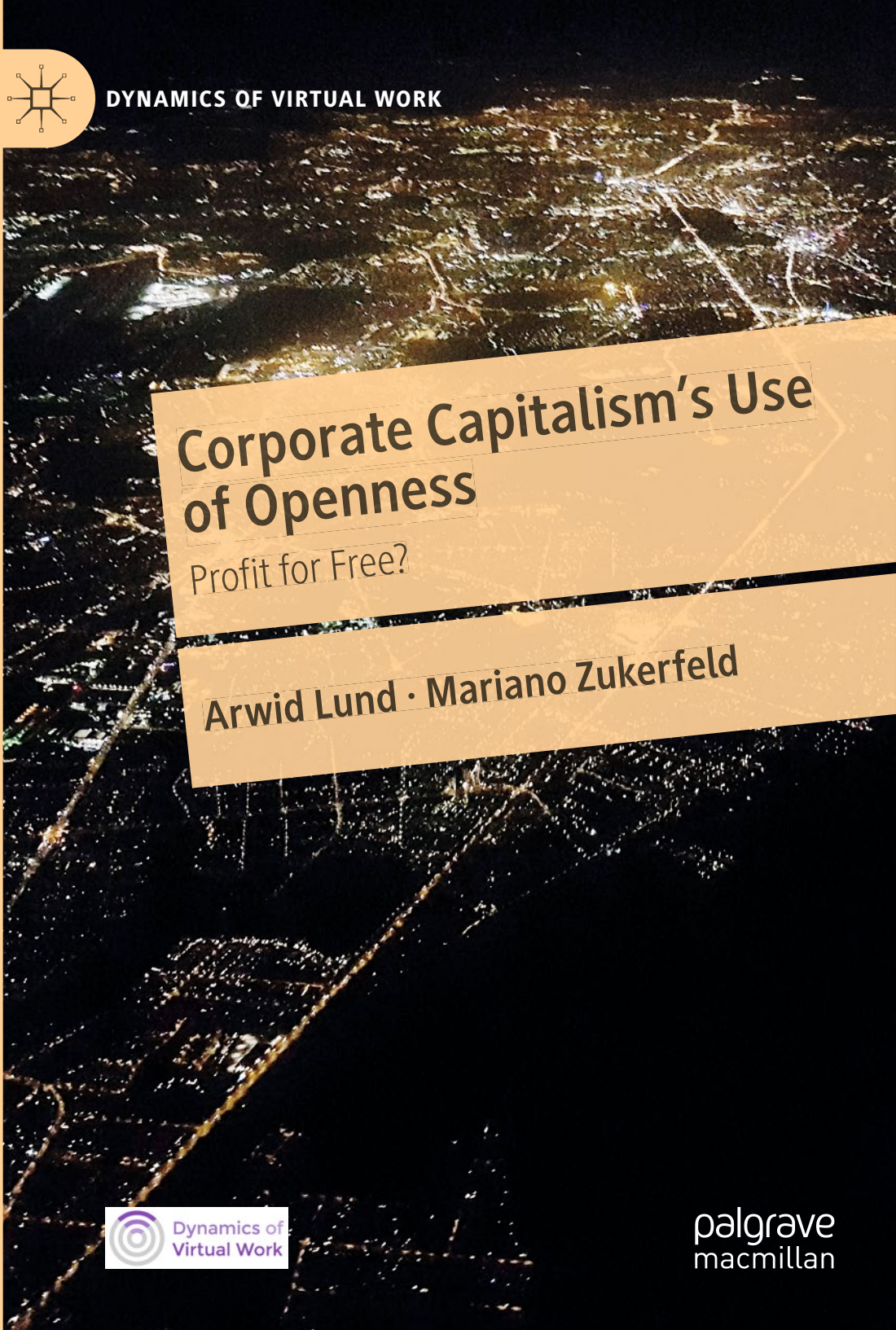
DYNAMICS OF VIRTUAL WORK
Corporate Capitalism's Use of Openness
Profit for Free?
Arwid Lund · Mariano Zukerfeld
Dynamics of Virtual Work
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Dynamics of Virtual Work

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Technological change has transformed where people work, when and how. Digitisation of information has altered labour processes out of all recognition whilst telecommunications have enabled jobs to be relocated globally. ICTs have also enabled the creation of entirely new types of 'digital' or 'virtual' labour, both paid and unpaid, shifting the borderline between 'play' and 'work' and creating new types of unpaid labour connected with the consumption and co-creation of goods and services. This affects private life as well as transforming the nature of work and people experience the impacts differently depending on their gender, their age, where they live and what work they do. Aspects of these changes have been studied separately by many different academic experts however up till now a cohesive overarching analytical framework has been lacking. Drawing on a major, high-profile COST Action (European Cooperation in Science and Technology) Dynamics of Virtual Work, this series will bring together leading international experts from a wide range of disciplines including political economy, labour sociology, economic geography, communications studies, technology, gender studies, social psychology, organisation studies, industrial relations and development studies to explore the transformation of work and labour in the Internet Age. The series will allow researchers to speak across disciplinary boundaries, national borders, theoretical and political vocabularies, and different languages to understand and make sense of contemporary transformations in work and social life more broadly. The book series will build on and extend this, offering a new, important and intellectually exciting intervention into debates about work and labour, social theory, digital culture, gender, class, globalisation and economic, social and political change.

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During our scholarship we had started to investigate various themes connected to this book, like the ideological uses of openness in the open data movement, and the business model behind online academic courses. We were not alone in our discussions. With us was a group of talented researchers with similar interests. Huge thanks go to Pasko Bilic, Sebastian Sevignani, Ben Birkinbine and Paschal Preston for all the inspiring discussions about digital media's relations to society, and the radical politics concerning both commons and corporations! To be sure, it was Christian who made it all possible. Beyond his theoretical influence, his endeavors coordinating institutional initiatives such as conferences, the Triple-C journal, UWP Critical Digital and Social Media Studies, WIAS, and specifically the fellowship program that we had the honor and privilege to be part of are impossible to overstate. Denise Rose Hansen, finally, ran the everyday administration of the institute in a very generous atmosphere, and with great commitment.

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Praise for *Corporate Capitalism's Use of Openness*

"An outstanding analysis of how digital capital uses openness as principle of capital accumulation and exploitation."

—Christian Fuchs, *University of Westminster, UK*

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Introduction

1.1 Early Promises and Expectations

Since at least the 1990s the sensation has been that digital technology, as with the printing press in the past, is transforming the whole information and communication chain in society: the production and distribution of information and data, and the adaptation and storing of it.

The earlier analog model had one sender, a TV or radio station and many receivers, and it was dominated by unidirectional communication, which mirrored industrial society itself, dominated as it was by large companies, managed by elites of white-collar engineers and middle management, exploiting a working mass of blue-collar workers. These blue-collar workers were the audience or consumers of the analog media content produced by cultural industries that, according to the Frankfurt School, created passive consumers, a herd mentality, and could potentially lead to fascism (Miller, 2011, p. 12).

This hierarchical media landscape was transformed, it was widely claimed, by digital technology and the popularization of the Internet and the web in the 1990s. On the web, interactivity, and two-way

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communication, was the rule. It was said to be inherent in Internet technology and its infrastructure (Abbate, 1999; Castells, 1999). The earlier dichotomy between senders and receivers, between producers and consumers was loosened up and the categories started to merge with each other, giving rise to new possibilities according to intellectuals of the time (Levy, 1997, 1998). Suddenly, all citizens who had an Internet connection and a PC not only had more information and cultural resources to choose from, they also could publish themselves, meaning that they could start to publish their own cultural works for a broader audience.

Soon people had the same experience as Linus Torwald when he realized that software programming could be carried out by peers in distributed networks (Castells, 2001). From all this developed a bottom-up participatory remix culture (Lessig, 2008), in parallel with a convergence of the media, telecoms and software sectors of the economy in the 1990s. Participatory cultural production included phenomena such as fan-production, peer-production and citizen journalism, which became popular cultural forms (Jenkins, 2008).

Some examples are mash-ups where new sounds were added to a totally different television program, or spoiler sites where fans discussed and investigated the worlds of reality TV series like *Survivor*. Other fan communities developed platforms dedicated to *Star Trek*, *Harry Potter* and so on (Jenkins, 2008). And, of course, one of the best known examples of this kind of peer production is Wikipedia: an encyclopedia that is produced by thousands of Wikipedians in over a hundred different language versions, where motives for taking part ranged from pure non-instrumental play to serious work and positioning in order to earn a wage or forge a career (Lund, 2017b).

All of these projects were thus characterized by a joyful and playful attitude that simultaneously produced utilities, or use values in Marxist terms, sometimes competed with the capitalist mode of production, and often came into conflict with copyright legislation. In relation to video games, for example, gamers were no longer satisfied with simply playing the games, they also wanted to make their own adaptions, so-called modding—computer game modification (Kücklich, 2005; Lund, 2015).

Conflict also sprang up around the extensive file sharing occurring on P2P-sites, like The Pirate Bay.

These breaches of copyright occurred at the same time as the political authorities strengthened and extended the terms of copyright in the Western world.

Indeed, from the mid-1970s intellectual property in general and copyright specifically began to dramatically expand as a consequence of the most diverse variables (Zukerfeld, 2017b). The US Copyright Act of 1976 was the cornerstone of this legal change and it implemented at least three major changes that would subsequently spread worldwide. Firstly, the automatic grant: authors became rights-holders by default (i.e. without having to register the work) from the moment they fixed their work in a tangible medium. Secondly, the term length was extended to the sum of the author's remaining life plus 50 years—in 1998 this was expanded again to 70 years after death, or 95 for works owned by companies. Third, the notion of the "author" was broadened far beyond the old flesh-and-blood human beings standard, to include corporations as legitimate owners of works of authorship. Most importantly, in 1980 the Copyright Act was amended to protect software under copyright law. But why did this dramatic expansion of copyright take place? As digital technologies flourished, copying information for free became so easy that music, film and software owners felt that their businesses were under siege. People copying (and later on downloading from the Internet) content threatened the realization of their profits. The first reaction of capitalist owners of content was to build more fences, and strengthen the enclosures as much as possible. This was attempted through the transformation of copyright law.

In parallel with this conflict between a strengthening of copyright law and the participatory and often copyright-breaching digital culture, a new neoliberal ideology began to develop, with the epicenter in Silicon Valley, California. The popularization of the Internet and the birth of the web were assumed to be creating *a new economy*, which would rejuvenate democracy and promote global understanding in general (Curran, Fenton, & Freedman, 2016, p. 203).

1.2 Ideological Distortions Under Capitalism: Californian Ideology Turning into Openness Ideology

Silicon Valley entrepreneurs and magazine editors, drawing on an older post-Industrialist discourse, claimed that we had entered a new and weightless economy built on networks, and a mix of popular culture and capitalist enterprise.[1] This new economy existed without any of the conflicts surrounding the traditional business models built on copyright and enclosures. Economic enterprise was all about win-win and synergies as the cost for reproducing digital files neared zero and you could store and distribute an abundance of goods without much cost. There was simply enough for everyone in the digital realm. Soon, this way of talking was labeled the *Californian ideology* by Richard Barbrook and Andy Cameron. They characterized it as a combination of the "freewheeling hippie" and the "entrepreneurial yuppie", on the premise of an emancipatory digital technology, where everyone could and would be "both hip and rich" (Barbrook & Cameron, 1995).

Networks play an important role in this ideology, and the discourse around networks connects to the political-economic ideas of neoliberalism (2013). There is a close and almost organic relationship between Friedrich Hayek, father of neoliberalism, and the writings of the *Wired* magazine editor Kevin Kelly (Fisher, 2013). They both talk of spontaneous order and chaos as positive things. Hayek contends that there always exists an imbalance in market exchange, that the invisible hand is not

[1] The idea of a new economy relates to a plethora of post-Industrial theories on the advent of an information age or an informational society (e.g. post-Industrialists like Piore and Sabel, the most capitalist-friendly wing of the French regulation school). These theories are critically summed up by Frank Webster in his book *Theories of the Information Society* (Webster, 2014). His main critique is that all advocates of the assumption of a disruptive change in history and a dramatic transition from an industrial society to an informational society base this on quantitative changes (like the use of information or the number of jobs in information-rich sectors, none of which are easy to define) at some point inevitably leading to a qualitative change. Against this stands the critique of predominantly orthodox Marxists, who argue that in reality we are only getting more of the same old capitalism, and that society has always been an information society (Webster, 2014). Regarding Marxism it can be pointed out that thinkers like Ernest Mandel and many autonomist Marxists also stress the disruptive social changes brought about by digital technology, although they still understand contemporary society as capitalist (Hardt & Negri, 2000; Mandel, 1974, 1975).

characterized by demand harmoniously meeting supply and that volatility is what defines market negotiations. This process is understood as a constant process of discovery. The Californian ideology similarly advocates a spontaneous order which exists in a constant flux requiring flexibility and a laissez-faire economic policy, in which the state relinquishes control over civil society, a civil society that of course consists of both companies and citizens, without much differentiation. And here the network metaphor works ideologically to portray entrepreneurs/capitalists as equal to wage laborers, and also equal to voluntarily participating prosumers. All are equal nodes in the network, a network that can flexibly expand and contract as necessary in relation to external shocks, thus avoiding all conflicts (Fisher, 2013).

This ideology survived the dotcom crash in 2001. After the bubble burst in 2001 the discourse was instead rebranded as *Web 2.0*, the social web, and it was now that mainstream culture and big capital jumped on the bandwagon. Neoliberal evangelist Tim O'Reilly defined the concept:

> Web 2.0 is the business revolution in the computer industry caused by the move to the internet as platform, and an attempt to understand the rules for success on that new platform. Chief among those rules is this: build applications that harness network effects to get better the more people use them. (O'Reilly, 2006)

The more the merrier, an openly available digital resource attracted more users, and in the hands of the web gurus "the social" turned into numbers and networks effects that could be exploited commercially. This onward ideological process continues up to today. The term "openness" has increasingly become important within it. The *Openness ideology*, as we call it, has its roots in pioneering open-source software programming and open access publishing of scholarly articles in academia. The Open Source Initiative was founded in 1998, and Open Access gained increasing traction within academia from 2001, followed by a big push for Open Data/Open Government themes and massive open online courses (MOOCs) from around 2010 onward (Böhm & Land, 2009; Golub & Lund, forthcoming; Gruen, 2009; Lund, 2017a; Open Source Initiative, 2012, 2018; Suber, 2012; Weller, 2014; White House, 2009). This focus

on openness has been characterized as a new political master category and paradigm (Ettlinger, 2014; Tkacz, 2012).

The connections between the Californian ideology and the Openness ideology can be illustrated by two books written by the former Wired editor and author, Chris Andersson. In his 2006 book *The Long Tail: How Endless Choice is Creating Unlimited Demand*, he stressed that new technology with diminishing copying costs greatly reduces the need for storage, and therefore makes new business models possible, in which you can earn huge profits from not-so successful cultural products on the economic margins, or in the "long tail" of distributed goods on digital platforms. This is in line with the Californian ideology, implying that the Internet economy is good for all: for its celebrities and for the amateur cultural producer (Anderson, 2007). Openness was not foregrounded here, but this is all changed three years later when Andersson's next book *Free: The Future of a Radical Price* (2009) was published. Here he examines, a year after the greatest financial crash since the 1930s, the "birth of free", in the sense of gratis. Anderson claims that the web's lesson is that "when something halves in price each year, zero is inevitable". So, now prices have gone from low to zero, gratis and free. Microsoft, it is said, had learned to compete with free and open source software decades ago, but Yahoo only had months to adjust to the new openness when in 2004 Google released a new web e-mail service, Gmail, gratis and free with one gigabyte of storage. At the time Yahoo had customers that paid for "various premium services" offering storage in the range of 25 to 100 megabytes (Anderson, 2009). Revenues in this new free world that was connected to the gratis material came from advertisement, and the product that was actually sold was the attention and data of the users, which Anderson focused on.

This Openness ideology has increasingly over time been propelled forward by an Openness industry (Jakobsson, 2012), dominated by large and now mature for-profit companies in various sectors like Google, Facebook, Red Hat, Coursera and Elsevier that have learned to harness the economic value of offering media content and services for free in the open. In this process, participatory culture itself changed. It slowly consolidated into more standardized forms through the continued development of Web 2.0's convergence culture, into a digital milieu characterized

by spreadable media dominated by social networking and other corporate platforms in the so-called sharing economy (Jenkins, Ford, & Green, 2013). These detrimental effects on the popular, democratic and emancipatory activities that still exist as potentials of digital technology are intensified by increased corporate ideological use of openness or so-called openwashing in order to give their business an air of tolerance, transparency and social progressiveness (Weller, 2014, pp. 20, 155).The ideological distortions indulged in by this industry amount to using the discourse of openness to conceal the fact that enclosures, exploitation and alienation of various sorts are always linked to the offered open media, open software or open data.

The expectations of openness also vary in relation to who the actor is. E-governments should open up their data, citizens should give them away for free, but companies should not. No demand has been put forward for social media corporations to open up the datasets they harvest from their unpaid users (Lund, 2017a), or their algorithms at the software level. This remains the case, even though advocates of openness do float around many ideas regarding open business models (GovLab, 2017; Open Data Institute, 2017).

With that said, we are now entering the theme of the Openness industry's business model. In the next section, we describe the differences between this "profit from openness" business model and the older traditional model built on enclosures managed by intellectual property laws.

1.3 Profit from Openness Versus Profit from Enclosures Models

This capitalist openness ideology evolved together with a particular business model that it supports, that of *profit from openness*—to which this book is devoted. It emerged from combining the ideology of openness and the limits of the profit from enclosures model—which copyright expansion was based on. The profit from openness model, therefore, may be intuitively grasped by comparing its features to the profit from enclosures model (Table 1.1).

Table 1.1 Profit from openness and profit from enclosures business models

	Profit from enclosures	Profit from openness
Aim	Profit from commodities that can be copied at close to zero costs	
Means	*Pull up* the price of *outputs*	Push down the price of *inputs*
Main source of value	Waged workers producing software and content	Unwaged producers[a] of software, content and data
Source of revenues	Fees	Targeted advertisement, certifications, related services.
Legal framework	Privative exercise of copyright	Open and Copyleft licenses, contracts, trademark law
Value-producing time	Labor time	Leisure time
Ideological discourse topics	Property, ownership, individuals,	Openness, freedom, sharing, communities

Author's elaboration, based on Zukerfeld (2014)

[a]In Chap. 2 we will introduce the more accurate concepts of users, contribusers and produsers instead of "producers"

Both models need to deal with a troubling situation defined by the fact that digital commodities can be legally or illegally copied with costs approaching zero. Whereas the profit from enclosures model pays for its inputs (waged labor) and tries to collect fees for its outputs (enclosed commodities), profit from openness tends to give up on paywalls for accessing digital information. It simply opens up some of the content and focuses, on the one hand, on getting most of the software, content and data from voluntary, unpaid contributions mostly carried out during leisure time, and, on the other hand, on making money through advertising and content-related services. The profit from openness model rejects the privative use of copyright law, but draws on other intellectual property tools. While the profit from enclosures model relies heavily on a rhetoric of individuals and ownership, which echoes the mantras of industrial capitalism, profit from openness discourses are all about sharing, communities, freedom and openness. However, it would be wrong to believe that in profit from openness everything is for everyone.

1.4 What's Wrong with Profit from Openness?

But, what is the problem with the profit from openness business model? After all, people on the Internet embrace these platforms and engage freely and enthusiastically in using, contributing and producing software, content and data through them. In turn, these companies keep delivering cool new apps that are rapidly sweeping across the globe; even employees are extremely happy, as they receive not only fair wages but also recognition for their "talent", open spaces to nurture their creativity and all kinds of perks.

So if users, companies and workers are happy, what could possibly go wrong with this state of affairs? Is it not the best of all possible worlds? Does this business model not prove that capitalism can provide happiness without exploiting, excluding and alienating anybody? We would argue that it does not. From a critical standpoint, we must begin by returning to two fundamental Marxian concepts. Exploitation and alienation have not vanished, but have merely been updated for cognitive capitalism through the profit from openness business model and its powerful ideological discourse.[2]

Indeed, capitalist exploitation, as an asymmetrical exchange where the exploited party gives more value than it receives, is the bedrock of this model. While exploitation of waged labor might still continue in a relatively unmodified way in relation to companies' workers, the distinctive feature of this model concerns other quite different forms of exploitation that are not necessarily new, but that have been mastered by the capitalists of openness. What kinds of exploitation are these? In a nutshell, they involve unpaid or underpaid software production (such as that produced by Linux communities), content (videos or texts), data and attention (consumed by advertisers) produced and handed over by Internet users. We

[2] Even within the realm of critical theory there is no consensus on the relation between exploitation and alienation that takes place on "social media". Several authors (Andrejevic, 2011; Fuchs, 2010; Fuchs & Sevignani, 2013) assert that exploitation and alienation are high. Others contend that increased exploitation is only possible at the expense of reducing alienation (Fisher, 2012; Rey, 2012), while yet others stress that alienation is high but exploitation is not necessarily so (Reveley, 2013).

will show how companies critically depend on these flows in order to make money. A remarkable share of these companies' income and profits come from unremunerated activities (whether you call these labor or not) carried out by millions of people (Andrejevic, 2015; Fisher, 2012; Fuchs, 2012; Moulier-Boutang, 2011; Petersen, 2008; Terranova, 2000; Zukerfeld, 2017a). Remarkably, this exploitative underbelly of openness has been practically ignored for several years, only gaining some attention in the last decade. This is probably related to two phenomena: firstly, most people tend to believe that exploitation only takes place if the exploited is suffering or not willing to work. Exploitative relations are portrayed as those taking place in sweatshops where sad and miserable workers toil away in drudgery for long hours. Since in the profit from openness model people are freely and seemingly enthusiastically engaging with these companies, the reasoning goes, these relations are far from exploitative. But this is a misunderstanding. Exploitation is defined as an objectively—though sometimes difficult to measure—asymmetrical and to some degree voluntary exchange between exploiters and exploited actors.

This does not necessarily have anything to do with subjective experience or working conditions. Moreover, it does not depend on the representation that exploited people have of those exchanges. It does not matter if you think that you are making a hell of a deal by receiving lots of cool apps in exchange for your worthless pics, data and watching some well-targeted ads. At the end of the day, if companies are making money from you, you are being exploited, whether or not you enjoy the process, suffer or do not care about it. This is not a particular feature of the profit from openness business model or cognitive capitalism. As capitalism in all its stages requires and prides itself on having formally free workers, these workers must not only tolerate exploitation (as serfs and slaves did as well) in order to maintain capitalism, but are also required to represent these relations both as a consequence of an alleged free choice and as having a non-exploitative character. They are expected to embrace the social order that exploits them.[3] It is precisely here, of course, where ideology

[3] In other words, if you are truly free to choose between participating or not in an exchange of goods and services, and you realize that that exchange is unbalanced in favor of the other party, it is very likely that you would lean toward not participating. To engage in these relations, your consciousness needs to believe that the exchange is fair enough.

works its magic. Certainly, there are different kinds of exploitation and business models, and the ideologies bolstering them vary. However, whereas the ideological underpinnings of industrial capitalism (revolving around concepts such as "ownership", "individual", "rationality") have been extensively discussed in critical theory, the workings of profit from openness ideology have barely been touched on. For this reason, the exploitation-ideology axis lies at the heart of this book.

Secondly, exploitation became an issue only recently, even for critics of profit from openness models, because the most pressing concern for the public conversation was surveillance. This is due to the fact that liberal agenda setting is more strongly inclined toward discussing privacy issues (i.e. defending individual ownership) than concerns about asymmetrical exchanges. Of course, surveillance is connected with exploitation (and alienation as well, as we shall see) through the abuse of personal data by companies. But the main concern of for-profit companies is not surveilling—important as it is—but making money. Thus, despite "surveillance" being a partial but correct answer to the question of what is wrong with the profit from openness business model, this book does not focus on it. This is due to the fact that the topic has been tackled abundantly (e.g. Fuchs, Boersma, Albrechtslund, & Sandoval, 2011; Zuboff, 2015, 2019) and that only some forms of profit from openness are based on surveillance, that is, social networks.

In turn, the concept of alienation describes at least two kinds of interrelated phenomena. Firstly, the sensations of estrangement, meaninglessness and powerlessness arising from activities, products and relations that are supposed to be essentially meaningful and empowering. Secondly, the fact that this alien power that faces us as a hostile power has been produced by us (Jaeggi, 2005).

There are multiple ways of unveiling forms of alienation that take place beneath the surface of participation, openness and freedom. Drawing on Marx's 1844 Manuscripts and Grundrisse, authors such as Faucher (2018), Fuchs and Sevignani (2013), and Jaeggi (2005) extrapolate facets of alienation described by Marx to "social media". By simplifying and combining both Marx's formulations and these authors' contributions, we can categorize four kinds of alienation:

1. *Alienation from the act of production in labor processes/productive activities* (Marx, 1844): platforms partially regulate labor/productive activities both through technical (the platform itself and software, opaque prioritizing algorithms) and legal (terms and conditions that most users do not read or understand) means (Faucher, 2018, p. 66). Alienation from the production process also refers to the loss of the big picture: as opposed to artisans who mastered the whole process, industrial workers only see a tiny fraction of that process. Nonetheless, alienation from the labor process is much higher in the profit from openness business model—and social media in general. Contributors not only do not know how the production process works (Where does it begin? What is their role in it?), but also tend to ignore the kind of products that come as outputs. Alienation from the act of production takes yet another form: what was supposed to be a self-fulfilling activity, a form of play, in many cases ends up being an instrumental, goal-oriented conduct (i.e. collecting likes on Facebook).
2. *Alienation from the materials and instruments of labor* (Marx, 1857–61): while computers are owned by produsers, hardware, algorithms and so on are owned and controlled by platform companies (Fuchs & Sevignani, 2013). Thus, despite produsers not being deprived of any tangible instrument—as they are in industrial production—some fundamental means of production confront them as alien power. This alienation is also characterized by the fact that these means of production are located somewhere outside the reach of produsers. Invisibility and remoteness contribute to the sensation of an alien power.

