) autonomy and independence; (5) education, training, and information; (6) cooperation among cooperatives; (7) concern for community. Scholz holds that platform co-ops respond to the market failures of platform capitalism by lowering transaction and retention costs, transferring surplus revenue to the members, protecting workers from exploitation, disincentivizing short-termism and offering a prospect for data democracy.

Scholz identifies a number of challenges for platform cooperativism. He touches upon the main obstacles that the cooperative movement has faced from its inception, such as competition, financing, regulation, education, member involvement, and identity. One central problem that potentially undermines the principles of platform cooperativism is the pitiless competition it encounters from traditional and platform capitalism. In light of the 20 to 30 percent that companies like Uber withhold as fees, one solution introduced by Scholz (2016b, 13) is for platform cooperatives to run on 10 percent fees, which could then be partially translated into social benefits for workers. Scholz is aware that the competition problem for platform cooperativism cannot be dealt with solely through pricing strategies. The development of a broader regulatory framework supported by adequate public policies is sine qua non for the advancement of platform cooperativism (Smorto 2017).

A critique has been raised from the Far Left that platform cooperativism still mimics the gig economy, a capitalistic structure (Anzilotti 2018). To truly dismantle capitalism, these critics argue, fundamental change at the national political level is necessary to regulate against monopolies like Google and to provide for equity-creating, distributive resources like universal basic income and universal healthcare. Scholz's (2016b, 13–14) counterargument states that reforms within capitalism can still work and can really change power relationships. Paradoxically, he contends that it is unrealistic to expect platform co-ops to dominate capitalist markets. Rather, he envisions a more diversified economy. A more radical line of argument holds that platform cooperativism should integrate into a broader model of open cooperativism using commons-based peer production.

From Platform Cooperativism to Commons-Based Open Cooperativism

Bauwens and Kostakis (2017) posit that cooperatives in general and platform cooperatives in particular usually function under the patent and copyright system, and they are consequently neither creating, protecting, nor producing a commons. They are limited to a local or national membership, thus leaving the global field open to domination by capitalist enterprises. As a result, traditional and

platform cooperatives are closed-market entities, tending over time to bend to the competitive pressure of capitalist enterprises. To overcome these deficiencies, Bauwens and Kostakis argue for the incorporation of platform cooperativism into a broader model of open cooperativism premised on the principles of commons-based peer production.

Bauwens and Kostakis approach commons-based peer production as "a new logic of collaboration between networks of people who freely organise around a common goal using shared resources, and market oriented entities that add value on top of or alongside them" (Scholz 2016a, 163). From a commons standpoint, open cooperatives internalize negative externalities, adopt multistakeholder governance models, contribute to the creation of material (natural resources, technology) and immaterial (knowledge, culture) commons, and are oriented toward a broader socioeconomic and political transformation, all the while being locally based.

Bauwens and Kostakis attempt to incorporate commons-based peer production into a broader ecosystem of open cooperativism that aims to address the challenges and problems of the cooperative movement as described by Scholz. Open cooperatives function under conditions of natural abundance and open design in which what can be shared is shared as the commons. Market value is created from scarce resources, adding value on top of or alongside the abundance of the commons. Open supply chains and open-book accounting further promote the sustainability of goods and insure maximum participation through mutual coordination enabled by open-source technologies. Finally, open co-ops employ CopyFair licenses that allow for the commercial use of the commons and that foster a level playing field for ethical enterprises willing to contribute to the commons (Bauwens and Kostakis 2016, 166). CopyFair differs from the copyleft and Creative Commons licenses in that it allows for the commercialization of commons knowledge in exchange for rent or reciprocal contribution.[4] In this way, the commons can secure its economic sustainability and autonomy vis-à-vis capitalist enterprises.