   Remarkably, these practices of exclusion contradict the openness rhetoric from these companies. Raising the discursive flags of inclusion, communities and openness is by no means proof that practices carried out by profit from openness companies adhere to these values. What somebody (and especially a company) professes to be and what it really is might be quite different, as Marx and Engels (1846, p. 175) underlined. Indeed, though these companies allow access to some resources, they exclude fiercely from others. Content developed by unpaid actors are open and free, but (platform, ranking and other) algorithms, hardware, trademarks protecting social capital are rigorously enclosed, that is, alienated from produsers.

3. *Alienation from the product of labor* (Marx, 1844, 1857–61): data and content are two kinds of products relinquished, as the platform has the rights to modify or distribute them (Faucher, 2018, p. 66). Contrary to industrial alienation, subjects retain copies of their products and can access them. This is due to the particular material bearer of these products, which is digital information. In this specific regard, alienation from the product is lower than in industrial production. However, there is yet another "product" for which alienation is complete, and even concealed, in the profit from openness model: human attention. As we shall discuss, flows of ad-consuming-attention constitute a critical resource of this model. Attention cannot be copied: it is limited and scarce. Noticeably, the alienation of human attention through ads and content works in a different and even inverse way to the alienation of an industrial product. While the latter is associated with dispossession, the former relates to the inoculation of ads and content—in the sense described by Debord (1967). This estrangement takes place within human subjectivity.
4. *Alienation from oneself* (Marx, 1844, 1857–61) *and from other humans* (Marx, 1857–61). In Marx's sense, alienation from oneself and others is related to the loss of the essential meaningful activity (work) that allows humans to create themselves, and its subsumption under its alienated counterpart (capitalist labor). In the profit from openness business model, alienation from oneself takes different forms. It is in play and leisure time where the alienation takes place.

   Liking, commenting, uploading, sharing, creating communities, making friends through platforms: all might seem like acts of freedom and communicative action, that is, de-alienating activities and, moreover, acts through which individuality is affirmed. However, since all of them are mainly, if not completely, means for predicting and molding future conducts through surveillance, they result in reducing the autonomy of the subjects vis-à-vis companies. For instance, individual profiles, pics and so on, end up being thought of as marketing strategies rather than merely self-reflecting gestures.

   "Communities" and "friends", that is, forms of recognition (Hegel's Anerkennung, see Ricoeur, 2005) essential for non-alienated human beings only take form as fetishized commodities through the mediation

of these platforms. What used to be the outside of capital relations (affects and knowledge produced in leisure time) now becomes commodified.[4] What is presented as collaboration encompasses a good deal of competition (for attention), what is presented as emotions is mainly instrumental rationality. The shaping of communities is not primarily determined by affinities or randomness, but by subtle algorithms aimed in the last instance at generating profits, not social bonding. Moreover these algorithms reinforce patterns of interest that alienate users from society and isolate groups from otherness.

Thus, a common topic in Marx (and ultimately Hegel) emerges: what appears on the surface of consciousness as an act of freedom turns out to be a deeper manifestation of enslavement.

Alienation evolves in Marx's later writings into the notion of *fetishism*. In a nutshell, the concept refers to the same estrangement, but focusing on social relations between subjects being experienced as relations between objects. Exchanges that emerge from social relations of power, class and ownership are disguised as exchanges between neutral, objective and independent commodities. The social character of commodities is silenced, and commodities appear to humans to be imbued with powers they lack.

In cognitive capitalism, another layer is added. It turns traditional fetishism on its head to complement it. As Fuchs and Sevignani (2013) noticed for social media, it has an "inverse fetish character" or what we might call a fetishism of cognitive capitalism. As opposed to fetishism in industrial capitalism (the one described by Marx), in the profit from openness business model, exchanges between commodities are presented as if they were exchanges between subjects. Humans face each other appearing to carry powers that actually only pertain to commodities. Indeed, when you make a "friend" or "share" some content on some capitalist platform, it is primarily a relation of commodities that is meant to be experienced as a relation between de-commoditized affects and knowledge. What is presented as an original and spontaneous form of expression

[4] As Negri (1989) and others pointed out through the concept of real subsumption of labor under capital.

is very likely to be a product devised (consciously or otherwise) to capture commoditized attention. This kind of cognitive fetishism has existed for a long time, outside profit from openness and even the Internet. It is a constitutive feature of cognitive capitalism, related to the commodification of affects and knowledge, as authors such as Lazzaratto, Virno, Moullier Boutang and others have suggested.

It is through all these forms of alienation that we can better understand the psychological manifestations: anxiety, poor sleep, depression, loneliness and low self-esteem. All of them have been clearly associated with social media—a type of profit from openness business model—though not necessarily as direct and linear consequences (Andreassen, Torsheim, Brunborg, & Pallesen, 2012; Goldstein, 2018; Kross et al., 2013; Lin et al., 2016; O'Keeffe et al., 2011; Primack et al., 2017; Sagioglou & Greitemeyer, 2014; Shakya & Christakis, 2017; Twenge, Joiner, Rogers, & Martin, 2017; Vannucci & Flannery, 2017; Woods & Scott, 2016).

In summary, the hype around openness in our increasingly digitally mediated society has informed discussions around the social Web 2.0, open government, the collaborative prosumer or peer producer, and a new "wikinomics" built on network effects. However, the fact that capitalist corporations are profiting from unpaid labor, knowledge and affect tends to be overlooked. Conflicts are downplayed in favor of synergies between public and private actors, producers and platform owners, and commons-based projects and companies built on wage labor. All this profit from openness is said to be the new oil of the information age. This book focuses not on the alienation and exploitation (though we will discuss the latter), but on identifying the ideological uses of openness and explaining the workings of open business models that are not always so open as they claim.

Before discussing the outline of the chapters, it is worth clarifying that we must deal with two meanings of terms such as openness and free. On the one hand, we have the ideological operation performed by corporations and their advocates (discourses praising openness as a veil to obscure the exploitation going on). On the other hand, there is the legal situation of the resources (e.g. under open or copyleft licenses) that facilitates relationships of exploitation.

1.5 Chapter Outline

Chapter 2 lays out the theoretical framework we are going to use throughout the rest of the book. It does so not only through the discussion of previous literature but also by advancing new concepts and ideas. The development within capitalism from an industrial to a cognitive stage is pertinent to framing the profit from openness business model that lies at the core of this book. Thus, we open the chapter by tackling this historic transformation and its material conditions. Then we present the *profit from enclosures* and *profit from openness* business models mentioned above.

Next we move on to discuss the concepts of *free* and *open*. Indeed, as freedom and openness play a crucial role in the discourses and practices related to the profit from openness business model, we review different meanings attributed to these terms, relate them to Western political ideologies and link these ideologies with the debates regarding libre licenses, including copyleft licenses.

Openness and (some kind of) freedom are linked to two other key concepts: commons and peer production. On the one hand, *commons*, that is, resources or practices belonging not to individuals, but to communities. Openness and (some kind of) freedom are always related to goods, services and social practices which are open to groups of people, that is, held as commons. On the other hand, openness, (some kind of) freedom and commons are associated with a particular way of organizing productive processes: *peer (or collaborative) production*, which relies on self-governing communities.

While this alternative and powerful organizational principle of peer production arose from the production of informational goods such as Linux and Wikipedia, it spilled over to the most diverse productive processes. Around the turn of the millennium, some companies began using more centralized forms of "crowdsourcing" that later evolved into "Web 2.0" and the "sharing economy", all of which are manifestations of the profit from openness model.

Then, we move to discuss the concept of ideology, as variations of openness and freedom, commons and peer production are used as *ideological* vehicles by the business model we intend to analyze.

After having discussed "openness", we turn to focus on the "profit from" part, in other words, where are the profits coming from? This leads us to analyze the extensive literature discussing digital/free/immaterial labor and the productive activities performed by Internet enthusiasts that may or may not be called work, and may or may not be considered voluntary, joyful, alienating and so on. After that we can return to the question of profits, and examine how profits are related to the concepts of exploitation and rent.

Last but not least, Chap. 2 tries to offer an operationalization, that is, a set of tools to grasp not only the case studies included in this book, but hopefully other empirical material to be scrutinized in further research as well. We discuss different kinds of Internet platforms, and offer a typology of them. Next, we put forward a schema of social actors and flows that we find useful to characterize and compare different profit from openness case studies.

Chapters 3, 4, 5 and 6 each tackles one of these different fields: free software, academic publishing, online education and audiovisual content. Heterogeneous as they are, we think they illustrate how the profit from openness business model has spread across the most variegated domains, without claiming any exhaustiveness.

To do so, we will follow the same structure for each chapter. Firstly, we present the general situation of the field and then we move to focus on a specifically relevant case. Regarding free software, we discuss Red Hat, the most lucrative free software company. When tackling for-profit open academic publishing, we direct our attention to Elsevier, the biggest player in this market. In turn, lucrative open online education is studied through focusing on Coursera, the most successful for-profit MOOC platform. Finally, our argument on freely accessible video content takes the example of YouTube, the unchallenged leader of video content platforms.

After describing each case, in each chapter we identify and discuss the specific social actors that participate in the exchanges (of money, content, data and attention) taking place through the platforms. Then we explain how each company actually profits from openness. As regulations, especially those related to intellectual property (licenses and contracts framed

by copyright law, but also trademarks) are crucial to understanding this business model, we deal with this topic in each chapter.

Then we turn our attention to ideology: how the ideology of openness is enacted in each case and how important it is to keep business running smoothly.

Chapter 3 analyzes profiting from free software, said to have a contagiously open character which demands that all derivative works must also be free under the same terms. Red Hat's business model centers on a specific Linux distribution, a free software operating system, called Red Hat Enterprise Linux (RHEL). It is estimated to be the third most popular distribution in the server or cloud segment. Net profits were reported at almost USD 259 million in 2018, and later in the same year, the company was acquired by IBM for USD 34 billion. A large part of this profit derives from a programmer community called the Fedora project that consists of both waged coders and voluntary and unpaid ones. All of the software modules in the distribution are licensed under free or open-source licenses, but Red Hat appropriates control of the collective work of the Linux distribution through worker agreements, and uses this to pave the way for using trademark law to profit from enclosures at the brand-level. The company also uses various governance strategies in relation to Fedora in order to adapt the community to the needs of the company. Ideologically, the company obfuscates the difference between free software and open-source software which produces an image of a morally good business-friendliness.

In Chap. 4, the focus is on Elsevier, one of the major commercial publishers of scientific, technical and medical (STM) literature. The company was formed in 1880 and is today owned by the RELX group (up until 2015 known as Reed Elsevier). RELX has a much broader remit than academic publishing, but even its publishing house Elsevier is active across the entire academic research lifecycle. Elsevier calls itself a leading open access (OA) publisher and has reported impressive and steady profit margins between 2002 and 2017 ranging from 33.1% to 36.8%. In 2017, 1.6 million research papers were submitted and 20,000 editors, together with over 800,000 unpaid peer-reviewers, managed the peer-review process and the selection of articles to publish, but the number of employees in the company was only about 7500. All in all, 430,000 arti-

cles were published in about 2500 journals this year (RELX Group, 2018, pp. 14–15; Tennant, 2018, p. 7). The claim of being a leading open access publisher does not, on the other hand, mean that this is the company's main income stream. The company had 30 journals fully based on OA and Article Processing Charges (APCs) in 2013, whereas 1500 journals were hybrid journals (Reed Elsevier, 2013, p. 14) based on subscriptions, but also offering an OA-option with connected APCs. The proportions are similar today. The hybrid journal is a dominant strategy for big business acceptance of OA (Bosch & Henderson, 2017) and hybrid journals have historically allowed "double-dipping": charging both subscription fees and APCs for the articles published in the journal (Suber, 2012, p. 141). Elsevier has a reputation of demanding exorbitantly high prices for their subscriptions, and in 2012 an academic boycott campaign was launched against the company which continues till today (Aaronson et al., 2012; Wikipedia contributors, 2018). Elsevier finally uses the OA dimension ideologically in a fairly straightforward way of open washing, trying to downplay and distort the fact that the company's major income comes from subscription fees, and that it has actively worked against OA historically.

Chapter 5 opens with a discussion of MOOCs (massive open online courses). In 2018 there were some 101 million enrolled "learners" in one or more of the 11,400 courses offered by these platforms (Shah, 2018a). While there are several not-for-profit MOOCs, many of them are aimed at making money, and Coursera, our case study, is the leader of the pack. The company currently has some 37 million learners and made roughly USD 140 million in revenues in 2018 (Shah, 2018b). Revenues come from charging individuals, companies and universities for different services (such as certifications on the completion of freely accessible courses) (Bowden, 2018; Kolowich, 2013; Shah, 2018b). Profits are to some extent based on unpaid knowledge delivered by teachers through online classes. In most cases teachers are paid once for these classes, and receive no additional payment at all despite the fact that they are streamed several times to huge numbers of "learners" (Hoyt & Oviatt, 2013; Sanders & Richardson, 2002). Some 900 universities partner with Coursera and are

positioned as middle men: they lawfully provide the courses developed by their teachers, contribute with some kind of "trademark", and deliver recognition (the certification, degree, etc.) to the learners, in exchange for some of Coursera's revenues (Coursera and University of Michigan, 2012; Coursera and University of North Carolina, 2015). This is only possible due to some intellectual property regulations and contracts that we discuss in detail (Zukerfeld, 2017c). But for this exploitative relation to succeed, ideology is also needed. In this case, we analyze the role played by specific vocabulary ("learners", "partners", "instructors"), concepts (such as freedom, openness, community, peers) and the association between value and labor time.

Chapter 6 discusses profit from openness on audiovisual content platforms. Seven out of the ten most watched video platforms are based on the profit from openness business model (see Table 5.1 based on Alexa.com and SimilarWeb.com). YouTube, our case study, leads this segment by any measure, but is also the second largest Internet site by traffic. As of January 2019, YouTube had 1.9 billion monthly active users worldwide, watching some 5 billion videos each day (Omnicore, 2019). The videos are uploaded by around 50 million producers worldwide (Dogtiev, 2019; Omnicore, 2019) whom the company calls "creators". But users do not only watch the videos they search for, but also different kinds of advertising. Ads are the main driver of the revenues, approximately USD 20,000 million, the platform cashed in during 2018 (Gutelle, 2018). Ultimately, a good deal of this money can be traced back to the unfair remuneration (or completely unremunerated) for the contributions of authors of videos, and also to the exploitation of the data and attention of users. YouTube offers a "partner" program that allegedly shares income with so-called producers of videos (YouTube Partner Program overview). However, we show that the requisites for qualifying as a "partner" are not so easy to fulfill and, moreover, that 96.5% of "creators" do not make enough money to surpass the poverty line (Bloomberg, 2018). To do so, more than 2 million views per month are needed (Sánchez, 2018). Moreover, views per uploaded video are shrinking, as more and more wannabe YouTubers jump on the bandwagon, attracted by ideological discourses. These powerful ideological discourses are built on references to entrepreneurialism, appetite for attention and de-laborization. Words

such as "creator" and "partner" also play an important ideological role, and the ideas of community and openness are again cornerstones of this ideological edifice.

In Chap. 7, finally, a summary and a comparison of insights gained from the case studies are presented, followed by a presentation of four major strands of policy suggestions that challenge the for-profit perspective that will be criticized throughout this book. The proposed policies relate to four sectors of cognitive capitalism: economy, technical infrastructure, legal regulation and alternative digital platforms.

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2

Profiting from Openness: A Critique of a New Business Model

2.1 From Profits from Enclosures to Profits from Openness: Business Models in Cognitive Capitalism

Over the last few decades, capitalism has been undergoing a metamorphosis, resulting in a change of phase, from industrial capitalism to cognitive capitalism (Moulier-Boutang, 2011; Rullani, 2000; Vercellone, 2012) or informational capitalism (Castells, 1996; Fuchs, 2010).[1] Some instead speak of a movement within capitalism from Fordism to post-Fordism that has changed capital's regime of accumulation and the regulation of the capitalist system, transforming its reproduction. From mechanization, mass production of standardized products and centralized collective agreements between labor and capital on a societal level, to flexible informational technologies, accelerated financialization and

[1] For the sake of simplicity, throughout this book the present phase of capitalism will be referred to as cognitive capitalism. This does not necessarily mean that we adhere to the theoretical perspective developed by the authors who coined that term, nor that we reject the insights of authors who label our stage informational capitalism. In our understanding, cognition, communication, knowledge and information is always material, even if it is not always tangible.

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knowledge production, self-control, de-regulation and an increased importance of linguistic performances or services in the presence of other persons (Aglietta, 2000; Antunes, 2013; Harvey, 1990; Virno, 2004). Indeed, there are several different—and to some extent contradictory—accounts of the changes that have been taking place during recent decades. Within this transformation of capitalism, intellectual property gained momentum, but was later—as will be explained further on—complemented by new business models that profit, not from putting fences around claimed intellectual property, but from openness. These business models and the ideological discourses that enable them occur within what has been called the *openness industry* (öppenhetsindustrin) (Jakobsson, 2012). The characteristics of which, like, for example, the relation between business models based on intellectual property and openness, and the ideology of this cognitive capitalism, go to the heart of this book. But before entering this territory some of the basic material underpinnings of the productive processes which characterize cognitive capitalism must be presented.[2]

2.1.1 Material Underpinnings of Cognitive Capitalism

The popularly perceived material underpinnings of cognitive capitalism include the progressive development of informational productive forces, which result both in diminishing digital reproduction costs, and in the exponential increase in use value from network effects related to the use of the information systems. This is a potential "win-win" situation for us all, in the sense pitched by the Californian ideologues, if perceived in a de-contextualized way from capitalism (and climate change). Apart from the more technological underpinnings we will also discuss the theme of

[2] The fact that these material underpinnings are related to digital technologies must not obscure the fact that technologies do not determine social life more than they are determined by it. A fair account of cognitive capitalism, or any other stage, could not be built exclusively around technology. Politics, axiology, law and so on, are to some extent autonomous, contingent spheres that need to be taken into account to characterize the capitalist totality. Indeed, we reject deterministic narratives, such as those that tend to assume that there is a technological infrastructure which determines a (legal, ideological) superstructure.

human attention and its scarcity. Here we present a brief description of each:

1. *Digital technology and Moore's law*: Although information technology has existed at least since the origins of writing, cognitive capitalism is characterized by the fact that *Digital Technologies* tend to subsume most information technologies (i.e. analog information technologies) within a larger *convergence* process of audio, image and text (Jenkins, 2008). This advance is due to the particular evolution of productive forces in the branch of hardware production, described by the self-fulfilling prophecy known as *Moore's Law*. It refers to the number of transistors in a dense integrated circuit doubling approximately every two years, but in a more general way it describes the exponential progress and cost reduction of the most varied types of digital technologies: processing, storage, transmission and conversion. The trend toward an ever-increasing computational power at a constant price that have lasted more than 40 years is one of the bedrocks of cognitive capitalism.
2. *Digital information and its negligible reproduction costs*: Digital information can be defined as all forms of knowledge codified in binary form through on-off electrical signals. Bits, units of electronic and binary digital information, have a striking property: one is exactly the same as another. A bit of an audio file, and one from an image, a bit from a text, and one from a software program—they are all perfectly identical. This is the basis of the convergence process, as it implies that all types of digital information can easily combine audio, visual and text files. The digital bearer is the same in all cases.

   The electronic and binary base of digital information allows it to be reproduced and transmitted in much more economical ways than analog information.

   Thus, a distinctive feature of digital information is that it has marginal production costs close to zero or, in other words, negligible reproduction costs (Cafassi, 1998; Moulier-Boutang, 2011; Rullani, 2000; Varian, 1995).

   In this book we describe all goods composed purely or principally of digital information as informational goods (software, music, videos, texts, data, etc.). Software is an especially significant type of informational good. It is the most important means of production of our

era, as it is a necessary ingredient in all digital technologies. Interestingly, programming, music, writing and filming are all productive activities that can arise in non-capitalist settings which, when combined with close to zero reproduction costs of their digital outcomes, could result in the development of new modes of production for the social production of useful artifacts as well as commodities.

3. *Networks, Metcalfe's Law and the Internet*: Cognitive capitalism is usually characterized as a networked society. Networks define not only communication, but also organizational, identity, political and even axiological features of this phase (Castells, 1996, 1998; Van Dijk, 1999). Their properties usually include: high flexibility, the lack of a central node and the so-called Metcalfe's Law: a network's use value is proportional to the square of the number of interconnected users. In other words, the usefulness of a network increases exponentially with the number of connected nodes. Of course, the relevance of networks in cognitive capitalism is firmly tied to the boom of networks of digital technologies, the Internet being the main one.
4. *Human attention and its scarcity*: The above-mentioned factors, among others, result in an enormous intensification of production, circulation and consumption of digital information. The divergence between the expansion of production and circulation, and the modest advances of consumption, highlights the problem of the scarcity of *human attention*. Our attention has a limit, even if we consume more information today than yesterday. The consumption of superabundant information requires finite, and scarce, human attention in order to be meaningful, for humans as well as capitalist enterprise. This divergence is the material basis that explains why attention has become such a particularly important commodity today (Celis Bueno, 2016; Davenport & Beck, 2001; Simon, 1996).

2.1.2 Profit from Enclosures-Model: Expansion of Intellectual Property

Capitalist regulation (i.e. international, national and local laws), dependent on the power relation between diverging social interests, reacts

adaptively to changes in productive processes. This is, of course, an aspect of one of the most well-known and yet deepest Marxian insights: the evolution of the productive forces results in transformations in the social relations of production—which include but certainly exceed the law.

In the transition from industrial to cognitive capitalism, the capitalist system needed to deal with a very concrete menace: informational goods could escape the commodity form. As some authors have discussed, capitalist reactions tend to be not only adaptive but also path dependent (David, 1985; Nelson & Winter, 1982; Noble, 1986). Thus, when obliged to deal with a new and potentially problematic technology, firms and governments tend to resort, in the first place, to the good old regulatory tools, expanding and even distorting their functions.[3] This is exactly what happened in the transition to cognitive capitalism. The first and still extremely relevant attempt of the capitalist system to deal with informational goods was to treat them with the traditional medicine of industrial capitalism: private intellectual property rights. Indeed, to protect the realization of informational commodities' value, copyright law—but also patent, trademark and other intellectual property rights laws—was extended. Legal fences were erected, more and stricter laws were enacted diminishing the sphere of public knowledge, and thus configuring what was called a *second enclosure movement*—in comparison to the land enclosures at the birth of capitalism (Boyle, 2003; Moulier-Boutang, 2011; Rullani, 2000).

A dramatic expansion of intellectual property rights took place from the 1970s onward. It can be traced and measured in relation to several variables: first, in the rise of the use of the expression "intellectual property" (through processes of unification and propertization of previously unrelated and non-proprietary rights); second, by the upsurge in the number of laws and rights granted; third, in the ever-increasing amount of litigation; fourth, in the augmentation of the term length of the rights;

[3] This path dependency is related to Marx's theory of *formal* and *real subsumption*. Marx here shows how a new dominant social relation, the wage form of capitalism, was applied to traditional production methods, without the latter first being transformed in any sense. Only in the second phase of the transformation process is the production process fundamentally altered and is science systematically applied in the new machine-centered mode of producing (Dyer-Witheford, 1999; Lund, 2017b; Marx, 1975). Social change can initiate transformations in lagging or path-dependent productive forces, but it takes time.

fifth, in the enlargement of the scope of those rights; and sixth, the expansion of their geographical reach (Drahos, 2004; Hughes, 2006; Gervais, 2002; May & Sell, 2006; Zukerfeld, 2017b).

2.1.3 Emergence of a Profit from Openness Model

However, this adaptive and path-dependent response was successful only to some extent. Its purpose was to repress the new technological, organizational and ethical values around informational goods and knowledge, instead of taking advantage of their new digital form; the response constrained more than it strengthened the productive forces. That is why this profit from enclosures business model has been experiencing at least two kinds of challenge under cognitive capitalism: on the one hand, widespread opposition to the dramatic expansion of intellectual property, and particularly to the transmogrification of copyright, and, on the other hand, the technical failure of that attempt—people are still downloading illegal software and content without paying for it. Thus, the small-time piracy carried out by millions of users has proven to be philosophically supported (Lessig, 2004), has a widespread acceptance, and has so far proved technically hard to contain.

Moreover, these challenges were linked to the diffusion and increasing legitimacy of concepts such as "free knowledge", "free culture", "intellectual commons", "open access" and "peer production" (P2P). A whole ethical and legal ecosystem evolved around specific licenses that cede parts of the copyright to enlarge the fair use of the licensed informational work.

We need to make a short detour here to briefly characterize these licenses. To various degrees, these *libre* licenses give users the rights to freely access, copy, distribute and even modify the licensed work.[4] The

[4] There is a distinction between for example *gratis* and *libre* open access to scholarly journals and articles. Gratis open access only removes the price barrier for users, whereas libre open access also removes some permission barriers and secures extended use beyond *fair use* (Suber, 2012, p. 65). There exist different definitions of libre and how much a libre license deviates from traditional copyright. A full copyright enclosure places a lot of restrictions on what you can do with an intellectual work. You cannot for example distribute full-text copies or semantic metadata-enhanced versions, include works in databases and mash-ups, quote long excerpts, translate the texts, or copy

Creative Commons license suite, for example, consists of six different libre licenses and was introduced in 2002 (Creative Commons, 2011; Wikipedia contributors, 2018f). Two of them furthermore use what has been called a *copyleft* license (in a play on words) that requires any derivative versions of the licensed work to be published under the same license or conditions as the original work (Wikipedia contributors, 2018f). This use of copyright to create a mandatory form of openness has been described as having a viral character (Greene, 2001), and is a mechanism for building intellectual commons (Lund, 2017a, 2017b). The original copyleft license was the Free Software Foundation's General Public License (GPL) introduced in 1989 (Free Software Foundation, 2007; Wikipedia contributors, 2018a). It was a "one size fits all" option, in comparison to Creative Commons' licenses, that forced openness upon everyone, including commercial actors. This radical position was challenged in 1998 by the Open Source Initiative's new label *open source software* (Open Source Initiative, 2012; Wikipedia contributors, 2018g), instead of *free software*. They introduced more permissive, in an ideologically driven rhetorical gesture, software licenses. Permissive meant that they had "minimal requirements" about how you could redistribute the software (Wikipedia contributors, 2018e). In practice, this gave a green card to capitalist companies to enclose source code published as "open source" in commercial derivative works and programs, something that is not possible under the traditional GPL.[5] Now we can return to the main argument.

This movement for—but also the hype of—informational freedom and openness has had a well-known consequence: the growth of an alternative and legally quasi-public, or at its best commons-based, sphere of informational goods (Bauwens, 2006; Benkler, 2006; Hess & Ostrom, 2007a, 2007b). This quasi-public or commons-based sphere of informational goods encompasses a variety of mixed relations to capitalist interests and commercial activities, depending on what kind of openness they

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the text for indexing or text-mining (Suber, 2012, pp. 73–4). The Creative Commons license suite is but one example of such licenses that secure use beyond fair use.

[5] Creative Commons finally included both approaches in their license suite that spans the whole libre spectrum.

advocate and require, and therefore also contains diverging political-economic potentials (Lund, 2017a, 2017b).

The different flows of free or open information (not only works under a libre license but also content regulated by companies' terms of use) enable the development of a quite unexplored and new region for capitalist production; a new business model is thus emerging which *complements* the profit from enclosures model. This new kind of profit from openness business model has received a warm welcome from management literature (Anderson, 2009; Leadbeater, 2007; Tapscott & Williams, 2007). It is based on the disguised exploitation of unpaid digital work, carried out mostly during leisure time, with non-commercial purposes, by individuals as part of fan cultures, peer communities or in the role of being users of some service or platform. This "exploitative side" has only very recently received specific attention (Fisher, 2012; Fuchs, 2013; Langlois, Elmer, McKelvey, & Devereaux, 2009; Lovink & Rossiter, 2010; Pasquinelli, 2010; Petersen, 2008; Van Dijck & Nieborg, 2009; Scholz, 2013; Zukerfeld, 2014, 2017a).

This profit from openness model emerged as a complement and alternative, both to the ideological opposition and the practical limitations of the profit on enclosures model. It was greatly inspired by the success of the globally peer-produced Linux operating system (Castells, 2002; Raymond, 1998) and the so-called Web 2.0 in the first years of the new millennium (O'Reilly, 2006). It could therefore be useful to delineate the features of the two different models, and compare them. Both mechanisms try to increase profits in a context of high sunk (initial) costs, while experiencing close to zero marginal (reproduction) costs. But, while the profit on enclosures model intends to *pull up* the price of *outputs*, profit on openness model focuses on pushing down (close to zero) the price of *inputs*. In other words, the strategy using privately controlled enclosures rests on creating *scarcity* of knowledge flows and charging for *access* to them. In contrast, profit from openness harnesses the *abundance* of knowledge, without charging directly for access, and collects money from targeted advertisement, data selling and related businesses.[6] Whereas

[6] Naturally, the difference between the profit from openness model and the traditional business of broadcasting companies lies in the origin of the knowledge flows used to attract an audience: in the

copyright-based production processes exploit the productive activities *within labor time*, profit from openness is to a greater extent based on the exploitation of productive activities during *leisure time*. This, of course, agrees with one of the main theses of Italian Autonomism (Lazzarato, 1996a, 1996b, 2006; Lazzarato & Negri, 2001) and cognitive capitalism theory (Moulier-Boutang, 2011; Pasquinelli, 2010; Vercellone, 2012). The ideological base is also different: where the profit from enclosures model is based on the rhetoric of *individuals, property and exclusion*, the profit from openness strategists talk about *communities, inclusion and freedom*.

The enclosure model rests on *respecting copyright*, and its practitioners are not at all ashamed of saying so, whereas the practitioners of profit from openness depend on *circumventing*—or directly violating—copyright law. Instead, it resorts to *other* intellectual property rights (trademarks, patents and confidential agreements between employer and employees based on industrial secrets laws). Concealing both procedures is a part of the profit from openness business model. In effect, this strategy suggests an end to combatting small-time piracy conducted by users, in order to profit from big-time piracy based on exploiting users.[7]

latter, it comes from professional, better or worse *paid* workers; in the former, it usually stems from unpaid labor, knowledge and affects.

[7] This process could be understood as a new variation of what Marx called primitive accumulation in relation to the first wave of capitalist enclosure of the common lands in England during the sixteenth century (Marx, 1867). In order to understand this expression, we have to take into account capitalism's outside. Capitalism's outside represents both a threat and an enabler. Capitalism fears a self-sustained natural economy that does not rely on the market exchange of commodities (Luxemburg, 1951). On the other hand, capitalism can get rid of its inner contradictions as externalities in so-called *value dissociation processes* (Scholz, 2014), like when reproductive work such as child care is confined to private homes. But, it can also expand into it, enclosing areas that were formerly public and commons-based, like, for example, under neoliberal de-regulation of public institutions, when this is needed to strengthen capital accumulation and avoid internal contradictions (Harvey ref. in Fuchs, 2014). It is this latter strategy, in a digital world exemplified by the expanding copyright regime, that correlates to the notion of primitive accumulation, or as Harvey later rephrased it: *accumulation by dispossession* (Harvey, 2005). What "profit for openness" then does is that it disguises its primitive accumulation of unpaid producers' data, content or source code under various forms of partial openness in hybrid business models combining openness and enclosures in new ways. This is one of the main topics of our research, and it will be developed further throughout this book.

2.2 Open and Free

Wikimedia Foundation's *Wictionary* defines *open* as *not closed*, *accessible* and *unimpeded*. Free is, according to the same source, understood as a synonym to open, and is defined as *unconstrained* (Wictionary contributors, 2017a, 2017b). The complications start when the concepts open and free are applied in a societal context. The two concepts look at the same phenomena from different angles.

Freedom in the liberal tradition means that someone, a social group or another entity is free from others' interference to do whatever they want. Freedom is thus a formal right to action in a liberal tradition, an action that is protected from interference, thus not open to interferences. This is understood to be a *negative* freedom (as opposed to a positive freedom). Open, in the same liberal tradition, means that someone, a social group, society or another entity is not restraining the access and interferences from other entities. Open means to be open for others' actions and give them the freedom or right to interfere. Thus, the concepts open and free are synonyms and yet not, connected and yet completely different. Freedom is a qualitative right to act in the world, whereas an open entity allows other entities the right or freedom to act upon it. Someone or something that is open, is open for others' freedom; someone or something is free as long as everything and everybody around it is open for its actions. The only limit to freedom is when something is not open to its expansion, for example another entity's freedom; someone's freedom is getting in the way of your freedom, someone else's freedom is the not-open or *limit* to your freedom. Your freedom is thus the not-open, *closed* entity, and limit to another entity's freedom (Lund, 2017a).

Freedom is both an *obstacle* and a *protection*—as well as an enclosure. This raises several philosophical questions: how open can you be to someone else's freedom of action, if you still want to be free in your actions? How free can you be in your actions without impeding other people's freedom of action?

In social life both openness and freedom are entangled with each other and interact dialectically in concrete ways. In the digital political economy the differing configurations of openness and enclosure are played

out on the data, content and algorithmic levels. They involve relations between corporations, authorities, citizens, NGOs and the users of digital platforms. On many media platforms, content is produced by the users and offered openly to the public by the company. At the same time, platform companies require the right to enclose and sell data profiles based on the users' actions on the platforms to advertisers, as an enclosed commodity. This is made possible by users agreeing to the companies' terms of use. The algorithms of the commercial platforms, on the other hand, are always enclosed through patents and industrial secrets (Bilic, 2018).

Other commercial uses of data, content and software source codes can be conducted in slightly more open ways. Sometimes the original content or source code is licensed under a copyleft license that requires openness in subsequent uses. The economic profit for commercial actors is here not only based on unpaid voluntary coding but also on the wage labor involved in added services built on top of the content. Red Hat, for example, builds its whole business model on GPL licensed software, but gets their revenue from services related to support, setup and administration of free software systems.

This socioeconomical entanglement of an openness to be acted upon, and an enclosed freedom that gives its owner the power to act, results in different answers to the questions raised above from the perspective of different Western political ideologies. Liberalism, socialism and republicanism answer the questions of the scope and limits of openness and freedoms in different ways. A brief account of the different ideological positions is needed before we connect the theme of open and free to the contemporary distinction between free and open source software at the end of this section.

2.2.1 Western Political Ideologies' Understanding of Freedom

The traditional Western political ideologies have centered on the concept of freedom, but freedom always has a relationship to openness as has been shown in the argument above.

2.2.1.1 Liberalism

Classical liberalism accords freedom primacy as a political value in two ways. *First*, we have a liberal principle stating that the onus of justification is "on those who would limit freedom" (Gaus, Courtland, & Schmidtz, 2015). Locke pointed out that humans are naturally in a state of freedom in their actions, not depending on the will of any other man. Any limitation of the freedom, political authority and law, thus has to be justified. *Second*, these limitations on freedom should be modest: "only a limited government can be justified" and its task is to "protect the equal liberty of citizens" (Gaus et al., 2015).

Liberalism admits that freedom needs to be regulated, but as minimally as possible. Latently this means that freedom as an enclosure needs to be, even if minimally, opened up, but openness is not understood in this way within liberalism. Openness is used for other political uses. What "equal liberty" means is a complicated story within liberalism. The associated problems circulate around the concept of private property. The enclosure of private property in relation to others' freedom is portrayed as a natural phenomenon and a natural right within liberal thought. Locke stresses that even if nature is given to humans in common, individuals have to appropriate the fruits produced by "the spontaneous hand of nature" as individuals, before it can do these individuals any good (Locke, 1980). Private property's enclosure is the sine qua non for economic survival and the relative openness of the collectively managed commons is downplayed.[8]

The limit to this private appropriation of the commons went back to the assumption that each individual's own person was his own natural property, and that "no body has any right to but himself", and all the results of an individual's labor is his private right (Locke, 1988, pp. 287–8). Everything beyond what the individual could make use of and beyond the property that one individual's labor could establish was for others to take. "Nothing was made by God for Man to spoil or destroy" (Locke, 1988, p. 290).

[8] Private property's relation to the more open (vis-à-vis private property) commons is described like this: "We see in *Commons*, which remain so by Compact, that 'tis the taking any part of what is common, and removing it out of the state Nature leaves it in, which *begins* the *Property*; without which the Common is of no use. And the taking of this or that part does not depend on the express consent of all the Commoners." (Locke, 1988, pp. 288–9)

The contractual right to sell your body's labor-power then introduced major ambiguities around where to draw the line for what it meant to produce and establish something with your labor. Gaus et al. describe this position as though liberty and private property are so closely related that the boundaries between the two are blurred in several different ways in liberalism: all rights (to action) are forms of property, or, property is itself a kind of freedom (Gaus et al., 2015). The one regulator of this was the market. Equal liberty was enacted by the freedom to "make contracts" on the market. On the market, people could sell their labor-power or invest their money (coming from wages or capital) as they saw fit (Gaus et al., 2015). This unproblematized view of a self-regulated freedom between equals did not mention that freedom needs something open to expand into, and that capitalists found that open resource in a dependent working class stripped of all ownership of the means of production, making notions of "equal liberty" questionable.

Social liberalism did not change this view in any fundamental way.[9] There exist two major alternatives to the classical liberal and social liberal position on freedom.

2.2.1.2 Marxism

G. A. Cohen contends that liberals and libertarians overlook the "unfreedom which necessarily accompanies capitalist freedom". One person's private property presupposes the non-ownership of other persons (Cohen,

[9] Liberalism came into existence with capitalism and first accepted the market as a basic, but unconscious assumption. Class society was a natural thing to the first generation of liberals who thought that any interference with it would hamper productivity. A second generation of social liberal thinkers, though, highlighted the task of protecting the equal liberty of citizens as they saw the deteriorating living conditions of the working class as a threat to property (Macpherson, 1977, s. 1, 30–1, 44). Thinkers like Mill held that the unequal distribution of the products of labor was unjust, but at the same time maintained that the right of private property—through the freedom of acquisition by contract—included the right to what had been produced by someone else. The capitalist principle was not flawed. Social liberalism maintained that a more equitable effective freedom was compatible with increasing enclosures and centralized aggregations of private property, rather than with an *opening up* of private property enclosures. Mill failed to see that the capitalist market relation enhances any original inequitable distribution by adding value from current labor to capital (Macpherson, 1977, pp. 53–5). Contemporary liberalism still lingers between the original liberal stance and social liberal stances.

2006, p. 167). Capitalist freedom—the right to private property—leads to social un-freedom because of the generalized role of money. Money is the radical leveler that does away with all qualitative distinctions between commodities at the same time as it can be privately owned. The generalized use of money therefore transforms social power into the "private power of private persons" (Marx, [1867] 1887, pp. 85–6). The private ownership of the means of production is at the heart of capitalism's social relations of production—the class society and its uneven distribution of social power.[10]

Marx himself talked of freedom in a *double sense*. The owner of money meets a laborer who is free to dispose of his labor-power as his own commodity, but who also is free in the sense of having "no other commodity for sale" and thus being "short of everything necessary for the realization of his labour-power" (Marx, 1887), thus being open for the capitalist's freedom to hire them. In the case of the laborer, Marx here polemically invokes freedom as the power not to act, to not accept the contract offered by the capitalist. The meaning is clear: the laborer under capitalism is forced to sell their labor-power because of a lack of means of production, rather than being free to do so.[11] The liberal freedom to sell labor-power on the market is only formal, on paper, and not an effective power to act.

It is against this theoretical backdrop that British socialist, R.H.Tawney, talks about freedom as the "effective power to act or to pursue one's ends". If you are too poor to be a member of a club you are formally allowed membership in, then you are not free to be a member—you do not have the effective power to act. This perspective "ties freedom to material resources" (Gaus et al., 2015) in a more fundamental way than social liberalism does.[12]

[10] "The capitalist mode of production, for example, rests on the fact that the material conditions of production are in the hands of non-workers in the form of property in capital and land, while the masses are only owners of the personal condition of production, of labor power." (Marx, 1970)

[11] "For the conversion of his money into capital, therefore, the owner of money must meet in the market with the free labourer, free in the double sense, that as a free man he can dispose of his labour-power as his own commodity, and that on the other hand he has no other commodity for sale, is short of everything necessary for the realisation of his labour-power." (Marx, 1887)

[12] Moreover, social inequalities do not only limit people's freedoms, they force people to contribute to their prolongation through a wage system that reproduces them as social beings and as a workforce, enriching the already rich capitalists through capitalism's accumulation regime. The capital-

This distinction between formal and real freedom will be understood as a difference between negative and positive freedom throughout this study.[13] The positive notion of freedom of socialism and the negative notion of freedom of liberalism stem from—and make them take—different positions on private property. The first is in favor of more openness in the access to the means of production, the second is in favor of enclosures of them. Socialism aims to open up the economy and liberalism defends private enclosures. Socialism's positive freedom and liberalism's negative freedom also differ in relation to the state.[14]

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ists' unrestricted power to act, and laborers' restricted power to act, leads to social un-freedom (Cohen, 2006, pp. 167–8, 180–1) and expanding enclosures, the opposite of openness for the great majority of citizens.

[13] This is done in explicit contrast to Isaiah Berlin's classical distinction between negative and positive freedom. Berlin explains negative freedom with the question: "What is the area within which the subject—a person or group of persons—is or should be left to do or be what he is able to do or be without interference by other persons?" This understanding of negative freedom contains both the formal and effective freedom discussed in this text. The latter alternative coincides with the Marxian notion of positive or real freedom that we favor and use in this study, whereas Berlin's positive freedom is explained with the question: "What, or who, is the source of control of interference that can determine someone to do, or be, this rather than that?" (Berlin, 1969, pp. 121–2). This question connects freedom to issues of governance, and more or less concludes that socialism is authoritarian in its views on the subject. Marx is said to hold that understanding the world is the same as to be free and that a rational plan for society would allow for the full development of people's true nature. Communists are said to hold that rational ends and man's true nature must coincide, implying that for communists a rational state knows the citizens real and authentic needs even if they themselves are not aware of them (Berlin, 1969, pp. 131–2, 142, 146–8). This is more than anything a critique of authoritarian understandings of socialism and of Marx's writings, but it does not suffice as a critique of socialism and Marxism per se.

The argument for socialism does not need the kind of positive freedom that Berlin criticizes, instead it can be grounded on Berlin's negative freedom, stressing that "the distribution of freedom in a society depends upon the distribution of property" (Miller, 2006, p. 16). G.A. Cohen makes a claim that the sum of freedom—Berlin's negative one—in society is not fixed and that certain forms of socialism could "extend freedom more widely" (Miller, 2006, p. 17). Cohen stresses that communal property of household tools would increase tool-using freedom, the range of tools available increases for each member of the community, even if it removes some capitalist freedoms of private property (Cohen, 2006, pp. 173–4).

Berlin's distinction, finally, obfuscates the fact that the market sanctioned by the night-watchman state also regulates forms of interference in authoritarian ways, and thus strengthens class society.

Our study's central concern with the use of openness within business models uses the notions of negative and positive freedom as two different positions within Berlin's negative freedom, in an effort to highlight different ideological positions taken on openness' relationship to the freedom of, or right of, private property. The study will therefore treat governance issues as separate from the distinction between formal/negative and real/positive definitions of freedom.

[14] Interestingly, though, whereas the liberal tradition focuses on the relation between the individual/market and the state, the socialist tradition actually includes more variation than first thought of.

2.2.1.3 Republicanism

Republicanism defines the concept of freedom in relation to a "certain set of political arrangements". You become free when you are a citizen of a free political community (Miller, 2006, p. 2). Civic republicanism understands freedom within a context where human beings are "necessarily interdependent". Freedom can be realized when those "who are mutually vulnerable and share a common fate may jointly be able to exercise some collective direction over their lives" (Honohan, 2002, p. 1). A free community is a community that is self-governing (Miller, 2006, p. 2). Within republicanism "freedom is related to participation in self-government and concern for the common good". This concern for the common good "sets republicanism apart from libertarian theories", which focus on individual rights in a neutral way which excludes "substantive questions of values and the good life from politics" (Honohan, 2002, p. 1).

This stress on the common good and values, mutuality, interdependency and the ability to exercise some collective direction points to the positive notion of freedom that we use in this study. It indirectly tells us that some form of collective openness is favored over private enclosures. Sociality is stressed and it needs some openness, as private enclosures otherwise limit social life. In relation to governance issues, Republicanism can assume positions ranging from advocacy of the republican state to more social anarchist or commons-based standpoints.[15]

Anarchism has, for example, historically taken both socialist and communist stances in relation to positive and effective forms of freedoms. The term *libertarian socialism* was coined by Rudolf Rocker in the 1920s (Lund, 2001). This tradition comes close to an older political tradition of republicanism, which also has bearings on the discussion of the relationship between the open and the free.

[15] Republicanism has, due to its long history dating back to both Cicero and Machiavelli (and being older than both liberalism and Marxism), often been related to the question of the king. The republican state has therefore been in more focus than other forms of governance. The opposite of freedom in the tradition is domination and living in servitude to another person; the free man as against the *servus* or slave (Gaus, Courtland, & Schmidtz, 2015). The republican state's mission is to guarantee that no agent has arbitrary powers over any citizen, and proposes an equal distribution of power so that each person is empowered to counteract other persons' power to arbitrarily interfere with her activity (Philip Pettit, 1997, p. 67 cf Gaus et al., 2015). Republicanism connects in many ways to contemporary discourses on commons and their forms of governance.

The question of building robust commons, the opening up of private enclosures instead of prioritizing technical interoperability in a capitalist economy that favors enclosures, goes to the core of the debate between Free Software and Open Source Software. The debate and its outcome at the end of the 1990s laid a foundation for future business models based on openness. That debate is therefore of interest to this book. Two different organizations within the hacker community, Free Software Foundation (FSF) and Open Source Initiative were involved in the policy debates and actively advocated for different types of licenses for software code.

2.2.2 Open and Free as Understood in the Debate Between Free Software and Open Source Software

The liberal thinkers Karl Popper and Friedrich Hayek, one focusing on freedom of speech and the other on private property and the free market, share a common denominator in the focus on negative and formal freedom. Popper's political liberalism has one type of contradiction (Gray, 2000), and economic liberalism has—as shown—another. Taken together in the field of software production, these two, in themselves contradictory positions, generate a contradiction between a freedom of, or right to speech that is effectively limited by a freedom of, or right to property that is unequally distributed in society. This is so because software is both speech and a means of production.

The Free Software Foundation (FSF) and Richard Stallman introduced a somewhat different political reading of openness in the 1980s that differs from Popper's and Hayek's, and has stronger links to positive notions of freedoms and rights.[16] FSF's copyleft license, GPL, opens up private property in the form of copyright. FSF and GPL see enclosures, also commercial enclosures, of software, as antithetical to the freedom of speech (Castells, 2002, pp. 25–6, 54–5). Instead they maintain that a partially opened up copyright, that in a mandatory way stipulate that the

[16] This argument thus deviates from Tkacz's (2012) argument that the free and open source debate evolved in continuity with Popper and Hayek (Tkacz, 2012, pp. 387–90). Still, there is some merit to Tkacz's argument and it will be addressed in the chapter on Red Hat.

freedoms to access, reproduce, adapt and distribute the software *should be present in all derivative works*, would expand a leveled playing field in the software sector (Stallman, n.d.; Wikipedia contributors, 2017a). The lines between traditional liberal and socialist notions of freedom are here blurred and the position can potentially be related to a republican view centered on the commons as a communal field between the state and the individual (Hardt & Negri, 2009).

To Stallman, the freedoms or rights related to tinkering with the source code were vital for society, because they promoted solidarity, sharing and cooperation—the reciprocity of open social interaction—in society (Stallman, n.d.). In line with this, Stallman propagated "software freedom norms beyond the immediate licensee" (Barron, 2013, p. 598).

FSF and Stallman can therefore be said to break with classical liberalism, at the same time as they conceptualize the rupture in liberal terms. You could say that Stallman uses liberalism against liberalism. The property right, copyright, is partially opened up in the name of freedom of speech, and is subsequently turned against future enclosures, in a way that expands social practices of doing in common (*commoning*) beyond the state and the market (De Angelis, 2017). This is of course a real challenge for commercial actors that to various degrees rely on the monopoly rights of intellectual property.[17]

In contrast, Open Source Initiative's (OSI) position leans toward a classical liberal understanding of open source as open to subsequent commercial enclosures, where openly licensed code or intellectual works could be enclosed in companies' adaptions of it by using traditional copyright (Wikipedia contributors, 2017b). OSI was the result of a split in the free software movement in 1998 in relation to the proprietary software sector. Stallman was portrayed as dogmatic and the new initiative saw themselves as pragmatists. The aim was to substitute a new business-grounded attitude, that had motivated the company Netscape to release its source code in its competition with Microsoft, for the traditionally

[17] GPL and FSF are not formally against the profit-making of capitalist actors, but demand that the licensed code on which business relies is freely available to everyone, even to the company's competitors.

"moralizing and confrontational attitude" associated with free software (Barron, 2013, p. 603).

One of the major differences between the perspectives is FSFs social focus on building commons and OSI's technical focus on interoperability (you should be able to use the source code in as many programs and applications as possible). The latter's "permissive" open source licenses contribute to a less expanding and less independent kind of commons than the GPL. Open source focuses more on practical concerns and "commons goods" (De Angelis, 2017; Lund, 2017a; Stallman, n.d.), than on the social relations that are built around the commons. De Angelis contends that this difference relates to diverging social and political visions of the commons (De Angelis, 2017, p. 33). If copyleft can be seen as strengthening the commons as an *alternative* to capitalism, the more permissive licenses strengthen the commons as an effective *complement* to capitalism (Lund, 2017a, 2017b).

Open source advocates maintain that this distinction is unimportant, as the original open source still exists, even if a derivative work is enclosed in a propertized form. Actually, if a company like IBM uses the open source licensed program's permission to enclose it for commercial uses but pays wages for some programmers in the project behind the program, this could be seen as building an even more robust commons. On the other hand, such a logic does already exist around GPL licensed software in the case of Red Hat. The crucial thing here is that Stallman stresses the importance of sharing and cooperation between equals, a social bond that can be debilitated by either the introduction of commercial logic, such as wages for some in the community but not for others, or by a shift in focus from gift-giving to profit-taking. This problem of course affects the strategy of free software as well, as it does not prohibit commercial uses but only enclosed such uses, but it affects free software to a lesser degree than projects depending on OSI's more permissive licenses. The political core of OSI takes capitalist enterprise and its recurring need for enclosures more for granted in a way that more actively fosters capitalist-friendly ideological positions under the veil of openness.

Barron stresses that the most noteworthy result of the FS/OS split was that the investors started to see free software as a business model amongst others: an open source model. She concludes that from this point in time

a "swelling chorus of voices", like Linus Torwalds, O'Reilly Media, *Wired* magazine, the Free and open source software (FOSS) distribution firm's CEOs and an increasing number of academics, joined the OSI movement and celebrated the success of open source (Barron, 2013, p. 603).

2.3 Ideologies and Ideology Analysis

Ideologies have already been present in the previous sections of this introductory and theoretical chapter. In discussing the concepts of open and free, it was obvious that we treated liberalism, republicanism and Marxism as ideologies. At other points, ideology has been used in a more abstract way. Ideology is understood both as a value-ridden worldview, a practice and as a structural phenomenon in this text. Several ideologies of varying strength can also be at work simultaneously in society on different levels of social life.