The new ecosystem of open cooperativism comprises three institutions: the productive community, the entrepreneurial coalition, and the for-benefit association (Bauwens et al. 2017). The productive community consists of all members, users, and contributors of the *global* commons who produce shareable resources, either for pay or by volunteering. The commons-oriented entrepreneurial coalition consists of generative enterprises that add value on top of the scarce common resources. These generative enterprises contrast with extractive enterprises (e.g., Facebook and Google) in that they do not seek to maximize profits by insufficiently reinvesting surplus in the maintenance of the productive community. In the best cases, generative enterprises identify with the productive

4. See "CopyFair License," P2P Foundation Wiki, last modified 2 April 2020, https://wiki.p2pfoundation.net/CopyFair_License.

community, forming a metaeconomic network based on the transition from community-oriented business to business-enhanced communities.[5]

The third institution, which binds productive communities and commons-oriented enterprises, is the for-benefit association, which supports the infrastructures of commons-based peer production. In contrast to traditional nongovernmental and nonprofit organizations that operate under conditions of scarcity, for-benefit associations operate under conditions of abundance. Whereas the former organizations identify a problem and provide its solution, the latter associations maintain an infrastructure of cooperation between productive communities and commons-oriented enterprises, protecting the commons through licenses, managing conflicts, fundraising, and so forth (Bauwens et al. 2017).

Bauwens and Kostakis further attempt to bridge the local with the global (digital) commons by incorporating the design-global, manufacture-local ecological model (DG-ML) into open cooperativism (Kostakis et al. 2015; Kostakis and Bauwens 2014). The DG-ML model has been enabled by the conjunction of modern information and communication technologies with desktop manufacturing technologies, such as three-dimensional (3D) printing and computer-numerical-control (CNC) machines. Put simply, open coding connects to design and manufacturing via the internet and 3D printers. Thus, open software expands on open hardware.

The DG-ML model follows the logic that what is not scarce becomes global (i.e., the global commons of knowledge, design, and software) and that what is scarce (i.e., hardware) is local. The global (digital) commons connect to the local commons via transition towns, decentralized communities, and fab labs/makerspaces based on free/open-source software/hardware and renewable-energy systems distributed through microgrids over blockchain and the internet of things (Rifkin 2014). Blockchain technology has the potential to link to the DG-ML model on the principles of open self-governance, decentralization, and the equitable distribution of value (Pazaitis, De Filippi, and Kostakis 2017). The literature has thus far documented notable case studies in the fields of agriculture, manufacturing, and biotechnology.[6]

The case of WikiHouse illustrates and exemplifies the model of open cooperativism. WikiHouse is an open-source project that allows anyone to design, share, fabricate, and assemble their own house (Priavolou 2018, 75–6). The idea is simple: globally crowd-sourced and freely downloadable designs are used to manufacture building components locally. The WikiHouse project is thus a distinct example of the DG-ML model: what is light (the design templates, blueprints, help manuals,

5. Some prominent examples are the Catalonian Integral Cooperative or CIC (Catalonia, Spain), the Mutual Aid Network (Madison, Wisconsin), and Enspiral (New Zealand). See Bauwens et al. 2017, 14–15).

6. Some showcases of the DG-ML model are AbilityMate, WikiHouse, RepRap, OSVehicle, FarmHack, Open Source Ecology, L'Atelier Paysan, and Bionics (Kostakis et al. 2015; Giotitsas and Ramos 2017; Papadimitropoulos 2017).

and support) is shared globally while what is heavy (cutting the wood, assembling the house) takes place locally, with improvements on the design then fed back into the global common-resource pool.[7]

WikiHouse's development was supported by an entrepreneurial coalition bringing together a structural engineering company (Momentum Engineering Ltd.), an architectural studio (Architecture00), a multidisciplinary firm (Arup Associates Ltd.) and a social-housing company (Space Craft Systems Ltd.; Priavolou 2018, 76). In 2014, the WikiHouse foundation was established as a nonprofit legal entity for maintaining commons infrastructures and open-source licenses, fundraising, and coordinating cooperation between the productive community and the entrepreneurial coalition.

WikiHouse prototypes have been developed by various communities across the globe (e.g., Farmhouse, WikiStand, and WikiTower; Priavolou 2018, 76). WikiHouse is a response to the failures of centralized systems and markets since the industrial revolution. It aims to address unsustainable, undemocratic, and unaffordable housing by breaking our dependence on fossil fuels and debt, empowering smarter citizens and building resilient communities and healthy, sustainable, economically productive, livable cities. The goal is to build digital tools to support a new social and economic infrastructure for democratic development that diffuses sustainable housing tools to every citizen and company on earth.