Terry Eagleton identifies six different definitions of ideology at different levels of abstraction. *First*, ideology can neutrally refer to general material processes in social life where ideas, values and beliefs are created. In this definition ideology comes close to the concept of culture. *Second*, ideology represents the ideas and values of specific, socially significant groups or classes, regardless of whether the ideas and values are false or true in any sense. In a more concrete development, the *third* form of ideology stands for deliberate practices and uses of such specific groups' collective symbolic self-expressions in conflictual terms, to support or legitimize certain social groups' interests in relation to opposing interests. The *fourth* type of definition then further narrows this down by stressing that ideology is limited to activities of a dominant social power. This line of thought is sharpened in the *fifth* definition, where ideology stands for the use of distortions and deceptive illusions by a dominant social group in order to further its interests. As you can see, the definitions up to this point have become progressively stricter in a sociological sense; the *sixth* definition is once again general in its scope, but still more structural in its character, despite its focus on false and deceptive beliefs. This time ideology is not connected to specific groups or a dominant group, but is rather

produced by the socio-material structure as a whole. Marx's theory of commodity fetishism is but one example (Eagleton, 2007, pp. 28–30).

We will use several of these definitions, except number one, as theoretical tools in our investigation of the ideological uses of openness by businesses and other institutions. Different types of ideologies can be found in different contexts, but it also depends on which level of analysis the critique is being made.

Social interests are crucial in one way or another for the definitions of ideology that guide our investigation. These social interests exist in a society built on imbalances of power and the logic of class struggle (Eagleton, 2007, p. 142), but those different social interests do not in any automatic way have to be antagonistic, as some people argue. Certainly, ideologies have a directionality and work for some interests against others (Purvis & Hunt, 1993), but alliances between different groups and interests can be formed on more concrete levels of the described spectrum for specific periods of time. These social interests and their ideas and values, besides being structural, are also acted out in both non-discursive practices as well as discursive ones.[18] These practices and discourses, which are always socially situated (Volosinov, 1986, pp. 45, 48–9, 51, 65, 71, 77, 80–5), both express, reproduce and develop the ideologies that surround divergent social interests.

Within Marxism, the relation between the ideas and the values of ideology, and their associated social interests, is described as if there is either, or both, a *positive* or a *negative* concept of ideology. The positive concept connects ideology to a specific social group's ideas and values, whereas the other focuses on ideology as a "camera obscura", deliberately distorting reality for the sake of (predominantly) dominant social interests. This distinction was first formulated by Jorge Larrain, who detected both forms in Marx's works even if the negative conception dominated (Larrain, 1979). Later and more practically oriented Marxists (in relation

[18] Academics like Laclau and Mouffe deny this distinction and contend that the non-discursive practices are structured on the discursive ones. Eagleton's short reply to this is that it very well could be true, but that a practice, as a matter of fact, is a practice rather than a discourse. Homogenizing practices obscure them. "A way of *understanding* an object is simply projected into the object itself, in a familiar idealist move. In notably academicist style, the contemplative analysis of a practice suddenly reappears as its very essence" (Eagleton, 2007, p. 219)

to Marx's rather abstract mission in *Capital* of unpacking the systemic features of capitalism) like Lenin often used a more positive conception of ideology.

On the one hand we used ideology in a positive way in Sect. 1.2 for the presentation of traditional political ideologies, while at the end of the same section it was used in a negative way to describe how OSI's more capitalist-friendly permissive software licenses are hidden under a veil of openness.

Having said this, it is time to discuss how ideologies can be identified and unpacked. Ideology analysis follows the traces of practices and structures displayed or implied in documents, conversations and observed (inter)actions. It does this in quite a specific way. It focuses both on manifest and latent levels of the ideological expressions, discursive or non-discursive. The focus is on what is being said and acted out on a manifest level, and perhaps even more on looking for significant *silences*, *hidden values*, *blind beliefs*, *omitted basic assumptions* and *naturalizations* of social constructions. These latter could result from unconscious positions, as well as highly conscious and deliberate ones, aiming at furthering some social interest over another.

To avoid reification and the perception of ideology as a closed and static whole, the tensions between the manifest and latent side of ideology, together with a historical perspective—when possible—will be stressed. Ideologies can combine manifest superficial factual correctness with deceit in a fundamental and deeper way. A statement's power could be something other than its factual content, or could be true in what it discusses, but not about the parts it omits. "A comment like 'If we allow Pakistanis to live in our street, the house prices will fall' may well be true, but it may involve the assumption that Pakistanis are inferior beings, which is false" (Eagleton, 2007, p. 16). The situation in which a statement is made is also of importance here. Eagleton mentions a teacher talking too much to the students about the dangers of an overly authoritarian education (Eagleton, 2007, p. 24).

As we will be looking for ideologies in both a positive and negative sense to retain the analytical flexibility in our approach, we subscribe in theory to the form of ideology analysis developed by a group of scholars known as the *Gothenburg School* (Göteborgsskolan) in Sweden. They

stress that ideology analysis makes the whole of the ideology, including its latent parts, manifest, but only at a second stage introduces criticism by connecting the identified ideology to its social context and its various social and often antagonistic social interests. The reason for this is that the school does not want to anticipate the result of the analysis. It is in the second evaluating stage that the analysis turns to the question of whether the ideology could be framed as a deliberate act of distorting reality or if it is just an expression of a social group's point of view (Bergström & Boréus, 2005, pp. 151–3; Johansson & Liedman, 1987, p. 215; Liedman, 1989, pp. 23–5, 27, 30). Normally, ideological critique simply identifies something as an ideology if some kind of "false consciousness" is at work. Having said that though, and due to the limits of the present study, we will use both positive and negative notions of ideology without explicitly connecting them to the relevant social groups, as we predominantly deal with the ideological positions of capitalist companies.

Partly in line with the thoughts of the Gothenburg School, we also stress that the latent and manifest levels of the identified ideologies in this study do not exist independently of the analysis. To a certain extent ideology analysis depends on the position in time and space of the analyzer, but so does all scientific research.

2.4 Labor, Work and Profits

This section is dedicated to discussing literature that tackles three related yet distinguishable sets of questions:

- Firstly, should the unwaged contributions (data, content, software and attention) given away by Internet users to the platforms be called *labor*? And if they are indeed referred to as labor, what kind of labor is this? In other words, what is the most accurate adjective to describe these activities? Is it digital labor, immaterial labor, free labor or some other adjective? How is this specific kind of labor connected to other types of labor, and, more broadly, to cognitive capitalism as a totality?

- Secondly, to what degree can interactions with profit from openness-platforms be understood as *work*—as opposed to abstract labor? That is, to what extent can these productive activities be described as fulfilling and/or joyful activities? To what extent are they alienating or fetishistic?
- Thirdly, where do the platforms' profits come from in this profit from openness model? From some kind of *rent*? Do they originate in *exploitation*? And, how are those profits related to the debates regarding *labor* and *work*?[19]

It should be noted that in this particular section we aim to present different approaches to the aforementioned questions as ongoing debates within the field of critical theory. Consequently, we do not intend to adopt one single perspective over others, or subsume some approaches under others.

2.4.1 Labor

Here we are going to discuss immaterial labor and digital labor, the two most widely used concepts.[20]

[19] Certainly, the theories we will discuss here share a common ground: that of *critical* theory. As such, they reject the body of techno-optimistic mainstream and management literature, which describes the unpaid activities undertaken by social actors—more specifically produsers, contribusers and users, see 2.6—on "profit from openness"—platforms in a laudatory way (Anderson, 2009; Bruns, 2008; Leadbeater, 2007; Shirky, 2008; Tapscott & Williams, 2007). These mainstream authors offered a warm welcome to these gratuitous contributions, while generally avoiding referring to them as labor or even work—let alone discussing profits, rent or exploitation. Allmer et al. (2015) provide a clear argument against this kind of discourse:

> Celebratory and often other non-critical approaches also lack: (a) an in-depth historical awareness, which leads them to interpret social changes in terms of complete discontinuity; (b) a holistic framework that would enable them to analyse and interpret social phenomena as parts of social totality, because it is always the wider context that influences their development and role in society, which means they cannot be analysed in isolation (c) a focus on contradictions/antagonisms and power relations which are entrenched in capitalist social relations. Ignoring these basic issues leads celebratory approaches to interpret the existing social relations as "the best of all possible worlds", because they also lack (d) a real normative underpinning, while they simultaneously take for granted specific social formations such as capitalist market or predominance of commodity exchange. (Allmer et al., 2015, pp. 155–6)

[20] Due to space constraints, we will not be able to pay attention to other relevant concepts such as "creative labour", which is used critically by authors like Hesmondalgh (2010) and Huws (2010, 2014).

2.4.1.1 Immaterial Labor

Immaterial labor was introduced by Italian Autonomism. Authors such as Lazzarato, Negri, Tronti and Vercellone have been developing the concept over the last few decades, long before Web 2.0 was born. Although the definition might vary, immaterial labor is "that which creates immaterial products, such as knowledge, information, communication, a relationship or an emotional response" (Hardt & Negri, 2004, p. 108).

Lazzarato, in his original formulation, distinguished between two categories of immaterial labor:

> On the one hand, as regards the "informational content" of the commodity, it refers directly to the changes taking place in workers' labor processes … where the skills involved in direct labor are increasingly skills involving cybernetics and computer control (and horizontal and vertical communication). On the other hand, as regards the activity that produces the "cultural content" of the commodity, immaterial labor involves a series of activities that are not normally recognized as "work"—in other words, the kinds of activities involved in defining and fixing cultural and artistic standards, fashions, tastes, consumer norms, and, more strategically, public opinion. (Lazzarato, 1996, p. 133)

In turn, Hardt and Negri, although they changed their approach over the years, tended to identify two basic forms of immaterial labor: symbolic and cognitive labor, on the one hand and, characteristically, affective labor, on the other.[21] Moreover, in immaterial labor, cooperation, communication and collaboration are immanent (Hardt & Negri, 2000, p. 294). All of these features of immaterial labor are easily related to the activities that take place on online platforms.

Some scholars have built on immaterial labor in order to specifically address the profit from openness business platforms. Probably the first was Terranova, who introduced the concept of Free Labor. It refers

[21] A third category was added in *Empire*, related to the transformation of industrial production by digital technologies. (Hardt & Negri, 2000, p. 293). It seems that the latter is connected to the first category of Lazaratto's proposal ("informational content"), while the former are loosely connected with the second ("cultural content").

specifically to the activities carried out online by produsers, contribusers and users. She was probably the first to discuss the distinctive feature of this concept regarding the unwaged character of these activities:

> Simultaneously voluntarily given and unwaged, enjoyed and exploited, free labor on the Net includes the activity of building Web sites, modifying software packages, reading and participating in mailing lists, and building virtual spaces. (Terranova, 2000, p. 33)

Moreover, Terranova also wanted to stress the double meaning of this free labor: it does not simply describe unpaid contributions, but also deals with the autonomy of the working class, that is "the way in which labour cannot be fully controlled" (Hesmondalgh, 2010, p. 273). Adding complexity to her concept, Terranova states that free labor is not necessarily exploited by capitalists (see Sect. 2.3).

> Free labor, however, is not necessarily exploited labor. Within the early virtual communities, we are told, labor was really free: the labor of building a community was not compensated by great financial rewards (it was therefore "free," unpaid), but it was also willingly conceded in exchange for the pleasures of communication and exchange (it was therefore "free," pleasurable, not imposed). (Terranova, 2000, p. 48)[22]

This aspect is similar to some of the positions we will describe in Sect. 2.4.2 as digital work. However, Terranova uses the same term for both practices, showing their inner contradiction.

Within the same tradition, Coté and Pybus (2007) coined the concept of immaterial labor 2.0. They come close to the unpaid labor aspect of free labor, but they wanted to focus on other topics closely related to autonomist core concepts.

> we want to further delineate the subjective composition of this labour. Immaterial labour 2.0 explicitly situates this subjective turn within the

[22] In turn, Andrejevic (2013) takes on Terranova's concept, and advances the idea of free estranged labor to highlight not only the unpaid labor carried out by produsers, contribusers and users but also the estrangement and alienation related to the loss of control of their products.

> active and ongoing construction of virtual subjectivities across social networks. Furthermore, we wish to emphasize the role of affect as the binding, dynamic force which both animates those subjectivities and provides coherence to the networked relations. Finally, we posit such social networks as biopolitical networks, insofar as they articulate new flows through differential compositions of bodies—populations, as it were, whose capacities to live are extended through the particularities of their subjective networked relations. (Coté & Pybus, 2007, p. 89)

Indeed, it is important to keep in mind that all of these perspectives are framed by Foucauldian and Deleuzian approaches and are defined by their concerns with subjectification, biopolitics, affects and bodies.

2.4.1.2 Digital Labor

The concept of digital labor has been used in recent years by many critical authors from different traditions. Two significant theoretical and organizational benchmarks were Burston, Dyer-Witheford, and Hearn (2010) and Scholz (2013). Although the concept is still used by authors from different theoretical approaches (i.e. autonomists such as Fumagalli, Lucarelli, Musolino, & Rocchi, 2018; Scholz, 2016), its main advocates are Marxists influenced in the last instance by Hegelian thought and strongly influenced by the theoretical insights and organizational leadership of Fuchs (Allmer, Sevignani, & Prodnik, 2015; Fuchs, 2010, 2012, 2014; Fuchs & Sandoval, 2014; Fuchs & Sevignani, 2013). Although the content of the concept may vary, two basic features are shared by all the authors. First and foremost, the concept has been devised to criticize the mainstream approaches.

> Non-critical and celebratory approaches to social media and Web 2.0 do not use critical conceptual frameworks that would make possible a coherent analysis of internet-based platforms as a part of the capitalist accumulation cycle. Instead of speaking of digital labour they use other concepts such as peer production, presumption, produsage, and crowdsourcing. This makes it difficult to differentiate, even at the most basic political-economic level, between digital practices where user cooperation and

> collaboration is being exploited for private profits (e.g. Google, Facebook) and activities that are instead focused at building a real commons-based society (e.g. Wikipedia). (Allmer et al., 2015, pp. 153–4)

Second, digital labor is related to "users' unpaid labour" which produces and shares content, creating value (in a Marxian sense) in doing so:

> The basic argument in this debate is that the dominant capital accumulation model of contemporary corporate Internet platforms is based on the exploitation of users' unpaid labour, who engage in the creation of content and the use of blogs, social networking sites, wikis, microblogs, content sharing sites for fun and in these activities create value that is at the heart of profit generation. (Fuchs & Sevignani, 2013, p. 237)

Although this conceptualization is not far removed from the free labor approach, differences arise when referring to two additional salient features of Fuchs' approach.

Firstly, audience labor. Indeed, Fuchs (as Fisher, 2012) builds on Dallas Smythe's notion of the audience commodity. Internet users consuming ads are laboring and, therefore, creating value. Indeed, it is not only that (prod)users are creating value by giving up their data, content and software but also and particularly that value creation is driven by audiences consuming ads. Audience labor, then, is an important kind of digital labor (Fuchs, 2010).[23]

Secondly, digital labor not only refers to "prosumers" (categorized in this book as produsers, contribusers and users) activities. It also includes every single other form of informational labor:

> Precarious call centre work (…). Also the labour of low paid software engineers and knowledge workers in developing countries as well as the activities of a labour-aristocracy of highly paid and highly stressed software engineers in Western software companies is needed (…) There are also accountants, marketing and public relations employees and other circulation workers who work on capturing, analysing, and selling the prosumer

[23] For a debate on this subject, see Arvidsson and Colleoni's (2012) criticism, and Fuchs' response (Fuchs, 2012).

> commodity to the advertising industry, which in turn employs workers in advertising agencies and companies' marketing divisions. (Fuchs & Sevignani, 2013, pp. 263–4)

But more importantly, in a theoretical effort to put together an approach that is both materialist—as opposed to the immateriality suggested by autonomist concepts—and rooted in the Hegelian notion of totality, Fuchs subsumes different kinds of physical labor under the concept of digital labor.

> The reality of ICTs today is enabled by the existence of a plenitude of exploited labour, such as the slave-labour of people of colour in Africa who extract minerals, out of which ICT hardware is produced, the highly exploited labour of industrial workers in China and other countries that assembles hardware tools, precarious call centre work, dangerous eWaste labour in developing countries, etc (…) The labour that produces the commodities that are advertised on Facebook and other platforms is also connected to digital labour on social media. (Fuchs & Sevignani, 2013, pp. 263–4)

In sum, it seems as though digital labor mainly concerns unpaid labor from "prosumers", including audience labor, but also encompasses other forms of informational labor (which produce informational goods) and physical labor on which the former depends.[24]

2.4.2 Work and Productive Activities

2.4.2.1 Work Versus Labor

There is a distinction (especially in English, German and French) between labor and work. It has pre-capitalist etymological roots, and whereas labor was associated with pain, obligation and even forced activities,

[24] Definitions from Autonomist authors who use the notion of digital labor narrow the scope of the concept exclusively to non-waged informational activities. For instance, they define digital labor "as the set of human activities realized outside of working hours, captured by platform-based business models and transformed into value in the form of big data" (Fumagalli et al., 2018, p. 13).

work was closer to creative and artistic activities (Arendt, 1993; Williams, 1983). In capitalist societies, especially from a Marxist perspective, it is useful to associate "labour" with abstract labor, the production of exchange values and more generally with an historically situated context, whereas "work" relates to concrete labor, that is, with the production of use values and an anthropological or ontological condition of human beings (Fuchs & Sevignani, 2013; Lund, 2017b). In the specific context of profit from openness platforms, this leads to the distinction between digital labor and digital work (Fuchs & Sandoval, 2014; Fumagalli et al., 2018; Lund, 2017b).[25]

With this in mind, the question that arises is: how to describe not only the labor performed by social actors on platforms but also their work, that is, their creative and even joyful activities? And how to describe their relation to the accumulation cycle of capitalism?

2.4.2.2 Productive Activities like Working, Playing and Gaming[26]

For some authors, activities carried out by produsers, contribusers and users on Internet platforms are not described sufficiently when referred to exclusively as labor, since playing and enjoying are quintessential features of those activities. One relevant contribution toward the conceptualization of that perspective was that of Kücklich:

> Modders (i.e. people that modify computer games), however, are rarely remunerated for taking the risks the industry itself shuns. (…) many modders are either uninterested or unable to translate the social capital gained through modding into gainful employment. The precarious status of modding as a form of unpaid labour is veiled by the perception of modding as a leisure activity, or simply as an extension of play. This draws attention to

[25] Fumagalli et al. suggest a very different distinction between digital labor and digital work, as suggested in the previous footnote. For the sake of conciseness we are not going to discuss it here, but suffice to say that it limits digital labor to informational activities and uses the term digital work for physical activities mediated by Internet platforms (like Uber). Cfr. Fumagalli et al. (2018).

[26] "Productive activities" is here used with a focus on the different forms of production of concrete use values.

> the fact that in the entertainment industries, the relationship between work and play is changing, leading, as it were, to a hybrid form of "playbour". (Kücklich, 2005, p. 1)

The concept of playbour draws attention toward this playful side of digital activities, which somehow resembles Terranova's joyful and commercial sides of free labor. In the same vein, Goggin (2011) suggests that work and play are forming hybrids.

Lund (2017b) takes on this playbour perspective and goes further, based on the distinction between work and labor, than Kücklich, who did not take this into account. Moreover, he extends that logic to contrast gaming with playing. Thus, playing, gaming, working and laboring are compared, as Fig. 2.1 shows.

The left-hand side of the figure above (playing and working) shows the universally human and transhistorical side of production and fun, whereas the right-hand side (gaming and laboring) displays the historically situated counterpart. Thus, playbour is but one of four possible combinations that are useful to describe the activities that produsers, prosumers and users perform on Internet platforms.[27]

2.4.2.3 Alienation

The activities undertaken by produsers, contribusers and users can alternatively or simultaneously be understood as highly alienating. One theoretical way of doing so is through the autonomist claim that labor and leisure time are no longer separate; that creativity and social bonding are captured by capitalism. For instance, Beverugen states:

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[27] How are anthropological and transhistorical phenomena like playing and working related to historical capitalism? Lund concludes that play is more of a threat to capitalist social relations in different combinations with work than playing alone:

> Play in itself does not appear as revolutionary or threatening in relationship to capitalism, while working is to a greater extent. (…). It is first in combinations such as workplay and playwork that playing contributes to the development of attractive forms of production that compete with capitalism. Some capitalist companies also want more play and social interaction within the commons-based production to interact with, while they have problems with the serious and competitive gravity in working. (Lund, 2017b, p. 325)

Playing	Gaming
(1) **Purpose:** activity in itself is the goal (2) **Form of practice:** Mobile, not reifiable, "life-like", presence in the moment, free relation to rules, non-competitive, isolated within the self of the player or within a playing community (3) **Degree of voluntariness:** Voluntarily engaged in; performed when you are experiencing well being (4) **Feelings:** Fun, enjoyable, pleasurable, ease, tension, passion (5) **Transhistorical/Historical:** Transhistorical: biological and psychological drives; but also originating from communication, social and cultural interaction	(1) **Purpose:** Goal-directed but both activity and result are important, the result/achievement is annulled before a new game starts, not productive in itself or in its outcome (2) **Form of practice:** Rule-based, character of contest, competitive, can involve audiences (3) **Degree of voluntariness:** Voluntarily, but social pressure or threat of social isolation can potentially be a reason for activity (4) **Feelings:** Fun, "serious leisure", self-fulfilment, strain, risk (5) **Transhistorical/Historical:** Historical. Socially constructed in societies focused on competition and social distinction
Working	**Labouring**
(1) **Purpose:** Goal-oriented, production of useful values (use values) others; productive in its outcome (2) **Form of practice:** Concrete labour, living labour, non-competitive (3) **Degree of voluntariness:** Necessary labour (4) **Feelings:** Seriousness, self-fulfilment in the productive activity and in an objectified sense in the produced use values, "togetherness" and social belonging (5) **Transhistorical/Historical:** Transhistorical; human process of metabolism with nature, for the satisfaction of human needs	(1) **Purpose:** Accumulation of capital by production of exchange values by wage labourers; the process of valorisation (controlled by an alien power in relation to the production) and not the use value is the goal (2) **Form of practice:** Twofold, depending on class division and mediated through markets; exploitation, competition, accumulation and run-away growth under abstract standards, crises-ridden (3) **Degree of voluntariness:** Forced labour due to class society (4) **Feelings:** Alienated seriousness, instrumental reason, feelings of being exploited on one part, greed on the other, feelings of superiority or subordination (5) **Transhistorical/Historical:** Historical. Socially constructed due to historic reasons

Fig. 2.1 Playing, gaming, working and laboring. (Source: Lund, 2017b, p. 113)

From a managerial standpoint, here freedom in and through work is the maximization of human resources, from the subjugation of the body to the subjection of the soul. Through self-work the worker transforms him or herself into an unlimited resource, no longer recognizing his or her own limits (Costea et al., 2007). In the way that authenticity, sociality and creativity are put to work, work has also become much more intimate, especially for those working with digital technologies wherein workers take their social networks to work and their laptops to bed (Gregg, 2011). The

> costs of this unlimited human resourcefulness and this intimacy of work are often stress, burnout and disillusionment. (Beverungen, Otto, Spoelstra, & Kenny, 2013, p. 2)

Andrejevic, from another standpoint, specifically refers to the alienation caused by platforms through the lack of control that users, contribusers and produsers exercise over their data: they are "largely incognizant of the breadth and depth of the information being collected about them, and of the increasingly sophisticated ways it is being put to use" (Andrejevic, 2015, pp. 183–4). Drawing on Marx's 1844 Manuscripts, Fuchs and Sevignani (2013, pp. 257–60) analyze four types of alienation that take place on platforms such as Facebook.

Still another way of conceptualizing alienation, estrangement and fetishism is that related to *self-branding*. This literature refers to the way in which produsers turn themselves (not only their products, but above all their affects, their personal time) into fetishistic commodities, being completely alienated, becoming commercial brands (Arvidsson & Colleoni, 2012; Gandini, 2016; Khamis, Ang, & Welling, 2016). Marwick and Boyd refer to these produsers as micro-celebrities:

> Micro-celebrity is an emerging online practice that involves creating a persona, sharing personal information about oneself with others, performing intimate connections to create the illusion of friendship or closeness, acknowledging an audience and viewing them as fans, and using strategic reveal of information to increase or maintain this audience. In other words, the micro-celebrity practitioner thinks of him or herself as having a fan base, and works strategically to entertain and increase this audience. (Marwick & Boyd, 2011, p. 13)

However, other authors believe that profit from openness platforms tend to diminish the degree of alienation. The most insightful approach of this kind is Fisher (2012), who proposes a dialectical relationship between alienation and exploitation: alienation of audiences in so-called social media is ameliorated through an increase in communication and socialization, which in turn leads to higher levels of exploitation. This leads us to the third and final set of questions: those related to profits.

2.4.3 Profits

Where do profits from openness come from? Within the realm of critical theory, there are two main approaches: those related to the concept of rent, and those based on the notion of exploitation.[28]

2.4.3.1 Rent

Several authors who are sympathetic to a greater or lesser extent with autonomist perspectives tend to explain the profits made by Internet platforms in terms of *rent* (Arvidsson & Colleoni, 2012; Fumagalli et al., 2018; Huws, 2014; Lund, 2017b; Pasquinelli, 2010; Vercellone, 2008).

Vercellone is probably the author who has developed the most insightful theory of the role of rent in cognitive capitalism. According to him, the becoming-rent of profits is one of the defining features of the current phase of capitalism.

1. Since its historical inception during the process of enclosures, capitalist rent has been the other face of the common. It is the outcome of a process of expropriation that is the starting point and essential feature of the reproduction of capital over time and space;
2. In our view, rent represents not only the starting point but also the becoming of contemporary capitalism. Why becoming? Because as the law of value-labor time is in crisis and the cooperation of labor appears to become increasingly autonomous from the managerial functions of capital, the very frontiers between rent and profit begin to disintegrate. (Vercellone, 2008, n/d)[29]

[28] On the exploitation-rent debate, and despite there being some differences regarding the structure and the authors discussed, we highly recommend a quite similar but deeper systematization elaborated by Allmer et al. (2015).

[29] Vercellone's idea of rent associated with enclosures, both at the origins of capitalism and in the current phase—that is, as a condition and as a developing process—resembles the approach of authors such as Luxemburg, Harvey and others regarding the concept of primitive accumulation. Specifically, primitive accumulation has been proposed by Böhm, Land, and Beverungen (2012) in relation to the profit from openness business model and from a rent approach.

In this perspective, as labor becomes more autonomous from capital, and as the borders between leisure time and labor time are eroded, it is not only that rent is becoming more important, but more precisely that rent and profits are increasingly merged.

So how is this notion applied to the profit from openness business model? The rent approach means that these companies are extracting surplus value that has already been produced elsewhere, in the same way that landowners extract rent from the land, as Lund explains:

> Unpaid activities that generate a profit for a capital instead constitute a variant of the value redistribution that rent is based on. The business approach of commercial social media selling advertising space and data mined information about users is similar to land rent charged by a landowner leasing their land to capitalist tenants. In the case of land rent, the value redistribution takes place when the farm workers' value-creating labour has first been exploited by capitalist farmers who then pay part of the surplus value as rent to the landowner to use the land. The unpaid users of social media play the role of the land and landowners are represented by those who own the information structure and the digital platforms; (…) The profit extracted with the help of the unpaid activities originates, in an indirect way, from the surplus value generated by the advertiser's production (or better from value production occurring elsewhere). (Lund, 2017b, p. 86)

Consequently, it is not the case that unpaid activities are not relevant to capital reproduction. On the contrary, they are crucial as they display the most advanced developments of the current phase. Interestingly, as value is not being directly created by produsers, contribusers and users, this perspective is not obliged to conceptualize their activities as productive labor, or even as labor at all.

2.4.3.2 Exploitation

There are at least four ways to explain profit from openness through the concept of *exploitation*.

Firstly, the argument based on the concept of digital labor. This assumes that what produsers, contribusers and users (see Sect. 2.6) do is nothing but labor in a Marxian sense, that is, value producing labor. Therefore, platforms exploit them in a way that can be thoroughly explained through the Marxist labor theory of value. As no remuneration is paid, and the number of labor hours (mainly calculated as hours consuming ads) is enormous, the rate of exploitation tends to infinite. As Fuchs explains regarding the case of Facebook:

> The rate of exploitation is calculated as the ratio e = surplus labour time/necessary labour time = unpaid labour time/paid labour time. In the case of Facebook, all 64.99 billion working hours were unpaid, so the surplus labour time amounts to the full amount of labour time. Given that Facebook exploits more than 35 billion full-time equivalents of free labour or more than 60 billion hours of unpaid work time, it becomes clear that Facebook's business model is based on the outsourcing/crowdsourcing of paid work time to unpaid work time. Given that Facebook's profits were 1 billion US$ in 2011 (Facebook, SEC Filings, Amendment No. 3 to Form S-1 Registration Statement), it becomes clear that free user labour is at the heart of Facebook's business model. That the rate of exploitation is infinite means that no wages are paid, that all user labour is unremunerated and creates value. (Fuchs, 2012, p. 635)

Indeed, from this perspective, the actually paid wages are not necessarily relevant for conceptualizing value creation, as the substance of value and surplus value is measured on the basis of labor time. Critically, digital labor is considered to be productive labor, located at the heart of the platform business model. Inextricably linked to this is the idea that the distinction between production and circulation is not particularly relevant, in contrast with the rent approach (Allmer et al., 2015).

Secondly, there are arguments for which exploitation is related mainly to the surveillance activities that platforms conduct in order to gather data (instead of emphasizing content, software production and attention). As Andrejevic puts it:

> Specifically, most discussions of exploitation in the online economy fail to mark important distinctions between different types of so-called 'free

> labour' (Terranova, 2000) supplied by consumers via interactive platforms, including intentionally created forms of user generated content (such as the original videos posted to YouTube), the promotional work done by fans (such as the indie music fans studied by Baym and Burnett (2008)), the building and maintenance of online social networks of various types, and the activity that underlies all of these: the generation of increasingly detailed information about all of these activities—and more. It is the monitored aspect of networked interactivity that lies at the heart of the account of exploitation advanced in this essay. Because all forms of online activity contribute to the creation of this data, they are all implicated in the account of exploitation developed here. (Andrejevic, 2011, p. 279)

Here Andrejevic focuses on two features: on the one hand, power relations and especially those concerned with biopower (this emphasis is similar to that of autonomist and post-structuralist perspectives). On the other hand, the gathering of *data* becomes particularly important—downplaying content and software production carried out by produsers.

Thirdly, we have the arguments related to Italian Autonomism and Cognitive Capitalism theory traditions. (Andrejevic, 2015; Petersen, 2008; Terranova, 2000). Moulier-Boutang's (2011) is probably the most profound and systematic account in this regard—though it does not necessarily represent other authors from this current. According to Moulier-Boutang (2011, pp. 92–8), cognitive capitalism is characterized, among other features, by a new form of exploitation that he calls exploitation in degree 2—it complements instead of replacing exploitation in degree 1. Whereas for exploitation in degree 1 "labour-power" is the core of the abstract labour that is the bearer of value, for exploitation in degree 2 that core is so-called invention-power—which is characterized in relation to skills, inventions and, more broadly, knowledge. Exploitation in degree 1 is characterized also by the fact that labor-power is "consumed in the production process and incorporated in the capital represented in the subsequent cycle", whereas for exploitation in degree 2, invention-power is "deployed in the process of production and accumulated in the worker. Living labour maintained as living labour and intellectual capital" (Moulier-Boutang, 2011, p. 94).

Moulier-Boutang's theory of exploitation, as with others, echoes the autonomist idea that in cognitive capitalism labor-time is not sufficient as a measure of value. Indeed, the notion of invention-power (based on knowledge) is brought in to complement labor-power (based on labor time) in order to better understand the current phase of capitalism. Other autonomists, while pointing to the limits of the Marxian labor theory of value, tend to emphasize affects instead of knowledge.

Finally, there is an approach to capitalist exploitation which does not necessarily refer to what produsers, contribusers and users do as labor. This is cognitive materialism and relies on a knowledge theory of value, which shares features with Moulier-Boutang's perspective, but also differs in significant ways.[30] It has been applied for describing unpaid appropriations of knowledge and information (using the concepts of inclusive appropriation, Zukerfeld, 2014; informational cognitive exploitation, Dolcemáscolo, 2014, 2016; Kreimer & Zukerfeld, 2014; Yansen, 2015; exploitation through reproduction, Liaudat, 2018; Zukerfeld, 2017c). A systematic theory is presented in Zukerfeld (2017a, chapter 5). According to this approach, capitalist exploitation adopts three modalities[31]:

1. *Exploitation through alienation*: Determined knowledge borne by the *exploited* actors is objectified during work time in a product which is alienated by the *Exploiters*. This is the traditional conception of exploitation, with two caveats: the key lies in the knowledge (that is the source of surplus value) objectified in the product and that this modality includes not only what occurs within the productive unit but also the products of the outsourced or autonomous workers.

[30] Moulier-Boutang asserts that knowledge plays a particularly important role in this phase of capitalism (which names the phase and characterizes a new form of exploitation), whereas for cognitive materialism, knowledge was crucial in all phases, and different forms of exploitation were all relevant. More importantly, Moulier-Boutang and the cognitive capitalism approach consider that labor, specifically living labor, is the main category for a humanist approach. For cognitive materialism, knowledge is the main category, in a post-humanist approach.

[31] The three modalities are not mutually exclusive, but rather two or three of them act (sometimes in consort) in many productive processes simultaneously. As has been mentioned, exploitation implies the existence of a productive process, but not necessarily a labor process. The following characterization is based on Zukerfeld (2017c).

2. *Exploitation through reproduction*: Determined knowledge borne by the *exploited* is codified by the *Exploiter*, who becomes the owner of this knowledge. The *exploited* actors, however, continue to possess it. This happens when capital copies knowledge that had not been generated for profit, with the goal of making profit and without providing sufficient compensation (for example, the skilled movements and techniques of workers which are copied and translated into a procedure manual under Taylorism).
3. *Exploitation through attention*: Determined knowledge transmitted by the *Exploiters* is subjectivized toward the *exploited*. This moves in the opposite direction from the other two modalities: especially in an economy in which the scarce resource is attention (Simon, 1996), the attention of audiences is taken advantage of without sufficient compensation (Fuchs, 2010; Smythe, 1977) and is sold to advertising companies (normally in combination with data obtained through exploitation by reproduction) in order to inject particularized cognitive flows into it. (Zukerfeld, 2017c, pp. 17–18)

Now, the profit from openness business model is, from this perspective, a typical feature of cognitive capitalism: that in which exploitation through reproduction (of produsers) and through attention (of users) replaces (or compensates) the reduction of exploitation through alienation (of wage labor).

2.5 Commons and Peer Production

The commons can be understood from different perspectives. Elinor Ostrom has focused on commons both as tangible and non-tangible resource systems, so-called *common-pool resources*. It is not only about the resources, but also about the *flow* of resources being produced as well as used or consumed within the commons by groups of people. For example, the outtake of fishes in a fishery. From this, it can be understood that the commons is about the collective production and management as well as distribution—the collective consumption and use—of these resources. The commons is structured by an alternative logic compared to the state

or the logic of private property that is characterized by a group's *self-organization* (Ostrom, 1990). The definition of a commons proceeds like this: "A general term that refers to a resource shared by a group of people and often vulnerable to social dilemmas" (Hess & Ostrom, 2007c, p. 349). What self-organization and sharing stands for here is still a rather open question. Hardt and Negri contend that the commons open up a political project between the state and the market (Hardt & Negri, 2009).[32]

As stated, the commons do not have to materialize in a tangible way, they can also be intellectual in character. Intellectual commons could focus on, for example, knowledge as a shared resource, that is, subject to social dilemmas. The discussion of intellectual commons intensified in the wake of digitalization and the popularization of the Internet, when people started to realize that the Internet was a shared resource that was neither strictly private nor public in character. Information commons became a growing research area after 1995 (Hess & Ostrom, 2007c). Intellectual commons can also relate to affects and social interactions and relations in themselves. Stavrides interestingly points out one important difference between traditional commons and commons built around non-tangible goods like affects, knowledge and social relations. The latter category "directly involve human relationships not simply as the means of producing commons but, essentially, as products of commoning themselves" (Stavrides, 2016, p. 36).[33] This argument somehow blurs the line between goods and practices, but let us for the moment get back to economics.

Before the 1970s economists had a hard time differentiating between the so-called nature of a good and the property regime of that good. The different notions were conflated most of the time, even if mainstream

[32] Hardt and Negri speak of "the common" rather than the commons. The common focuses on the sociality given to humans as part of their nature. The common world is continually producing and expanding through collective praxis that as phenomenon is distributed throughout society (Dyer-Witheford, 1999, 2010; Hardt & Negri, 2009; Lund, 2017b). This "common" is thus distributed as a potentiality over the whole of capitalist society, rather than being a limited project as commons are usually understood. The commons' political position between the state and the market is affected by this, but the two different perspectives see different foundations for political strategies.

[33] This position comes close to Hardt and Negri's: "The common is thus in the paradoxical position as being a ground or presupposition that is also the result of the process" (Hardt & Negri, 2009, pp. 122–3).

economists distinguished between private and public goods, it was assumed that the former should be governed by the market, and the latter by the state. During the 1970s economics scholars started to realize that there were more than two kinds of goods. They did so by identifying two attributes: the goods' *excludability* (excludable or non-excludable character), and their *subtractability* (subtraction or non-subtraction).[34] The first meaning that it could be costly to exclude people from the benefits of using the resource by legal or physical barriers, and the second meaning that one individual's consumed benefits "subtract from the benefits available to others" (Hess & Ostrom, 2003, p. 119). Levels of excludability thus refer to the degree to which a good is possible to enclose for private or limited use, and levels of subtractability refer to the degree that the good ceases to exist when consumed and used. These two variables result, in traditional economy, in this four-square model (Table 2.1):

Commons built around tangible resources, that is to say when a community of people share resources in common as *common-pool resources* (Ostrom, 1990) or as common goods (De Angelis, 2017), do not have to be local in character. Public goods characterized by low subtractability and low excludability, like roads and knowledge (both becoming more valuable when used by many through so-called network effects), can also to some extent be managed within the commons (Hess & Ostrom, 2007a). It has been suggested that the Internet itself, as mentioned

Table 2.1 Typology of goods according to subtractability and excludability

	High subtractability	Low subtractability
High excludability	*Private goods* (food, clothing, cars etc.)	*Toll goods* or *club goods* (day care centers, cable television, private clubs)
Low excludability	*Common-Pool Resources* (groundwater basins, lakes, irrigation systems, fisheries etc.)	*Public goods* (national defense, knowledge, fire protection etc.)

Source: Authors' adaption of De Angelis (2017) and Hess and Ostrom (2003)

[34] Paul Samuelson spoke of *rival or non-rival character* instead, but Ostrom maintained that people could be rivals but not goods. She instead preferred the terms subtractability and non-subtractability (Ostrom & Ostrom, 1977).

above, is such a commons (Hess & Ostrom, 2007b; Rose, 2003). The boundaries of the commons can thus be somewhat unclear even for institutional economists. However, the four-square model is important for Hess and Ostrom, who, to a large extent and in last instance, take the character of the goods as the starting point of their argument, and based on this investigate in what empirical ways the resource has been governed.[35]

Other researchers have laid out more elaborate social—and less naturalized—perspectives in relation to the mainstream model of different goods, that more clearly point to the normative and political actions involved in the intersection between the character of the goods and their potential forms of governing. Carol M. Rose stresses the need for a more political understanding of the knowledge commons. She proposes that Roman law's motivations for identifying some material property as public in character, can still play a role today when it comes to information goods and intellectual phenomena. Let us briefly recapitulate Roman law: *Res Nullius* stands for things that do not belong to people even if they are characterized by high subtractability, *Res Communes* represents things that are open for all because of low excludability, *Res Publicae* stands for things that are publicly open through normative and political law, and *Res Universitatis* points to things that belong to a group in its capacity of being that group (Rose, 2003). Rose states that the argument

[35] Hess and Ostrom use the character of the goods as a departure point for their research on the commons, rather than using, for example, the socially situated interactions and communications that Hardt and Negri assume are given by nature to humanity and use in their discussion of "the common". We can take the following quote as an example of Hess and Ostrom's perspective:

> Most of the 'commons' characteristics of knowledge and information have developed from the effects of new technologies … Before the digital era, types of knowledge commons were limited to libraries and archives. Only when vast amounts of knowledge began to be digitally distributed (after the development of the World Wide Web in 1992) did it take on more and more characteristics of commons and commons dilemmas. (Hess & Ostrom, 2007a, p. 46)

Hess and Ostrom focus on goods rather than on the social interaction behind knowledge production, which is a generic human capability. A possible explanation for this is that, since the 1970s Ostrom has been focused on commons based on material and tangible resource systems. Anyway, this perspective relates to Open Source Initiative's and the permissive licenses' technical focus on interoperability (the software good), instead of the ethical and social building of cooperation, solidarity and community (see the section on open and free).

that it is impossible to exclude people from Res Communes resources is wrong, as new technology can undermine this character, and appropriate it for a system based on a Res Nullius regime where the resources are perceived as ownerless and open for appropriation or "occupatio" (Wikipedia contributors, 2018b). Intellectual common-pool resources, res communes, are thus, according to Rose, vulnerable to privatization and commodification due to the introduction of new technologies. This makes it necessary to go beyond all naturalistic argument, like Hess and Ostrom's about common-pool resources and public goods, and take a normative approach. She suggests that Res Publicae would be a better property form than Res Nullius in relation to the introduction of new ICTs (Rose, 2003).

Today this normative and political reformulation of how we understand the commons continues in the work of Massimo De Angelis. He convincingly shows that the commons can be effective ways to govern social systems regarding all the different goods in the four-square model. This is made possible within a focus on commoning rather than on common goods (De Angelis, 2017). He starts the argument from the perspective of social processes, the practice of commoning, showing that the schema applied by Hess and Ostrom (and institutional economics in general) is highly ideological rather than an objective position (De Angelis, 2017). He says the following about club or toll goods:

> If, instead of the neoclassical utility and profit-maximising functions, we assume that people *in different contexts* find their 'optimal' way to share goods, whatever their degrees of rivalry and exclusion, using criteria and measurements that are based not only on self-interest but also on valuing mutual aid, solidarity and affects in diverse contexts, then this idea of club goods—goods shared by a group of people of diverse number—is pretty much evoking that of common goods or commonwealth, which I understand as one constituent element of commons systems. (De Angelis, 2017, p. 41)

So, just because it is easy to exclude people from a daycare center or a cable channel, this does not necessarily mean that you have to do so; and it is not self-evident to treat food as a private good, because its consumption

subtracts from it, and food is easy to hide from other people. All these questions involve ethics and politics. Instead of everyone driving their own car, they could start a car pool in common. De Angelis uses systems theory to paint a picture of how commons systems can federate and in the end form the basis of a post-capitalist society (De Angelis, 2017).

All the above-mentioned perspectives view the commons as organized by social rules and norms. The commons are not unorganized, but are organized in a different way to systems regulated by private property. Commons thus exist as an organized outside to dominant capitalism in contemporary society. This was something that Garret Hardin, who in the 1960s coined the notion of the tragedy of the commons, failed to recognize or understand (Hardin, 1968).[36] Hardin focused on commons built around tangible resources, but as the theme of this book is profit from openness in relation to digital technologies, we have to dwell a bit on relationship between intellectual commons and capitalism.

Intellectual commons' relation to capitalism is regulated through intellectual property in contemporary capitalist society. Copyright is just one form of intellectual property, regulating the use of intellectual works in capitalist society, but it can be used as an instructive example of the difference between intellectual commons and capitalism. Intellectual commons opens up the bundle of rights, or freedoms, that copyright gathers in the hand of the original creator (albeit with transferable economic rights that capitalist firms can acquire).[37] On the other hand, this opening up of copyright's all-rights-reserved regime can be achieved in several

[36] Hardin claimed that the commons was historically abandoned because of the increase in population, and only worked for low-intensity populations. First it was abandoned for food gathering, at a second stage it was abandoned for waste disposal, and in 1968, he thought that the spectrum of public airwaves was being emptied by mindless music. To him, individuals locked-up within the logic of the commons, lacked private enclosures and mutual restrictions, and were only free to bring ruin onto society (Hardin, 1968).

[37] This is so regardless of whether such a person, an original creator, ever really existed. Doing science is, for example, sometimes likened with standing on the shoulders of giants, to quote Isaac Newton. We are all appropriating each other's ideas and phrases in daily popular communications as well as in scientific communication. These communications always exist in a social context. Copyright, it could be said, is masking every text or art work as something unique by focusing on added peripheral and rhetorical adornments to ideas and general themes that the author and artist has borrowed or "stolen" (M. Rose, 1993). The line between an intellectual work and idea is not easy to draw. Ideas belong to us all, but with the help of the distinction between ideas and works, Boyle contends that copyright provides a philosophical legitimization for enclosing the commons

ways, through various licenses, with different social results. It is in this second way of using licenses that copyright regulates the relation between intellectual commons and capitalism.

Let us start the argument with copyright's opposite: the unregulated public domain. The public domain is made up of all the intellectual works for which copyrighted protection times—or enclosures—have expired or, for other reasons, have been restricted (Halbert, 2005). Capitalism, and for example the media industry, has traditionally treated the public domain as an *externality*. This outside to capitalism is understood by economists as *without* economic value, but interestingly the public domain has also been seen by the media industry as an *endless* resource that takes care of itself (Bollier, 2003).[38] The public domain is thus understood both as without economic value and as an endless resource. This points to possible forms of recommodification of intellectual works in the unregulated public domain, recommodification that, today, we can see in the republishing of works of classic literature, but also in the possibility of producing variations of old works that are copyrighted anew (think Disney).[39]

The public domain's openness for other actors' rights and freedoms to act is based on the absence of rights and freedoms in relation to the public domain itself. This is not the case when it comes to the commons (Boyle, 2007).[40] Intellectual commons are governed in common; they are

by granting all the rights to an author who is building his or her work on public or common resources (James Boyle c.f., Bollier, 2003, p. 122)

[38] This outside of capitalism is of great importance for the functioning of the inside of capitalism. The outside can help to alleviate the effects of capitalism's inner contradictions as well as becoming a big threat to capitalism if it develops into a self-sustained system (Lund, 2017a).

[39] A process that Lessig has discussed in his research (Lessig, 2002, 2004).

[40] Boyle makes this point against Jessica Litman's definition of the public domain as a commons (Boyle, 2007). Other scholars have stressed that the public domain could also be understood in a different political light as the default rather than the exception in terms of the regulation of property regimes in relation to intellectual works. Halbert takes Carol M. Rose's distinction between *organized* and *unorganized publics* as a starting point for such an argument. A government is an organized public that to some extent acts like a private property owner. The public, in the form of the government, is an owner that speaks with one voice about its property. The unorganized public is society itself. Rights are given, both in the USA as well as in the common law of the UK, to this unorganized entity (Rose, 1994). Halbert points out that: "[i]f, as common law suggests, there are property rights held in common by an unorganized public, these rights bypass the government's regulatory abilities. The unorganized public, in other words, as an 'owner' of property, threatens the

socially organized and depend on social rules and social norms. One way of creating intellectual commons under capitalism is to use copyright to protect the commons (using state law) in relation to actors from the commons outside by stressing some-rights-reserved rather than all-rights-reserved. This can be done in different ways as the debate between free and open source software shows us (see section on open and free). The so-called permissive licenses of OSI with their acceptance of subsequent enclosures come closer to the logic of the public domain than licenses built on copyleft, and it can be questioned to what degree they actually build commons. This distinction between intellectual commons and the public domain is crucial to understand the difference between various forms of openness with completely different relations to the capitalist economy's appropriations, commodifications and, more often than not, enclosures that follow from them. An intellectual commons is not just something different compared to the public domain, it is also an organized social outside to capitalism.

So, how then is a commons governed? Governance is connected to powers to act, different rights and freedoms. The degree of collective ownership of different rights in the commons has historically differed, both in relation to individual rights in the bundle and from commons to commons. Some rights have even been in private hands in some commons. Speaking about knowledge commons, Hess and Ostrom distinguish between at least six different rights or freedoms from their empirical research, that together make up the total ownership of the commons, and according to them structure the governing of it. These are the right to: take advantage of non-rival resources (*access*), contribute content (*contributions*), extract resources from the commons (*extraction*), withdraw your

state because it undermines the assertion that the government speaks for the public" (Halbert, 2005, p. 18). Halbert therefore claims that Rose's distinction clarifies the property dimension related to copyright and the public domain. In the organized public, we find all the copyrighted property that the state protects, and in the unorganized public we find the public domain. The public becomes the starting point in this perspective, rather than the private copyright. In the unorganized public, with its property rights, the public domain acquires a more collective and communal form of property. This perspective also gives more importance to fair use rights than to private copyright (Halbert, 2005). This perspective has many merits, but has many similarities with Hardt and Negri's use of "the common", whereas we use the commons in more concrete ways—like Boyle, but also like Ostrom and De Angelis—in this study.

works, regulate the use and transform the commons (*management*), distribute and withdraw the already mentioned rights (*exclusion*), and sell or rent out resources, the regulation and the right to distribute the rights (*alienation*) (Hess & Ostrom, 2003, 2007a, 2007b). All of these rights can be distributed differently between individuals and collectives involved in the governing of the commons. "It is frequently the case that the resource system is jointly owned, while the resource units withdrawn from the system are individually owned by appropriators" (Hess & Ostrom, 2003, p. 121).[41]

Let us exemplify this "bundle of rights" perspective on commons governance with the case of Wikipedia. The voluntarily produced encyclopedia is openly accessible when it comes to reading and contributing content. Everyone can formally access and read the encyclopedia, without registering an account. This is an effective power to act, if you have a computer, Internet connection, know the language and can read and write. Nothing says, though, that your contributions will not be deleted shortly after they are published; reviews are carried out after and not before publishing by the active commoners, Wikipedians, who are active in editing the article that you contributed to. The chances of getting your contributions accepted improve if you register an account. After having been active for a while, you can volunteer to be an administrator, but you

[41] This nuanced way of perceiving the configurations of different commons' allocations of different rights and powers to act, runs the risk of making critical judgments about the overall character of a certain commons. Each commons has to be seen as a totality, even if it is made up of a different configuration of separate rights that are allocated in different ways. A commons, to keep on being a commons, leans toward the communal side or pole of things. One interesting question revolves around how many private ingredients a commons can contain and keep on being a commons. Berry and Moss, for example, criticize the Creative Commons licenses for lacking commons or communal features: "[T]he Creative commons network provides only a simulacrum of a commons. *It is a commons without commonalty*. Under the name of the commons, we actually have a privatized, individuated and dispersed collection of objects and resources that subsist in a technical-legal space of confusing and differential legal restrictions, ownership rights and permissions. The Creative Commons network might enable sharing of culture goods and resources amongst possessive individuals and groups. But these goods are neither really shared in common, nor owned in common, nor accountable to the common itself." (Berry & Moss, n.d.) This critique of course misses the point that Creative Commons is just an enabler, not a community of practice, but it is relevant, as libre licenses are of fundamental importance for the workings of the commons-based peer production in knowledge commons like Wikipedia. Actually, in the case of knowledge commons the libre license, and the production conditions it creates, tilts the whole commons to the communal side in a crucial way.

have to be elected by the interested commoners in a vote between the peers or the commoners. An administrator is a contributor or editor who has "been granted the technical ability" to block and unblock Internet Protocol (IP) addresses and IP-ranges from contributing, block and unblock user's accounts, and rename, delete and undelete pages (Wikipedia contributors, 2018c). Wikipedia itself talks about its human administration that also involves bureaucrats, arbitration committees, stewards, Wikimedia staff and the Wikimedia Board of Trustees (Wikipedia contributors, 2018d). Here we can see a whole group of rights, or freedoms, that revolve around the themes that Hess and Ostrom touched on earlier. Thanks to the granularity of roles distributed within the community on different levels and of different scopes, Wikipedia has both a governing hierarchy and a horizontal way of organizing its activities.