The replication of the WikiHouse model across other sectors of the economy could advance the future of open cooperativism. Bauwens and Kostakis (2014; Bauwens, Kostakis, and Pazaitis 2019) hold that the model of open cooperativism should scale up from the regional to the national and transnational levels so as to establish a hegemonic counterpower against and beyond predatory capitalism and neoliberalism. At the macro level, the three institutions of the productive community, entrepreneurial coalitions, and for-benefit associations could apply to the evolution of civil society, market entities, and the state, respectively. For-benefit associations could be considered as snapshots of a future partner state, which could facilitate commons-based peer production of civil society and ethical market entities.

To sum up, Bauwens and Kostakis's model of open cooperativism constitutes a strategy that can be considered both reformist and revolutionary, since it aims to transform the current politico-economic system toward the creation of a global commons-oriented ethical economy based on the democratic self-institutionalization of society. It is a model of open cooperation with a friendly capitalism willing to adjust in the long run to a commons-centric society.

It has been claimed, however, that by embracing a sort of "capitalist commons," as in the case of IBM investing in open-source software, Bauwens and Kostakis reproduce capitalist exploitation inasmuch as they adhere to the capitalist categories of the market, commodities, surplus value, profit, and capital (Rigi 2014).

7. See "Case Study: WikiHouse," Commons Transition Primer website, accessed 19 December 2020, https://primer.commonstransition.org/4-more/5-elements/case-studies/case-study-wikihouse.

However, one should notice that Bauwens and Kostakis introduce CopyFair with the aim not to sell but rent commons knowledge. Instead of capital free riding on the commons by using copyleft licenses, the circulation of the commons could reverse a stream of income from capital to the commons with the aim of securing the sustainability of the latter.

The argument that the commons exploits its contributors by renting their surplus value to capitalism is not valid, given that profit is redistributed within the commons. Bauwens and Kostakis conceive of the commons as an entrepreneurial project operating in terms of the medieval guilds, which externally trade their goods in the marketplace while acting internally as solidarity systems that redistribute their income in new projects through a collaborative funding process. The transference or transvestment of value (land, labor, know-how, capital) from capitalism to the commons is a sine qua non in any potential scenario of a future transition to the commons, whether reformist, revolutionary, or state driven. In any case, expropriated surplus value returns to the "source."

Bauwens and Kostakis's model of open cooperativism carries some significant advantages over Scholz's model of platform cooperativism, but it is still to some degree limited, since it sticks at times to a technocratic and economistic vision of self-institutionalization. Bauwens and Kostakis envision the commons beating capitalism on its own ground by way of technological and economic hacks engineered by decentralization and self-management. But this is not enough. To resist the neoliberal dominance of economism and techno-solutionism, it is essential to embed into our institutional design the ethics of a political culture that transforms the current anthropological type of *Homo economicus* into *Homo cooperans*. Commons-based peer production needs to be not just an economic project but also part of a broader political struggle animated by the creation of a novel anthropic type infused with the principles of autonomy and economic democracy.

The virtue of Bauwens and Kostakis's work is that they have introduced a model of the self-institutionalization of civil society, comprising both state and market mechanisms along democratic, ethical, and ecological lines. They advocate for an open, decentralized, and flexible cooperativism facilitated by information and communication technologies. Their model, however, requires a more vibrant political spin to attract a critical mass.

Bauwens and Kostakis rightly stress that it is necessary to disengage from both a social-democratic welfare state and a neoliberal state by establishing ministates from commons ecosystems steered by a commons-centric partner state that implements radical democratic procedures and practices. The political deficit of Bauwens and Kostakis's work lies precisely in the absence of concrete policies to accomplish all of this. It is only through the institutional establishment and proliferation of sustainable cases that commons-based peer production could gain public trust and involvement, and only on the condition that it reconciles freedom and equality in ways that benefit both individuals and collectivities. It depends, thus, on a multiway transformation of politics, with the state acting in concert with a broader social movement capable of identifying with the commons.

Some of the big challenges lying ahead include how to tackle issues of concentration of power and conflict; how to reconcile individuality and pluralism with community and unity; how to combine hierarchy and competition with self-management and cooperation; how to coordinate dispersed peer-to-peer initiatives; and how to relate to established social systems and power relations in the market, the state, and civil society at large.

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