This in turn does not only affect the governing of the commons, but also the production within them. Benkler calls this commons-based *peer production*. He sees peer production as "radically decentralised, collaborative and nonproprietary; based on sharing resources and outputs among widely distributed, loosely connected individuals who cooperate with each other without relying on either market or managerial commands" (Benkler, 2006, p. 60). Governing and production is hard to separate, and we understand commons and peer production as slightly different but highly interrelated entities in this book. The parameters of *centralization* and *decentralization* have sometimes been used exclusively to understand peer production. Dulong de Rosnay and Musiani even include "crowdsourced, user-generated content 'enclosed' by corporations" in such a framework (Dulong de Rosnay & Musiani, 2015), in a position that diverges from Benkler's original definition. We will instead propose an adaptation of the latter.

The governance parameter ranging between the values of centralization and decentralization makes it hard to find a definitive demarcation line between real peer production and real commons, and quasi-peer production and quasi-commons. First, we have the question of when something is decentralized enough in its distribution of different rights or freedoms to be called a commons or peer production. Second, we have the fact that the governance parameter does not include the political-

economic dimension of market, managerial and state commands. In line with Benkler's definition, and to add more clarity to the definitions, we will introduce another parameter: the political-economic parameter. That means that the commons and the peer production's overall and independent social aim and purpose—rather than proprietary and state-like—will be recognized in this text, but not even this clarifies the picture totally, as some commercial activities can occur and be regulated within a commons (see above). We can talk of high and low levels of market and state commands, as in the case of excludability and subtractability above. Adapting Benkler's definition somewhat, peer production and commons can be understood as predominantly decentralized and predominantly social (and non-commercial) in their aim and purpose.[42]

This understanding gives us some flexibility in treating commons-based production as a real-world phenomenon. The commons-based peer production of Wikipedia and the commons-based peer production of a free and open source software project could, to certain degrees, differ in relation to both centralism and commercialism. The encyclopedia-making of Wikipedia is more decentralized than software programming that requires more centralization; Wikipedia is run by a non-commercial foundation, whereas the Fedora project is also partly run by the commercial company Red Hat. The extra dimension of *self-organization* and *social* independence could add an extra dimension to defining concrete resource systems as commons and to defining concrete forms of production as peer production. Bauwens contends that it is enough that peer production base itself on self-organization in the last instance (Bauwens, 2009). This theoretical perspective gives us some specific dimensions to work with in our analysis of what is occurring on different digital platforms.

There is a difference between the production on commons-based peer production platforms and the commercial platforms of Facebook and Flickr. These latter platforms are not decentralized and they are proprietary in character, even if they still use "user-generated content". The distributions of rights, the bundles of freedoms or powers to act on platforms

[42] In this text we prefer peer production over the concept of collaborative production that has also been compared to centralization and commercial purposes (Zukerfeld, 2010). Peer production is preferred, as it more clearly holds connotations about the participants being equals in the production.

like Flickr and Facebook are to a higher degree centralized into a single corporate hand, with the help of private property and copyright. Flickr has therefore also been called a quasi-commons (Brown, 2012), which could be translated into quasi-peer production in order to label users' productive activities on these platforms.

This makes it necessary to find new concepts for the voluntary productive activities that occur on commercial platforms like Flickr and Facebook. Web 2.0 platforms have been called sharing economies instead of peer production, because no common product is produced on them (Bauwens, 2009). If we still focus on production, albeit in an aggregated rather than common form, and not on distribution, the concepts *contribusing* or *produsing* (see Sect. 2.6) conceptualize the actions behind user-generated content on these platforms. The concept *collaborative produsage* is plausible, finally, when the users collaborate rather than only act as individuals on these platforms. In this book we use these concepts for productive activities on digital platforms that centralizes a majority of the rights and freedoms into the hands of a commercial company, or, if applicable, into the hands of the state. The concept of peer production (and peer producing), on the other hand, is reserved for giving a name to projects built on more decentralized and non-proprietary configurations of the powers to act within commons.

This leaves us with yet another four-quadrant, when it comes to production forms on digital platforms (Table 2.2).

In order to understand the production and governance of platforms based on collaborative produsage, and on platforms based on commons-based peer production, we also have to discuss copyright-based licenses.

Table 2.2 Typology of platforms according to centralization and aims

	High centralization	Low centralization
For-profit	Digital media Facebook Flickr (contribusing, produsing)	Some Free Software projects Peer-to-peer lending (peer producing)
Not-for-profit	State controlled platforms (Digital Participatory Platforms, NHS platform for rating hospitals)	Wikipedia (peer producing)

Source: Authors'elaboration, based on Zukerfeld (2010)

In the case of Flickr and Facebook, the companies have their different *terms of use* that all the users have to accept. In the case of a peer production project the licenses have to be somehow libre. In the case of Wikipedia, the license is creative commons' Share Alike-license, which is a copyleft license similar to the GPL. This copyleft license defines the conditions for the productive activities on Wikipedia (see argument in footnote 42).

Each contribution to an article on Wikipedia is made accepting the copyleft license. Each article page in the encyclopedia is marked by the license, so that each user is aware of the legal conditions for their contributions. It is this principle that provides the framework for Wikipedia as a commons-based peer production project. "The copyleft principle comprises an overall rule that opens up at the same time for Wikipedia's concrete editing, cooperations, and joint drawing up of rules in the collective creation and processing of the use value: the encyclopaedia and its articles" (Lund, 2017, p. 226). To achieve this common space, it is necessary for the original content peer producer in the form of *produser*, who writes an article in the encyclopedia to relinquish her copyright, that is, the right to decide about the uses of the created work (article). The peer producer in the form of *contribuser*, on the other hand, does not have to relinquish her copyright, as the small size of the contributions often do not qualify as an intellectual and original work, but instead the mark of the copyleft license tells her that she can make an addition or correction without any problem.

This, on the other hand, does not mean that all intellectual content published under a copyleft license is created within a commons-based peer production model. The copyleft license is only an enabler for such production processes. It could equally well be an individual creator behind an intellectual work marked with a copyleft license, and individuals and groups can use such a work in settings other than commons (albeit open for others' use still), and produce new derivative works based on it using production processes other than peer production. For example, if someone gathers articles on the Internet that are written by individual authors, but marked by the Creative Commons Share Alike-license, and puts them together in an anthology that he/she publishes and sells.

What the copyleft license does as an enabler is to use copyright to short-circuit its own logic, and by doing this the copyleft license creates the opportunity for those who want to engage in "joint ownership and

horizontal production" (Lund, 2017, p. 226) between peers. In the case of Wikipedia, the outcome of all the peer producers' edits is that the work or article at hand changes significantly, which in the end makes it impossible to claim any form of individual copyright to the article, even if the license somehow allowed it. Still, it is the collective behind the article, rather than the Wikimedia Foundation, that has the right to the article (as long as it is in line with the copyleft license). This further affects the structures of commons-based peer production within Wikipedia:

> The concrete practice is extremely decentralised in small collective microcosmos, which federate themselves (form federations) with other collective microcosmos and together create a common level that is organized and managed by other voluntary, collective groups of peers in a form of network that includes various projects, votes and general discussions. In this network of networks no collective is superior to another. All collectives are open to all Wikipedians and future Wikipedians who want to participate and thus become owners of the article in question. Wikimedia Sverige [Sweden] and WMF enter the frame at an overall level in what could be called 'the real world' as a hint to the expression *in real life* (IRL). The non-profit foundation manages, for example, all funding within the project, and the power balance between it and the editing community appears … important for Wikipedians. Wikipedia can be characterised as a loose federation of collectives whose activities develop together with a non-profit foundation which exists in an economic space between the state and market. (Lund, 2017, p. 227)

Peer production, as exemplified by this quote, uses both horizontal processes and hierarchies involving rights control on different levels.[43]

Finally, commons-based peer production can be placed between the state and the market. This position has been theorized as a new field for the politics of the multitude (Hardt & Negri, 2009) within cognitive capitalism. Such a position implies that commons-based peer production does not exist in a social, political and economic vacuum. Especially not since the copyleft license and more permissive libre licenses all accept, albeit on diverging conditions, commercial uses.[44] Anne Barron

[43] Activists and researchers connected to the P2P Foundation have used the concept *heterarchy* to characterize a project like Wikipedia. (Bauwens, 2009; Gye, 2007a, 2007b; Kostakis, 2010; Miura, 2014).

[44] Creative Commons also presents you with the option of choosing a Share-Alike license with an added condition of non-commerciality (BY-SA-NC).

characterizes the actions of FOSS developers as a critical social practice that at the same time feeds into the value system of network capitalism (Barron, 2013). Such a comment points to the discussions regarding digital labor, digital work and profit that we address in the next section of this chapter. For now, it is enough to highlight that different sectors' peer production is characterized by different connections to the capitalist economy.[45]

2.6 Platforms, Social Actors and Flows in the Profit from Openness Model

This book discusses a variety of examples of the profit from openness business model. These examples cover a wide range of actors and economic sectors. However, we will try to show that beneath these heterogeneous skins, there are similar muscles. In order to do so, we present here

[45] Free and open source software (FOSS) is positioned right at the center of cognitive capitalism. From the late 1990s FOSS-movements have received increasing attention from firms like IBM, Novell, Hewlett Packard, Oracle and Sun Microsystems. 40% of FOSS developers were paid wages in 2009 (Barron, 2013; Bauwens, 2009; Dafermos & Söderberg, 2009). Besides paying wages, the firms donate, provide legal advice, offer consultancy services, equipment and training. Strategic concerns are involved and, for example, IBM, which failed to produce an operating system that could compete with Microsoft, realized that they could earn more money on services and hardware from the sales of Linux distributions, at the same time as they improved the image of their brand and undercut the competitors charging for their own operating systems. From this, Barron points to the centrality of conventional trademark rights for FOSS business models. According to her, FOSS-project leaders and foundations regularly register trademarks to coordinate the monetizing on their projects' reputations. The trademarks can be licensed to companies that want to have their goods and services associated with the project in return for royalties. Barron concludes that "the true secret of FOSS enterprises' success in attracting and retaining expert volunteers is attribution" (Barron, 2013, p. 614). On the other hand, commercial enterprises can also manipulate peer production projects. Paid staff can establish a "developer community as a firm's 'complementary' (as distinct from its core) assets" and "legitimize the firm's commercial exploitation of project outputs" (Barron, 2013, p. 618). The relation of FOSS to capitalism will be discussed further in the chapter on Red Hat.

The position of peer-produced encyclopedias in cognitive capitalism is obviously different from software programs and programming. But hired employees at the non-commercial Wikimedia Foundation (that runs the platforms and administration of Wikipedia) can still be counted in the hundreds and depends more on many small donations from private individuals (Bauwens, 2009; Dafermos & Söderberg, 2009; Lund & Venäläinen, 2016). On the other hand, the financial model with many small donations comes with the twist that the non-commerciality of the project has to be maintained to keep the donations coming (Lund & Venäläinen, 2016).

a mid-range theoretical schema of *flows* and *social actors* that are relevant for this business model. This theoretical tool will be deployed and tailored to specific cases in the following chapters. In each particular case, some actors and flows become more prominent than others and, moreover, the very definition of each type of actor might vary. At the same time, all our case studies are directly or indirectly related to *platforms*. Therefore, before turning to flows and social actors we need to introduce a typology of platforms with which to frame our case studies.[46]

2.6.1 Platforms

What is a platform? We follow Srnicek's simple definition:

> At the most general level, platforms are digital infrastructures that enable two or more groups to interact. They therefore position themselves as intermediaries that bring together different users: customers, advertisers, service providers, producers, suppliers, and even physical objects. (Srnicek, 2017, p. 55)

According to Srnicek, platforms present four main characteristics, they: (i) "Provide tools that enable their users to build their own products, services, and marketplaces" (Srnicek, 2017, p. 55); (ii) "Produce and are reliant on network effects" (Srnicek, 2017, p. 56)—i.e. the value of the platform increases with additional users; (iii) use cross-subsidization: "one arm of the firm reduces the price of a service or good (even providing it for free), but another arm raises prices in order to make up for these losses" (Srnicek, 2017, p. 58); (iv) are designed to look like "empty spaces for others to interact on", but "embody a politics" (Srnicek, 2017, p. 60).

Certainly, platforms are widely heterogeneous in terms of variables like their size, the type of service or product they deliver, whether they are non-profit or for-profit, their business model, the social actors involved and so on. In this sense, typologies are required. Srnicek himself provides one, in which he distinguishes five kinds of platforms: advertising platforms, cloud platforms, industrial platforms, product platforms and lean

[46] Both schemata are ideal types in the Weberian sense ([1905] 2002).

platforms (Srnicek, 2017, pp. 60–100). However, this approach presents several limitations for the aim of this book. Firstly, it does not differentiate clearly between open/free access and closed/paywall platforms. Despite some inferences being made, it seems that this is not a variable pertinent enough to shape Srnicek's typology. Secondly, neither does it seem relevant if content is produced by unwaged *produsers* or not.[47] This is partially due to how the author explains the origin of platforms: they emerged as capitalism found a "new raw material to appropriate: data" (Srnicek, 2017, p. 101). However, little is said regarding profiting from content (text, video, software). As a consequence, there is no distinction made between the models that capture produsers content and those that do not, which we find to be significant. Thirdly, there is no reference to not-for-profit platforms. Indeed, Srnicek is focused on for-profit platforms, as we are. However, failing to include not-for-profit platforms in the typology prevents any analysis of the tension between commodities and commons, as well as the dynamic interplay between for-profit and not-for-profit platforms.

Therefore, we propose a schema of platforms mainly based on two variables. On the one hand, is the platform open access? That is, can any user as a minimum access most goods and/or services provided by the platform without paying? On the other hand, is the platform for-profit or not? Is the goal of the overall production process—to which the platform contributes—to make money? Table 2.3 presents a summary.

It is worth us making two comments about this typology. On the one hand, the categories express ideal types, as suggested at the beginning of this section. This means that they are abstractions that are useful for analyzing to what extent different existing platforms correspond to the ideal type. Empirically, platforms are not necessarily always confined to one category. Indeed, while in our empirical case studies some platforms are close to an ideal type—YouTube for instance—others can be located simultaneously in several categories, as their business model combines different strategies. Elsevier, for example, combines open access to some

[47] Produsers refers to social actors that produce and use informational goods. We will explain and discuss this concept in detail below.

Table 2.3 Typology of platforms

Platforms	Enclosed	Openly accessible
For profit	*Profit from enclosures* • Provision of content as services (streaming), informational goods (download) or physical goods in exchange for a sum of money. • Based on paid labor and intellectual property rights to content producers or physical property rights to physical goods producers. Examples: Netflix, Spotify (premium, subscription), Elsevier, Amazon *Profit from "gig" labor* • Provision of mediating services in exchange for a sum of money • Based on precarious outsourced labor. Examples: Uber, Airbnb, Freelancer, Task Rabbit *For-profit club platforms* • Provision of informational data, content and software; access restricted to members • Based on subscriptions and advertising. Examples: BeautifulPeople, Best of All Worlds	*Profit from openness* • Provision of informational data, content or software freely accessible, monetization through advertising or additional services. • Based predominantly on unpaid contributions handed over through terms of use of the platforms. Examples: Google, YouTube, Facebook, Coursera, Red Hat fora, Elsevier (APCs), Spotify (free version with ads), Tinder (free version) Dropbox, Open journalism, Siemens platform.
Not-for-profit	*Non-profit club platforms* • Provision of informational data, content and software; access restricted to members. • Based on waged state or NGO agents' labor (or unwaged voluntary contributions) Examples: State managed information (Health records, National Security Data, Tax and social security information); Private clubs (courses, closed communities)	*Digital commons* • Provision of informational data, content and software freely accessible with non-commercial purposes. • Based on voluntary unwaged contributions of data, contents and software (or waged state agents) Examples: Wikipedia, Sci-hub, non-commercial MOOCs, Data portals (Open government data, non-commercial open access academic journals)

Source: Authors' elaboration

articles and journals with paywalls for others, and Spotify offers both a free, ads-based option, and a Premium ads-free option.

This leads us to the second comment. It is not only the case that some existing platforms have features related to a couple of categories, but also that there are flows (contents, data etc.) that circulate between categories. For instance, open government data (from not-for-profit platforms) might be used by Siemens and other companies within a profit from openness business model. Also, Elsevier and Spotify are platforms which developed business strategies that are placed both in for-profit enclosed and openly accessible categories. Now we can briefly characterize each of the four quadrants of the table, paying closer attention to the categories that we are not going to discuss further in this book but which interact with the profit from openness business model.

1. *For-profit enclosed platforms*

The most relevant category within this quadrant is *profit from enclosures*—discussed as a business model in Sect. 2.1.2. It includes streaming platforms such as Netflix and Spotify in its premium version, that is, the provision of informational goods as services, but also the distribution of informational goods themselves, like academic articles (Elsevier) or even physical goods (Amazon).[48]

However, this quadrant also encompasses other categories. One of them is referred to by Srnicek as "lean platforms", while we prefer to identify them with the expression *profit from "gig" labor*. While it is correct to notice that some of the companies are not owners of other means of production beyond the platforms themselves—hardware, software, data—and only hire a meager workforce to keep the platform running, the term fails to capture the essential feature of this business model: the exploitation of outsourced precarious workers. Indeed, these platforms depend on workers that are only hired for "gigs"[49] by third parties. It is

[48] This is similar to Srnicek's "product platform", although our focus is not on the product, but on the capitalist business model which depends on enclosures, that is, property, mainly intellectual property, but also physical property.

[49] Different disciplinary perspectives on the gig economy can be found in De Stefano (2015), Friedman (2014) and Graham, Hjorth, and Lehdonvirta (2017).

important to stress that we resort to the expression "gig" because it is widely recognized and useful to refer to certain labor relations. However, we reject the celebratory use of the expression and its ideological mainstream use by companies and public agencies. For instance, the US Bureau of Labor Statistics defines "gig" as "a single project or task for which a worker is hired, often through a digital marketplace, to work on demand" (Torpey & Hogan, 2016, p. 1). This is not good enough, as it must be stated that gig workers overwhelmingly find themselves in precarious situations, lacking stability or a monthly guaranteed income, and forced to provide their own means of production (cars, houses, bikes, computers etc.). This outsourcing in some ways resembles both the putting-out system and the piece-work that Marx described (Marx, 1867, chapters 13 and 14) which, taken together, paints a picture of the return of the formal subsumption of labor under capital as Vercellone (2007) suggested in another context. Some authors have also suggested that cognitive capitalism is marked by a second movement of enclosures—the first being the enclosures of communal lands by the means of physical property, while the second refers to the enclosures of knowledge commons through intellectual property (Boyle, 2008; Moulier-Boutang, 2011). In light of this, it might be worth discussing whether gig labor can be understood as a *second* putting-out system. Some features are clearly similar: capitalists not taking care or responsibility for workers' meals, health, clothing and so on; workers provide *some* means of production (i.e. homes as workshops); more interestingly, their payment is mainly related to task completion rather than labor time and, related to this is the relative absence of fixed wages. However, there are some major differences. Probably the main one concerns the control over the production process. Formal subsumption meant that capitalists could not change the way the labor process was organized before capitalist relations took over. Indeed, putting-out workers had different ways of impairing the valorization process, for instance, through the embezzlement of raw materials (MacKenzie, 1984, p. 470). In contrast, platforms exploiting gig labor enjoy absolute control over the workforce. It is in this vein that Huws brilliantly framed this as "logged labour" (Huws, 2016), since capitalists can supervise every variable related to the labor process in real time. On the other hand, the first

putting-out system was characterized by the fact that capitalists were the owners of the main means of production: looms, wheels and raw materials that were lent to the workers. This seems not to be the case regarding gig companies: they are not lending cars, bikes, computers and so on to the workers. Nonetheless, it might be argued that companies are lending the platforms themselves (software, hardware, storage capacity) to the workers.

There is still a third, less well-known category of for-profit enclosed platforms that we call *for-profit club platforms*.[50] This refers to platforms where only some people are welcome: for-profit platforms that target a particular audience and, instead of trying to develop mass reach, focus on specific niches of market. Although it may sound strange, it is important to recall that this was the case of Facebook at its conception, when it only accepted Ivy Leaguers. Typically, this category describes the so-called elite social media, where applicants must be evaluated and chosen by recognized members. For instance, that is the case with Beautifulpeople.com, where "existing members of the opposite sex" must certify that new entrants are beautiful enough to become members.[51] Or Best of All Worlds, "where a group of wealthy, famous, or successful users can meet people of similar stature, as well as find events, hotels, and restaurants that promise a familiar kind of curated luxury no matter where they are in the world" (Plaugic, 2017, p. 1).

[50] We use the term "club" (for both for-profit club platforms and non-profit club platforms) in a slightly different sense than the one used by mainstream economics when referring to "club goods". We are not referring here to goods that present a limited physical capacity (i.e. so-called rival or high subtractability goods such as swimming pools, highways, fisheries), but to clubs for which the exclusion originates in reasons that are not physical. On the mainstream theory of club goods, see Cornes and Sandler (1996) and for a different angle, Hess and Ostrom (2003).

[51] The "about" section of BeautifulPeople reads:

> BeautifulPeople has been described as an "elite online club, where every member works the door". BeautifulPeople is the first community of its kind. To become a member, applicants are required to be voted in by existing members of the opposite sex. Members rate new applicants over a 48 hour period based on whether or not they find the applicant 'beautiful'. Should applicants secure enough positive votes from members, they will be granted membership to the BeautifulPeople community. (Beatifulpeople.com/about, Accessed 3/9/2018)

2. *For-profit openly accessible platforms*

This book is concerned almost exclusively with this category, described in Sect. 2.1.3 as *profit from openness*. Here, the content is usually openly accessible, and it is on this basis that the ideological discourse regarding openness, communities and so on is built. This discourse, as we shall see in the case studies, is crucial for the platform to profit from unpaid data, content and software.

This category includes capitalist platforms that depend critically on advertising (YouTube, Facebook or Spotify in its free version) but also those that monetize their contents through related services. For instance, Coursera and other for-profit MOOCs sell "certifications" validating the completion of a course, Red Hat sells services related to free software and Elsevier charges Article Processing Charges in order to publish an article as open access.

3. *Not-for-profit enclosed platforms*

Some platforms offer access only to a limited number of users, but those limits are not necessarily economic as the platforms are not seeking profit. We call these non-profit club platforms. The main examples are state managed platforms that deal with critical information, such as health records, national security data and citizens' tax and social security information. However, there are many other smaller club platforms, like courses where enrolling functions by invite-only, or platforms for closed communities.

4. *Not-for-profit openly accessible platforms*

This category refers to open access to content provided by not-for-profit platforms, that is, *digital commons*. It includes very different organizations. Some of the content is produced and modified by the communities that use them, as with Wikipedians (Lund, 2017b), while others are produced by specialized content producers, and are not modifiable—such as content on non-commercial MOOC courses. In turn, some of these commons are legal according to capitalist IP law, while some are not—like the academic papers that Sci-Hub shares.

2.6.2 Social Actors and Flows

Within platforms seeking profit from openness, at least nine ideal types of social actors can be identified.[52]

1. *Platform-owner corporation*: This is the company that owns the online platform. It provides content and ads, usually without restricting access to users by monetary means. On the other hand, it seeks attention, content produced by produsers and contribusers (see below) and, in some cases, paid services. It controls and manages the productive process, and its search for profits is the ultimate goal influencing all the relations between all the actors involved in that process. Facebook, Google, YouTube, Twitter are some examples.
2. *Workers of the platform-owner corporation*: This includes in-house waged workers, but also outsourced workers (freelancers or employed by other firms). These workers produce software and related services, process data collected from users, conduct administrative and managerial tasks and in some instances develop content for the platform, among other work.
3. *Advertising company*: This is the company that sells the attention and data that the platform's content attracts, and delivers the ads to specific audiences. There is a wide range of variation regarding the relations between platform-owner corporations and advertising companies. It could be the case that the latter is endogenized as a function of the former. At the opposite end, the advertising company might acquire a platform-owner corporation. Google is the main global advertising company that sells ads not only for its platform (i.e. search engine) but also for other platforms—typically through AdWords, the biggest pay per click platform. But there are dozens of other relevant examples. For instance, MuteSix maybe the biggest marketing agency that sells ads on Facebook.

[52] For the sake of conciseness, here we have only included social actors *directly* involved in the productive processes that characterize the profit from openness business model. However, we follow Fuchs (2014) in recognizing that the capitalist mode of production acts as a totality, and therefore, slave and other manual labor related to mineral extraction in Africa and assemblage of digital technologies in Asia, among other kinds of labor, are necessary conditions for understanding the profit from openness business model and cognitive capitalism as a dialectical totality.

4. *Workers of advertising company*: These workers, whether in-house or outsourced, are mainly focused on analytics and the processing of big data and looking for advertisers.
5. *Content company*: Companies that produce content for the platform through wage labor, but independently from platform-owner corporations. They could be companies devoted only to content creation, although they are usually companies that sell other products and services aiming to promote them by attracting attention through their content on the platform. Audiovisual production companies such as EMI, Universal and Sony that license their content to platforms like YouTube are examples, and so are universities such as Duke or Caltech, that provide online content developed by their teachers to platforms such as Coursera.
6. *Advertisers*: Companies that are willing to buy attention and data in order to sell their products and services.[53] Examples of this include household brands (Unilever, Audi, Budweiser, etc.) plus lots of SMEs and start-ups.
7. *Produsers*[54] *of the platform*: Produsers are social actors that not only use informational goods provided by platforms, but also and

[53] Advertisers refer to companies that pay for displaying ads. However, this category also includes the labor performed by workers hired or outsourced by this kind of firm.

[54] We have decided to use the term *produsers* instead of the usual concept of *prosumers*. To justify this decision we need to (i) develop a critique of the concept of prosumer and (ii) introduce the concept of produser.

The term prosumer was probably coined by Alvin Toffler (Toffler, 1980, p. 265) and it is still widely used in the field of management (Tapscott & Williams, 2007). Its optimistic appeal has been subverted by critical theorists (Fuchs, 2013; Ritzer & Jurgenson, 2010). However, we still find two kinds of theoretical limitations. Both are related to the notion of *consumption* (that is merged with production in the aforementioned term). On the one hand, consumption within capitalism means to buy something. However, we cannot for the most part say that the so-called Internet prosumers buy something in a technical sense. It can be argued that the prosumer pays for the free content with their attention, productive activities or data traces, but this is a notion that should be challenged. First of all, it portrays the relationship between the so-called prosumer and the platform-owner as equal market actors. Secondly, it gives the impression that money is changing hands in this transaction, when actually this happens in a later phase between the platform-owner and the advertiser (or mediated by an advertising company). On the other hand, and beyond capitalist social relations, consumption refers to using something so that the thing ceases to exist. So consumption is strongly associated with so-called rival goods, and specifically to physical goods. You can consume an apple, but you cannot consume an idea. Indeed, this notion of consumption does not seem particularly valid when it comes to knowledge commons or digital milieus, where file reproduction costs are negligible. Thus, it is at least debatable to say that knowledge, and

characteristically produce original informational works (such as literary and graphic content, musical and sound recordings, motion pictures or software programs),[55] and do so as a non-waged activity. This does not mean that produsers are not necessarily seeking compensation, as there are different motivations behind individual produser's willingness to produce and share content. Actually, produsers might be split

specifically informational goods are consumed in all cases, as they do not cease to exist, whereas it seems quite appropriate to say that they are always *used*.

In sum, both reasons point to rejecting the notion of the prosumer: consumption is not adequate to describe the usage of informational goods, especially when this usage occurs outside capitalist relations or without monetary exchanges. Thus we are going to resort to the notion of consumption only to refer to the ingestion of ads by users. And, more importantly, we will use the concept of *produsers* instead of that of prosumers.

The concept of *produsers* was coined by Axel Bruns (2008), however, we use it here in a sense that differs from the one developed by Bruns, who (like Benkler, 2006; Shirky, 2008 and authors that used the concept of prosumers) wanted to challenge the strict division between producers and users. Specifically, he considered that in the context of Internet platforms there are no such things as production and usage, but only produsage; that is, the mix between the two.

Nonetheless, this approach has an ideological inner flaw: as it dissolves the differences between production and usage, it fails to distinguish that there are different shares of production and usage that characterize at least three different kinds of social actors: users, contribusers and produsers, as we shall discuss immediately. Some of them just use the platforms, giving away their data in exchange, others contribute with comments and sharing, while at the other end of the spectrum, some actors produce original and elaborate works of authorship for which they might arguably deserve more substantial compensation, even according to capitalist law. This failure functions ideologically first and foremost because it helps commercial platforms to neglect the value that some produsers hand over to them. Secondly, produsage in its original formulation fails to notice that in many (if not most) cases users are ad consuming audiences instead of active and creative produsers. Indeed, a mixture of production and usage does exist, but a one-size-fits-all concept misses the point; at least three categories should be distinguished. Finally, the original version of produsage pays no attention to the role wage labor plays in the platform-owner corporation or content developer-corporation plays in developing content. Produsage is important, but it is not sufficient to explain how platforms work. Therefore, produsers might be a powerful concept, if accompanied with a typology of other social actors. This is what we have tried to achieve.

[55] What is an *original informational work*? The three concepts could be grasped by common sense, though its definition might be quite complex. For the purposes of this book, *informational* refers of course to content that is materialized as digital information. In turn, *original* refers to a bare minimum of creativity and independent conception—in the sense that some copyright laws and rulings establish. Remarkably, *work* is the hardest concept to define. Most copyright laws and international treaties lack a definition of work, although this notion is the bedrock of every copyright system (Hughes, 2005). Judges define works through "framing", zooming in or zooming out, but without establishing general universal rules or tests to decide what is a work (and qualifies for a copyright) and what is not. However, as Hughes convincingly argues, size matters. There is a certain minimum extension—which varies depending on the field referred to—that is required for a fixed informational and even original expression to be considered a work (Hughes, 2005).

between commercial produsers—those expecting their informational goods to directly or indirectly generate an income at some point, that is, those who intend to produce commodities—and non-commercial produsers—those for whom making money from their content or related activities is not a goal at all, that is, those producing only use values that only platforms turn into commodities.[56] Platforms tend not to compensate produsers economically, although in some instances produsers could receive a share of the income their content generates—for instance, this could be the case for YouTube "partners" whose videos generate huge numbers of views. In turn, produsers also contribute with their attention by watching ads.

8. *Contribusers*[57]: Contribusers use and contribute to the production of informational goods and do so as a non-waged activity. However, their contributions are mainly small chunks of information: comments, remixes, short posts, sharing works produced by others and so on. Contribusers are a type of actor that falls between produsers and users. People commenting or liking Snapchat posts or reposting Instagram stories are some examples.
9. *Users of the platform*: Users are social actors that use informational goods provided by platforms and do so as a non-waged activity. Users are usually allowed to access content without monetary payments, but they are forced to pay with their attention to ads and to release their personal data. In some specific cases, users are charged for some content or services (like certifications) provided by platforms. People watching, listening and reading content fit into this category.

[56] For example, a garage band that uploads their videos onto YouTube fits into the category of commercial produsers, even if they do not receive a single penny at that moment, as their goal is to eventually receive checks, sell concert tickets and so on. On the other hand, people that upload videos of, let's say, a family party, are non-commercial produsers, as they share original content, but they do not expect any present or future economic returns from their activity.

[57] We advance here the concept of *contribusers* in order to conceptualize the many social actors that in several platforms produce *more* than just using content, ads and relinquishing their personal data, but *less* than complete works of authorship. Bruns' (2008) examples regarding Wikipedia and other platforms are extremely useful to appraise the value of contributions that are too small to fit what is usually recognized as a work in copyright law. The notion of contribution aptly describes how Wikipedians and others see their collaborations, and we added the notion of usage to describe that these actors not only contribute but also use informational goods.

Therefore, capitalist actors include four types of companies: the platform-owner corporation, advertising corporation, advertisers and content corporations. Actors that, in a broad sense, work include four kinds of wage laborers (those hired or contracted by each one of the four types of corporations) and three types of non-waged actors (produsers, contribusers, users).[58]

In turn, exchanges between these actors include (but are not necessarily limited to) the following flows:

(a) *Attention* 

Attention refers here to a specific kind of attention: that which entails opening the floodgates of human subjectivity to the informational goods (content and ads) that are displayed by platforms.

Produsers, contribusers and users provide attention to the platform-owner corporation. It is structured and related to the data generated by the actions of advertising companies, and then sold to advertisers as data profiles.

(b) *Data* 

Data flows include personal information of produsers, contribusers and users, such as name, location, identification card number; Internet Protocol (IP) address; a cookie ID, personal email address, age, sex, education and so on.[59]

Users, produsers and contribusers provide data to the platform-owner corporation. It is structured and processed by advertising companies, and then used to sell ads to advertisers.

(c) *Content*

Content amounts to informational goods such as videos, music, sound recordings, text, graphics and so on. They are produced by

[58] There is an open debate regarding whether what produsers, contribusers and users do should be called productive or unproductive labor, or even if it should be called labor at all. We will discuss this topic below. In any case, it seems clear that in order to characterize their productive activities it is necessary to move beyond the classic production-consumption dichotomy.

[59] Detailed information can be found in the European Commission General Data Protection Regulation, articles 2, 4(1) and (5) and Recitals (14), (15), (26), (27), (29) and (30). Available at: https://ec.europa.eu/info/law/law-topic/data-protection_en

different social actors: typically, produsers and in some cases contribusers. There are also instances in which the platform-owner corporation hires workers to develop original content or outsources its production. It is also common for platforms to obtain licenses in order to offer content developed by third parties, that is, content companies.

(d) *Wage labor* 

Wage labor indicates the stream of labor that is exchanged for a sum of money. It might refer to wage labor in the strict sense, or more loosely to "gigs" and other informal agreements. In the schema, wage labor flows are generated by platform-owner corporation laborers, content company laborers, advertising company laborers and advertising companies.

(e) *Money* 

Money refers to the monetary payments that different actors use as a means of exchange to obtain a specific flow (wage labor, content, attention). Obvious flows of money include compensations to workers and content companies from platform-owner corporations and payments from advertisers that it receives. Less obvious flows of money comprise money that platform-owner corporations "share" with produsers.

In Fig. 2.2 we laid out a general and abstract schema of flows and actors. Of course, this schema must be tailored for each specific platform, as not all the actors and flows are relevant for all kinds of platform, and the concrete role that each actor assumes varies widely. Indeed, this abstract schema is mainly a toolkit devised to aid our comparisons between the case studies that we will discuss in the following chapters.

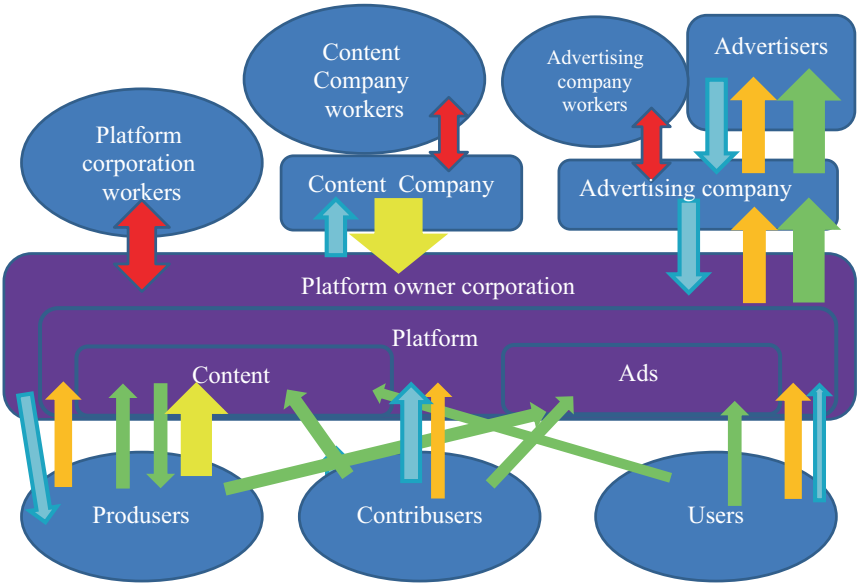

Fig. 2.2 Actors and flows on profit from openness platforms. (Source: Authors' elaboration)

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3

Profiting from Free and Open Source Software

The announcement that IBM was to acquire free software-based Red Hat for approximately USD 34 billion was made public late in October 2018 (Red Hat, 2018d). Bloomberg followed up on the news portraying Red Hat as a "Linux Distributor", and saw IBM's acquisition as a jump start for its "efforts to catch up in the cloud" (Hammond, Porter, & Barinka, 2018). Red Hat had existed for a quarter of a century before the acquisition. Back in 1999, one of the founders, Bob Young, wrote that the most common question he got about the "open source software development" model was how such a model could "be reliable and scalable enough to challenge technology giants like IBM, Sun Microsystems, and even Microsoft?" (Young & Goldman Rohm, 1999, p. xiii). IBM's acquisition thus takes on a symbolic dimension. Rather than challenging the giants, it seems as though order has been restored and that open source has been out-competed. However, the fact is that Red Hat bases its business on free software, and IBM's acquisition is better viewed as one of the latest phases in the commercial co-optation of the copyleft license's viral character (Greene, 2001). This chapter aims to describe how Red Hat, since long before IBM's acquisition, has used "openness" ideologically to profit from hybrid business solutions that enact enclosures on several levels, and

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in this process corrupt and de-politicize related commons projects. A brief introduction will be given to begin with, then the technological and commercial foundations will be explained, before Red Hat's business model, regulations and ideological uses are scrutinized.

Red Hat was set up as a company in 1993 by Marc Ewing, and as Red Hat Software, Inc. in 1995 by him and Bob Young (Moody, 2001, p. 97; Young & Goldman Rohm, 1999, p. xix). The first Linux distributions were made freely available mainly for tech-savvy users, and they came with several problems. They were not so feature-rich, and had problems with package management, installations and configurations. You had to reinstall the distributions as you could not upgrade them, and as the distributions continuously shifted in character it was hard to get applications to run correctly (Moody, 2001; Wikipedia contributors, 2018d). Several companies soon started to offer commercial solutions to these problems. Red Hat's solution to the continuously changing character of the Linux distribution was a professional distribution that was stable for a longer period of time and could be upgraded (Moody, 2001, p. 97; Wikipedia contributors, 2018d), and companies like Caldera started to work on the problem with the lack of end-user applications for graphical user interfaces. It based its proprietary desktop solution on Red Hat's distribution, and it came with a mix of free and proprietary applications running on enclosed source code (Moody, 2001, pp. 98–9). This example of hybridity showed that free software operating systems could combine with commercial applications' software, but it provided few answers to the question of how the provider of the free software platform could profit from it. Red Hat's pioneering business strategy was to focus on ordinary users' problems. Commercially, it aimed for the "new market of less technically able users" (Moody, 2001, p. 97). A lucky coincidence was that these not-so-technically skilled users were often corporate clients. Red Hat had discovered that direct support services were instrumental in making the business world trust Linux (Moody, 2001, p. 98).

By the end of the 1990s, proponents of free software, together with start-up companies and venture capital, increasingly made attempts to make free software "more affordable" (Kelty, 2008, p. 99). The Free Software Foundation (FSF) and Stallman's goal with the original free

software license GNU/GPL was only partly shared by these other code developers, and free software had won only limited commercial presence at the time (West, 2003, p. 1265).[1]

Licenses in this context are legal agreements or contracts based on copyright law, rather than contract law (Deek & McHugh, 2008, p. 232).[2] They describe the terms under which you can use a licensed work or, in this case, software.[3] FSF's GPL was based on a copyleft logic and had a viral character that was problematic for companies. It mandated that all derivative works were distributed under the same license terms as the original work. This meant that companies using GPL or copylefted code had to open up all code that interacted with it, as this constituted a derivative work. Hence, the need to make free software more "affordable", meaning profitable.

[1] GNU/GPL is an abbreviation for "GNU's Not Unix/General Public License".

[2] A copyright license can be designed by the copyright owner. It is based on copyright law. These licenses concern what is called economic rights, since moral rights—like the author's right to attribution and the protection of the integrity of the work—in much legislation cannot be licensed to any entity other than the original copyright holder. The economic rights concern, for example, the right to access, distribute and make derivative works. Another kind of license (based on contract law) can be used by a platform owner as a prerequisite for publishing an author's content on their platform. The platform owner's specifications of the rules that regulate the use of platform are often spelled out in so-called End User License Agreements (EULA). In both these cases, it is of central importance whether the copyright holder offers the content as (or, if the platform owner demands) an *exclusive* or as a *non-exclusive* right to the licensed content. A license is non-exclusive as long as it does not actively state the transfer of exclusive rights (Dodd, Lichter, & Reichman, 2019).

[3] Originally, copyright covered only literary works, but during industrial capitalism it was expanded to cover also music, films and photographs, for example. This expansion included new forms of cultural products and was therefore quite logical. A shift came at the end of the 1970s in the USA when software was effectively included in copyright law. A regulatory regime designed to protect creative works thus started to be applied to protect a means of production, which usually comes under the patents regime. The 1978 National Commission on New Technological Uses of Copyrighted Works' (CONTU) Final Report on how to protect software provided the justification for the 1980 amendments of Sections 101 and 117 of the Copyright Act of 1976 to address computer software. Later on, the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) adopted this view (Article 10, paragraph 1 of TRIPS, which is the first appearance of copyrighted software in a multilateral treaty (UNCTAD, 2005)). The grouping of both cultural works and software under copyright is one of the bedrocks of cognitive capitalism. What these goods have in common is their vulnerability to unauthorized reproduction. Copyright gives the software owners, always threatened by illegal copies, the strongest protection by offering longer term coverage than patents and automatic protection that does not require you to reveal the technical functioning of the program. This was probably one of the reasons why patenting of software was rejected repeatedly in the USA in the 1970s, although there also exists a well-established doctrine that mathematical algorithms cannot be patented. Regardless of this, software has increasingly been patented since 1981 (Supreme Court ruling on *Diamond v. Diehr*).

The neoliberal hacker Eric Raymond developed the theoretical foundation for a more business-friendly free software in his manifesto *The Cathedral and the Bazaar* (1997).[4] In order to do this he used the interrelated connotations of free and open, and coined the term open source software. He thereby bridged the gap between free software and investors under the name of openness (Raymond, 1998).The popularization of free software thus came at the same time as it ideologically mutated into open source software. In the manifesto, Raymond rejected Stallman and FSF's freedom philosophy, and one year later, the Open Source Initiative (OSI) was created. OSI in turn developed an *open source definition* (Kelty, 2008, pp. 108–9) that soon took legal form in licenses based on copyright law (Deek & McHugh, 2008, p. 232). These licenses had a more permissive character in relation to commercial enclosures in derivative woks compared to the original free software license GPL. The open definition's version of openness encompassed and allowed for both copyleft uses and commercially enclosed uses of the licensed code. Kelty stresses that the initiative and manifesto was driven by a "powerful (ideological) resistance to being ideological" (Kelty, 2008, pp. 108–9), which of course translates into an ideological support for capitalist enterprise and, ultimately, enclosures. This is one of the theoretical foundations of the contemporary openness ideology.

The company Netscape became highly influenced by Raymond's manifesto. In 1998 it started to experiment by openly giving away the source code to its web browser *Communicator* in a move to generate business around both the web browser and its source code. The latter was now understood as a product that was offered for free, but also largely produced for free (Deek & McHugh, 2008, p. 41; Kelty, 2008, pp. 100, 102).[5] Netscape understood that not only did the code have to be licensed

[4] Raymond calls himself a libertarian. This is a kind of right-wing individual anarchism that leaves capitalism out of the critique, in contrast to the original anarchist standpoint of Kropotkin and Bakunin (Lund, 2001), and which advocates the so-called free market.

[5] Netscape's Communicator was earlier called Navigator, but the browser actually went back all the way to one of the first web browsers, Mosaic. The company first released its core product, Netscape Navigator, for free (as in gratis) in 1995. You could download and install a compiled and binary version without paying anything (Kelty, 2008, p. 100). Releasing the source code openly in 1998 was a radically new step, at first counter-intuitive to doing business under competitive capitalism, in which digital technology had made copying costs near zero.

in an attractive way for the voluntarily producing programmers, but that there was also a need for a separate and complementary community. For this, they created the Mozilla community, but in the end Netscape failed commercially (Moody, 2001, pp. 196–202), mostly because Microsoft's Internet Explorer made it redundant (Birkinbine, 2014; Deek & McHugh, 2008, p. 41).

Red Hat succeeded where Netscape failed, despite being dependent on the original copyleft logic of the GPL. Red Hat's source code was mandatorily open under the GPL, but the business model was protected by governance strategies related to the Fedora community of hackers and by trademark law. It profited from providing customers with free software *support* and related *services* (Kelty, 2008, p. 110) and various corporate players publicly endorsed its distribution.[6] By 1999, Red Hat was already validated on the market and valued to the tune of billions of US dollars (Moody, 2001, pp. 98, 219). The traded product in relation to business customers was above all the *reliability* and *stability* of a support-giving company and legal subject (Birkinbine, 2017).

3.1 Techno-legal Foundations for Hybrid Business Models Built on Linux Distributions

Software has a special relation to digital platforms, as it structures them and is part of their infrastructural backbone. Digital platforms' architecture consists of an integration of hardware and software standards, and they function as a basis to develop applications on. Early in the development of digital technologies, platforms were proprietary and the manufacturers controlled all layers from hardware to software. This led to the creation of many isolated systems (West, 2003, p. 1259). A proprietary system is usually licensed to restrict the use and redistribution of the

[6] It played an important part in Red Hat's history that its Linux distribution was endorsed and favored in March 1998 by the company *SAP* which ran the enterprise software platform R/3. And, at the end of that year *Intel*, together with Netscape and two venture capital companies (Greylock and Benchmark Partners), announced their investment in the distribution (Moody, 2001, pp. 218–19).

software. The owner of a proprietary system often reserves all rights, except the right for a customer to run the software on her computer. "It is generally distributed as closed source in the form of a binary executable" (Deek & McHugh, 2008, p. 236). Such systems were later challenged by operating systems, such as Unix and Microsoft's Windows, that were hardware-independent. This made the differences between hardware vendors less pronounced, as it put control of the platforms increasingly in the hands of the operating system vendors. The commodification of the Unix operating system inspired Stallman's GNU project as a counter-project, that along with the development of the Linux kernel gave the world the first free software Linux distribution (West, 2003, p. 1259). Linux distributions build platforms on free software kernels in various combinations with other FOSS programs, and also, as we will see, some proprietary software.

Fully proprietary software does not *grant any rights* or *disclose any of its technology*. Windows CE came close to such a position in 2003, only opening up a few parts by granting rights to use them and disclosing the technology in a limited way. Apple's macOS, on the other hand, granted the rights to use all parts, but were restrictive with disclosing their technology (the kernel and some other programs are open source software, but many programs are proprietary, and based on enclosed code). Copyleft-leaning Linux distributions take another position and completely disclose the technology (code), but do not grant all rights to use their software (you must distribute your derivative works under the same license). Open source-leaning projects like StarOffice (later OpenOffice and LibreOffice) and Apache, that do not require derivative uses of its software to be distributed under the same license (and subsequently allow enclosures of the code in derivative works), instead grant more rights to the user than Linux distributions (West, 2003, p. 1280; Wikipedia contributors, 2019d).

A Linux distribution can be understood as an operating system that is made from "a software collection, which is based upon the Linux kernel and, often, a package management system" (Wikipedia contributors, 2019g). Linux is actually just the kernel of the operating system. Previously existing free software like the command line interpreter, the shell and the GNU C compiler were developed in the 1980s by FSF, and

they were used by Linus Torvalds to develop a full Linux system at the beginning of the 1990s. This is why the FSF labels the distributions as GNU/Linux. Subsequently, Torvalds' first distributions of the kernel developed quickly. By 1995, 15,000 people had contributed code to Linux, and ten years later, 700 Linux user groups existed (Deek & McHugh, 2008, pp. 92, 94).

These Linux distributions are in theory "GPLv.2-only", meaning that their source codes are copylefted, but in reality there are some exceptions to this logic.[7] The *first* exception applies to "syscalls", meaning that programs using the kernel's normal system calls can be combined with the copylefted code in the Linux kernel without being licensed under the GPLv2 (Kuhn, 2017). Torvalds explains the copylefted kernel's relation to this exception: "This copyright does *not* cover user programs that use kernel services by normal system calls—this is merely considered normal use of the kernel, and does *not* fall under the heading of 'derived work'" (Torvalds, n.d.). This means that proprietary software is allowed to use the Linux kernel's interface. The *second* exception is that many Linux distributions (albeit technically not the Linux kernel) contain some libraries like the GNU C Library that are licensed under LGPL, which allow proprietary programs to link to them (Deek & McHugh, 2008, pp. 258–9; Wikipedia contributors, 2019e).[8] *Third*, although device drivers are generated from the kernel and are under copyleft, there are still Linux device drivers that are proprietary. The company *Nvidia*, for example, technically never distributes its proprietary Linux device driver; instead, the binary code has a thin layer of source code on it that is compiled on the user's computer to generate the device driver. This device driver is under copyleft, but as it is generated by the user and not distributed by Nvidia

[7] The differences between FSF's GPL and the more permissive licenses of OSI thus have to be moderated, while still recognizing the political focus of FSF on building commons over time.

[8] LGPL stands for Lesser General Public License, and was formerly known as Library GPL. It is used for tactical reasons by the FSF. Deek and McHugh explain: "if there are already other equivalent libraries that a proprietary developer could use, then in that case Stallman recommends that the new free library under consideration be released under LGPL" (Deek & McHugh, 2008, p. 259).

there is no breach of the GPL license.[9] *Fourth*, there is some proprietary software for device firmware within *binary blobs* in the Linux kernel.[10] These software programs do not use the Linux kernel, but can be loaded to the device using the kernel (e.g. a Wi-Fi card). Proprietary software is thus under certain conditions accepted within the Linux kernel. Finally, the *fifth* exception can be called the Application Service Provider (ASP) or *network loophole* in the GPL. Software accessed through a network (e.g. through a web browser) is not understood as being distributed. The different sets of software do not combine and one code set could be proprietary and another GPL, without any problem. This is highly relevant in relation to cloud services. A piece of copylefted software used in a cloud service is not distributed, and therefore the viral character of the GPL is not activated. This is, in turn, used for commercial purposes: "Cloud models sidestep some of the attempts by the open-source movement to keep software free and available—in cloud models, the code is locked up in servers and not available for further improvement and development"(Determann & Nimmer, 2015). The *Affero General Public License* has been developed to address this issue, on the legal foundation that "[l]icensors can tie release obligations or other restrictions not only to distribution, but also to offering modified or unmodified software on a service basis, given that cloud offerings always implicate reproduction rights". Affero GPL was published in 2007 by FSF as a separate license rather than being included in the main version of the GPL (Free Software Foundation, 2007; Wikipedia contributors, 2019a).[11]

[9] It is contested by some whether a generated driver is a derivative work of the kernel or if it just interacts with the kernel via systems call (The Linux Documentation Project, 2019).

[10] "In the context of free and open source software, a *binary blob* is a closed-source binary-only piece of software. The term usually refers to a closed-source kernel module loaded into the kernel of an open source operating system, and is sometimes also applied to code running outside the kernel, such as system firmware images, microcode updates, or userland programs" (Wikipedia contributors, 2018a). Note that Wikipedia uses the word open source rather than the free software label that is stressed in this text.

[11] FSF explains the separate license like this: "The GNU General Public License permits making a modified version and letting the public access it on a server without ever releasing its source code to the public. The GNU Affero General Public License is designed specifically to ensure that, in such cases, the modified source code becomes available to the community. It requires the operator of a network server to provide the source code of the modified version running there to the users of

Table 3.1 A selective sample of Linux distributions

Distribution	Institution	Package management system	Monetization (by for-profit company)	Partnership/ alliances (examples)	Policy on FS	Enclosed parts
Red Hat Enterprise Linux (RHEL)	Red Hat, company	RPM (developed by Red Hat)	For-profit: Subscription on RHEL and its updates; support; training/ consulting.	Fedora, CentOS, IBM, etc.	Policy[a]	Blobs and distributing enclosed software in supplementary channels allowed
Fedora Core	Fedora community (Fedora council not a legal body, Red Hat has liability for its actions)	RPM	Non-profit	Red Hat is sponsor	Policy	Certain enclosed firmware allowed
SUSE Enterprise Linux products (SLES)	SUSE/EQT Partners, companies	RPM	For-profit	Historically: Sun Microsystems; Micro-Star International; Hewlett Packard	No policy	Blobs allowed; enclosed software downloadable at FTP-site
open SUSE	Open SUSE: Foundation, community	RPM	Non-profit, but selling software and merchandise	SUSE/EQT Partners	–	Offers repository of enclosed software

(*continued*)

Table 3.1 (continued)

Distribution	Institution	Package management system	Monetization (by for-profit company)	Partnership/ alliances (examples)	Policy on FS	Enclosed parts
Arch Linux	Software in the Public Interest, Inc., community	Pacman	Non-profit, donations	–	Policy	Blobs allowed
CentOS	Community with governing board; Red Hat, company	RPM	Non-profit	Builds on RHEL; Red Hat owns brand; Red Hat sponsors community	No policy	Blobs allowed
Debian	Project Lead, Software in the Public Interest, Inc., community	dpkg/APT	Non-profit, donations	Several sponsors for hardware and infrastructure	Policy	Optional repository of enclosed software, includes blobs; some free software load enclosed software
Ubuntu	Canonical, company; community develops alternative versions like Kubuntu.	dpkg/APT (derived from Debian)	For-profit, distributed for free, redistribution possible if no modification, monetization on support	Dell and other hardware companies (that preinstall Ubuntu in their hardware)	–	Blobs allowed; repositories of enclosed software; recommend use of enclosed software; allows option to download only free software

(*continued*)

Table 3.1 (continued)

Distribution	Institution	Package management system	Monetization (by for-profit company)	Partnership/ alliances (examples)	Policy on FS	Enclosed parts
Gentoo	The Gentoo Foundation Inc., community	Portage management system	Non-profit, donations	Several commercial and non-commercial sponsors	–	Installation recipes for enclosed software
Chromium OS/Chrome OS	Google	Portage management system	Chromium OS is non-profit, development version of commercial for-profit Chrome OS	–	–	Chromium, no enclosed parts; Chrome OS, proprietary
Android	Google	APK (Android Application Package)	For-profit	–	–	Enclosed parts; free parts covered by pushover license allowing manufacturers to enclose them
gNewSense	Community	Derived from Debian	Non-profit	Sponsored by FSF	–	No enclosed parts
Hyperbola GNU/ Linux-libre	Community	Derived from Arch GNU/ Linux	Non-profit, donations	–	Policy	No enclosed parts

Source: Authors' elaboration based on data from (Arch Linux, 2019; Birkinbine, 2014; Canonical, 2018, 2019, n.d.; Debian, 2019; Debian Contributors, 2018; Free Software Foundation, 2018, 2019; Gentoo Foundation Inc., 2018; Gentoo Linux, 2019; gNewSense, 2019; Hyperbola, 2019a, 2019b; openSUSE, 2019; Red Hat, 2019a, 2019c; Vaughan-Nichols, 2018; Wikipedia contributors, 2018c, 2018e, 2018f, 2019b, 2019c, 2019h, 2019l)

[a]Same as Fedora's, with one exception

Different Linux distributions are thus copylefted to different degrees when it comes to the combination of software modules and programs. The openly available free software code has created a long tail of similar but different distributions. English Wikipedia lists only "notable" distributions (Wikipedia contributors, 2019h). In Table 3.1, we give an illustrative overview of various Linux distribution systems. Displayed aspects include institutional setting, package management system, monetization, partnership and alliances, policy on free software and inclusion of enclosed software parts.

The popularity of each distribution is harder to describe. It is not possible to get data on which Linux distribution is the most popular, as web-statistics tools cannot differentiate between Fedora, openSUSE or Ubuntu (Vaughan-Nichols, 2018). The journalist Vaughan-Nichols makes an informed guess:

> By my reckoning, for end users, it's Android, followed by Chrome OS, with the Debian/Ubuntu/Mint family coming on top of the Linux desktop distributions. That said, Arch and Manjaro are making a desktop move. In the server/cloud world, Ubuntu, followed by CentOS, RHEL, and SLES, in roughly that order, are the most important distributions. (Vaughan-Nichols, 2018)

Which Linux distribution is preferred thus depends on whether a mobile, desktop or server/cloud solution is needed. However, projects like Ubuntu have a strong presence in both the desktop and the cloud segment.[12]

The table only shows a sample of Linux distributions. Of the listed distributions, FSF only approves of gNewSense and Hyperbola. The foundation disapproves of all major Linux distributions because they include non-FOSS software, do not have a policy related to free software or have a policy that is insufficiently strict. This includes Debian that by default only installs FOSS software in their distributions, because they

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that server. Therefore, public use of a modified version, on a publicly accessible server, gives the public access to the source code of the modified version" (Free Software Foundation, 2007).

[12] In 2016, to give some perspective on Linux distributions' share of the desktop segment, Windows had 52.1%, Mac OS X had 26.2% and Linux distributions had 21.7% (Miller, 2016).

also offer non-FOSS software that has to be activated manually (Free Software Foundation, 2018, 2019).[13] The lesser known distributions which follow FSF's criteria on freedom reject "nonfree applications, nonfree programming platforms, nonfree drivers, nonfree firmware 'blobs', nonfree games, and any other nonfree software, as well as nonfree manuals or documentation" (Free Software Foundation, 2018). FSF's position is put forward as a moral and political position that is *not* really substantiated by the copyleft license promoted by the foundation.

In order to contextualize how Red Hat builds its business around its distribution RHEL, we now present the general business model related to FOSS.

3.2 Businesses Built on Free and Open Source Code in General, and Red Hat in Particular

The reasons for doing business with FOSS are several. Sometimes it is related to market presence and market shares. FOSS has played an essential role for companies such as IBM, Apple and Oracle that use it as a supporting infrastructure for proprietary products or as a competitive means in itself to gain market shares for related commercial services (Deek & McHugh, 2008, pp. 7–9). Proprietary platforms have otherwise historically been preferred as their enclosures provide protection against imitation and better profit margins. This option is often favored by market leaders, whereas it is harder for those actors struggling with a lower market share to perform the necessary in-house and proprietary R&D-activities (West, 2003, pp. 1278–9). Experiments with hybrid solutions, where some part of the code or technology are openly available and produced by voluntary contributions, make it, on the one hand, harder to gain a competitive advantage, but on the other hand, they reduce the

[13] Ubuntu is criticized by FSF for offering the possibility to install the distribution with only free packages, which implies the option to install non-free packages of software. The company also calls all gratis downloadable proprietary software "free", thus contributing to blurring the lines between the two (Free Software Foundation, 2018, 2019).

costs for developing the code base (West, 2003, p. 1279). The hybrid mix between openness and enclosures can be regulated and enacted in many ways that are connected to different business models (West, 2003, p. 1280).

Companies like Canonical, SUSE and Red Hat develop, maintain and directly monetize Linux distributions, but those monetizing strategies take different forms. Red Hat uses subscriptions, but Ubuntu does not, and elementary OS, based on Ubuntu with added applications, is offered on a "pay what you want" model (Canonical, 2019; elementary, 2019a, 2019b). And, of course, Google's Android is there, on billions of mobile phones sold by many different companies.

Other businesses built on and around FOSS can be exemplified by cloud services like Amazon AWS, Google Compute Engine (GCE) and Microsoft Azure, which attract profits from selling computer capacity on their servers. Their servers could run on copylefted Linux distributions. If you want to use an Ubuntu distribution, you can buy it from Amazon or any of a broad range of actors (Amazon Web Services, 2019; Google Cloud, n.d.; Microsoft, n.d.): "Except for Microsoft Azure, the cloud is built on Linux and open-source software. Oh, and Azure? Linux virtual machines (VM) now make up half Azure's workloads. Many of those … are Red Hat Enterprise Linux (RHEL) VMs" (Vaughan-Nichols, 2019b).

Red Hat and also other companies like Cybercom offer consulting and support for using these cloud services. Their business model is to advise on digital business models, help develop prototypes for business models, develop digital solutions and to test and continuously manage the resulting solutions (in this case predominantly Amazon AWS and Microsoft Azure) (Cybercom, n.d.). Companies that build businesses on other companies' cloud services (that in turn often work on top of Linux distributions), are in turn complemented by many individual freelancers that make a living from giving support to companies using Linux distributions.

Five general business strategies have been identified in relation to FOSS: *dual licensing* (e.g. MySQL), *consulting* (e.g. Happiest Minds, former OSSCube; Black Duck consulting, former Olliance Consulting; LQ Consulting), *distribution and services* (e.g. Canonical), *hybrid open/proprietary—vertical development* (e.g. Google, Sun Microsystems, former StarOffice and OpenOffice), and *hybrid open/proprietary—horizontal*

arrangements (e.g. IBM; Microsoft) (Birkinbine, 2014; Deek & McHugh, 2008, pp. 272–9). In *dual licensing* (strategy 1) the copyright holder provides potential users with free distributions, whereas for-profit users can pay a fee for a proprietary version of the same code set that allows for extended proprietary uses which the GPL does not allow. This is possible when a company or other entity holds the totality of the copyright (on all of the software's many modules). The owner is then not restricted by his/her own non-exclusive license provisions (Deek & McHugh, 2008, p. 273; DPS David, 2012; Goldstein, 2018; Wikipedia contributors, 2019h).[14] Another way to use this overall strategy is to release different versions of a software program (different code sets) with different functionality: one free and more rudimentary version (MySQL's community edition) and one more advanced but non-free version (MySQL's enterprise edition) (Birkinbine, 2014, p. 149; Deek & McHugh, 2008, p. 273).

As can be understood from this, the actor or copyright holder releasing the code can change the license for the same datasets as long as it holds the copyright to all of the code. In a commons-based peer produced project, where many producers are involved, the copyright cannot easily be manipulated in this way as it would require a consensus of all participating producers to dual-license the work (sscarduzio & Amon, 2017). This fact is the rationale for companies using the GPL to not involve other contributors, or either demand from the start copyright assignments from the coders in so-called *Contributor License Agreements* (CLAs) or establish agreements that require contributions to be open source, allowing enclosures but being compatible with the GPL. These agreements explain for potentially contributing programmers that they can only contribute code to the project if at the same time they give the owner of the

[14] The general motive for dual licensing, or multi-licensing, is to be able to profit from free software, or to "support free software business models in a commercial environment", in a similar way as in the case of shareware (Wikipedia contributors, 2019i). The blogger DPS David provides this illustrative picture of dual licensing involving the GPL license: "Licensing is sometimes done in this way to reduce restrictions and create greater freedom for the software being licensed. For example, in the case of a GPL/MIT dual licensed piece of software (and source code), if this was just licensed under the GPL then anybody creating derivative works of, or incorporating the source code/functionality of the GPL software into their own commercial software would be obliged to release the source code of the commercial software (and the software itself) under the GPL license, allowing free distribution and access to the source code. Now obviously, this isn't good if you want to include the said software in a commercial proprietary project!" (DPS David, 2012).

collective work total rights to the new contributions, including the right to make proprietary and enclosed versions of it (Wikipedia contributors, 2018b).

Consulting services (strategy 2), focuses on strategic planning in implementing open source solutions within business models, and the strategy of *distribution and services* (strategy 3) focuses on non-expert users of a particular software utility (Birkinbine, 2014, pp. 55–6) like a Linux distribution.

The last two strategies are hybrid in character. The *vertical integration* strategy (strategy 4) allows for a mix of FOSS-code and proprietary code that, assisted by the exceptions and the network loophole in GPL, results in the incorporation of free software elements into proprietary software (Birkinbine, 2014, p. 153). Vertical integration uses open source software, and to some extent free software, to build proprietary software on top of it (Birkinbine, 2014, p.56). This strategy opens up the proprietary control over some of the platforms' layers while it retains full control over other layers that "provide greater opportunities for differentiation" (West, 2003, p. 1279). Google does not sell its software, but sells services provided by its software to other customers. The search engine is proprietary, but Google "uses the Linux core to support its proprietary search services" (Birkinbine, 2014, p. 56). Finally, in the *horizontal arrangement* of the hybrid model (strategy 5), for-profit corporations involve themselves directly in FOSS-projects, often in order to lessen the burden of developing their own commercial products. They function, they claim, in a supportive and complementary way, but the motive is also to support FOSS projects competing with their own competitors. IBM historically has supported Linux because Linux is a competitor to Microsoft (Birkinbine, 2014, p. 57). This hybrid strategy is closely related to Red Hat's relation to the Fedora project community.

3.3 Case Description: Red Hat's Business Model

It is often said that FOSS is aimed at information technology specialists, whereas less experienced users often use proprietary software (Deek & McHugh, 2008, p. 8). Red Hat has managed to position itself

in-between these categories. It sells subscriptions to free software with related services to companies that do not always have the tech-knowledge in-house. Red Hat uses the whole range of business strategies in relation to free software, except for dual licensing. *First*, it offers consulting on how to build a better infrastructure, better applications, optimize delivery and operations and ease competitive migrations (Red Hat, 2019b, 2019c); *second*, it distributes and gives support to its Linux distribution; *third*, Red Hat depends on the possibility of its business customers combining the Linux distribution with other proprietary software in a vertical sense (and it develops its own vertical solutions in cooperation with IBM) (strategy 4); and *fourth*, the company is directly involved in the Fedora community and the CentOS community for development reasons (strategy 5).

Red Hat, therefore, gets revenues from consulting, distribution and providing support services related to free software. Its customers are predominantly other businesses, but can also be individuals. When these customers pay fees for different subscriptions, they can chose which level of support service they need and pay for it accordingly. The business model is here based on the company's reputation as a "trustworthy provider of FOSS products" and its status as a legal institution that can be held liable (Birkinbine, 2017), but the backbone of this business model is the community of unpaid voluntary code developers. "Red Hat employees make up only 35% of project contributors, and most of the over 2000 contributors are unaffiliated members of the community" (Miller, 2016; Wikipedia contributors, 2018c). Red Hat thus provides corporate legitimacy to non-market peer production (Birkinbine, 2017), which of course also affects that peer production (see section on regulation).

3.4 Red Hat's Products and Prices

Red Hat Linux was published between 1995 and 2004, but was substituted by *Red Hat Linux Enterprise* (RHEL) from 2003, when the last stable version of Red Hat Linux was published (Birkinbine, 2017; Wikipedia contributors, 2019j, 2019k). Versions of RHEL are published

in different editions named ES, AS and WS, which stand for entry level server, advanced server and work station, as well as desktop editions. Different editions have different functionalities (Wikipedia contributors, 2019j). RHEL is defined by the company's support period for a subscribed version of it. This is called the product's life cycle. The product life cycle comprises several phases of varying length and with different degrees of support (Wikipedia contributors, 2019j).[15] Red Hat also offers consulting services of various sorts in parallel with distribution and support related to RHEL (Red Hat, 2019c). In Table 3.2 we present Red Hat's products and services.

Red Hat is quite profitable under this business model and with these products. It is notable that the most expensive subscription involves access to progressive solutions from the partly unpaid and voluntary Fedora community. In Table 3.3 we take a look at the annual reports of the public company and compare the financial outcomes (for 2017 and 2018) with the private company behind Ubuntu, Canonical

Red Hat makes more profit than Ubuntu, even though Ubuntu, in January 2019, was used significantly more often in relation to Amazon Web Services (AWS), than Red Hat. Ubuntu was used in 312,492 instances, whereas Red Hat was used in 22,072 instances (Vaughan-Nichols, 2019a). A potential explanation for this is that Red Hat has been more successful in attracting large enterprise customers. For example, it provides the backbone for the National Security Agency's mass surveillance software XKEYSCORE (Lee, Greenwald, & Marquis-Boire, 2015). Vaughan-Nichols also stresses that Ubuntu is cheaper and that many corporate users "run their servers without contractual support" (Vaughan-Nichols, 2019a).

[15] Version 3 and 4 of RHEL were active and supported by Red Hat for up to 7 years, whereas later versions have been supported for 10 years. In relation to later versions, Red Hat gives "Full support" for the first 5 and a half years, "Maintenance support 1" for one year, and "Maintenance support 2" for 3 and a half years. An extra ongoing "Extended Life Phase" can be added from year 11, which includes limited technical support and access to previously released content and self-help through Red Hat's customer portal. Some extra add-on support services can also be purchased "to extend limited subscription services beyond the Maintenance Support 2 Phase" (Red Hat, 2019f). During the phase of full support updates of software and hardware, drivers are provided. These updates are gradually reduced in later phases, which focus predominantly on "security and other important fixes" (Wikipedia contributors, 2019j).

Table 3.2 Red Hat products and prices

Products	Description	Starting price (USD)	Different subscriptions (prices in USD)	Add-ons (each charge extra costs)
Red Hat Enterprise Linux Server	Operating system deployed on physical systems, in the cloud, or as guest on some hypervisors[a]	Subscription starting at 349	*Self-support, 1 year* (349) *Standard, 1 year* (799) *Premium, 1 year* (1299)	• Smart management • High availability • Resilient storage • Extended update support
Red Hat Enterprise for virtual datacenters	Deployment of unlimited guests in virtualized environments (on supported hypervisors: Red Hat Virtualization, VMware, and Microsoft HyperV)	Subscription starting at 2449	*Standard, 1 year* (2449) *Premium, 1 year* (3999)	• Smart management • High availability • Resilient storage • Extended update support
Red Hat Enterprise Linux desktop or workstation	Desktop environment built on RHEL. Email, calendaring, contact management and office applications are built in. Includes virtualization capabilities	Subscription starting at 49	*Desktop, self-support only* (49) *Workstation, self-support 1 year* (179) *Workstation, standard 1 year* (299)	–
Red Hat Enterprise Linux Developer Suite	Self-supported Linux distribution for development purposes	Subscription starting at 99	*Self-support, 1 year* (99)	All add-ons included
Red Hat Enterprise Linux developer workstation	RHEL Developer Suite with unlimited incident reports and 2-business-day or 4-business-hour response. For development purposes.	Subscription starting at 299	*Professional, 1 year* (299) *Enterprise*, 1 year (499)	All add-ons included

(*continued*)

Table 3.2 (continued)

Products	Description	Starting price (USD)	Different subscriptions (prices in USD)	Add-ons (each charge extra costs)
Red Hat Enterprise Linux Developer Support	25 RHEL Developer Suite subscriptions. 2-business-day or 4-business-hour response. For development purposes.	Subscription starting at 5000	*Professional 1 year* (5000) *Enterprise, 1 year* (10,000)	–
Red Hat Enterprise Linux for IBM Power Little Endian	Running RHEL on IBM Power Systems. Combines "open source features with the IBM architecture" (Red Hat, 2019d).	Subscription starting at 269	*Standard, 1 year* (269) *Premium, 1 year* (435)	–
Red Hat Enterprise Linux Server for IBM System Z	Combines IBM z Systems (virtualization platform) and RHEL. Gives "access to progressive open source solutions from the upstream Fedora community" (Red Hat, 2019e).	Subscription starting at 15,000	*Standard, 1 year* (15,000) *Premium, 1 year* (18,000)	–

Source: All information from Red Hat's website. All prices in USD (Red Hat, 2019a)

[a]English Wikipedia provides this explanation of what a hypervisor is: "A hypervisor or virtual machine monitor (VMM) is computer software, firmware or hardware that creates and runs virtual machines. A computer on which a hypervisor runs one or more virtual machines is called a *host machine*, and each virtual machine is called a *guest machine*. The hypervisor presents the guest operating system with a virtual operating platform and manages the execution of the guest operating systems. Multiple instances of a variety of operating systems may share the virtualized hardware resources: for example, Linux, Windows, and macOS instances can all run on a single physical x86 machine." (Wikipedia contributors, 2019f)

Table 3.3 Red Hat's revenues, profits and profit margins

Fiscal year	Red Hat Revenue (millions USD)	Red Hat Net Profit (millions USD)	Red Hat Net Profit margin (%)	Canonical Revenue (millions USD)	Canonical Net Profit/ loss (millions USD)	Canonical Profit margin (%)
2009	653	79	12.1	–	–	–
2012	1133	147	12.9	–	–	–
2015	1789	180	10.1	–	–	–
2016	2052	199	9.7	–	–	–
2017	2412	254	10.5	126	−8.8	–
2018	2920	259	8.8	110	6.2	5.6

Comparison with Canonical for the years 2017 and 2018

Source: Authors' elaboration based on data from (Red Hat, 2009, 2012, 2015, 2016b, 2017b, 2018c; Vaughan-Nichols, 2019a). Vaughan-Nichols' article contains contradictory facts regarding Canonical's finances. The company's net profit for 2018 is said twice to be USD 6.2 million, but after that USD 11.1 million is also mentioned as the profit after taxes, which would give a higher profit margin of 10.1%

Red Hat's revenues, as for many other Linux distributors, can be broken up into two segments: income from subscriptions, and from training, services and consulting. Subscriptions generate the bulk of its income (Table 3.4).

3.5 Schema of Flows and Actors

Red Hat's relation to the Fedora community, which produces the Linux distribution the company prospers from, is complex. In one way the company centralizes the production of the Linux distribution through wage payments and worker agreements (Birkinbine, 2017), but on the other hand the company is said to value its relationship with the programmer community for the development of the product that they sell. The material support of the Free Software Foundation, The Linux Documentation Project, and the Xfree86 Project, with hardware and money, was stressed from the beginning (Moody, 2001, pp. 97–8). Red Hat is one of the largest contributors to different FOSS projects. The company today pays employees to contribute code to these projects, but

Table 3.4 Red Hat Market segments

Fiscal Year	Segment 1: Subscription Rev (thousands USD)	Segment 2: Training and services/ Consulting Rev (thousands USD)
2009	541,210	111,362
2012	965,575	167,528
2015	1,561,234	228,255
2016	1,803,449	248,781
2017	2,135,780	276,023
2018	2,574,178	346,283

Revenues, profits, profit margins
Source: Authors' elaboration based on data from (Red Hat, 2009, 2012, 2015, 2016a, 2016b, 2017a, 2017b, 2018a, 2018c)

it also acquires new business and releases their code to the community (Birkinbine, 2017).

The Fedora project community consisted in 2016, according to a project report, of more than 2000 contributors (contribusers, produsers and Red Hat employees) who had shown activity in three key areas. Of these contributors, 800 were active in two of three of these project areas, and 300 in all three. A total of 300 users were in the top 10% layer of contributors in one area, 60 users were in the top 10% layer of two areas and finally 9 "super-users" were in the top 10% layer of all three areas. Red Hat employees (with a Red Hat email-address) made up 26% of the community's members, with an extra 9% of "Red Hatters sneakily using other domains", leaving 65% of the contributors as non-Red Hat contributors (Miller, 2016).

Apart from the relation with the Fedora project, Red Hat's business model involves bringing "the power of FLOSS production to other businesses". Red Hat functions as an intermediary between the hacker community and the business world (Birkinbine, 2017). This intermediate position involves, as has been pointed out, providing support for their products, offering consulting and other training services, but also offers of direct partnership-solutions with companies.

This leaves us with the following actors:

1. Voluntary and unpaid programmers (contribusers and produsers).
2. Wage labor programmers/consultants/service staff.

3. Business consumers.
4. Business partners.
5. Private consumers.

3.6 Regulations

Red Hat regulates its business by a combination of GPL, a workers' agreement (developed from an earlier contributor license agreement), trademark law, an Enterprise agreement that includes an end-user license agreement (EULA) and specific relationship-building vis-à-vis the voluntary community of peer producers in the Fedora project (Birkinbine, 2017; Red Hat, 2019h).

Central part of Red Hat's code was copylefted to start with, and could thus not be turned into open source or proprietary parts. This source code of RHEL can be obtained, reused and even sold by any of the company's customers and competitors. Regardless of this, the company makes profit from this openness in its business. This depends not only on exceptions and the network loophole, but also on a workers' agreement in relation to the Fedora community, trademark law and other arrangements regulating the company's relation to the community of programmers.[16]

The company *first* centralizes peer production with a workers' agreement that assumes the separation of the authorship (of code) from ownership (Birkinbine, 2017) of the *collective work* (Fedora Contributor, 2011, 2015; Red Hat, 2006).[17] In Red Hat's trademark guidelines it is explained that RHEL is built on hundreds of different software modules.

[16] Red Hat's workers' agreement is called *Fedora Project Contributor Agreement* (former Fedora Individual Contributor License Agreement), and it is not a copyright assignment agreement, but an agreement that "ensures that contributions to Fedora have acceptable licensing terms" (Fedora Contributor, 2015). This means that they are compatible with GPL, as open source licenses are. The default license if a contributor does not make a choice is the MIT license (Fedora Contributor, 2015).

[17] The older agreement was a clear form of CLA and made the contributor provide a license to the company: "You hereby grant to Red Hat, Inc., on behalf of the Project, and to recipients of software distributed by the Project: (a) a perpetual, non-exclusive, worldwide, fully paid-up, royalty free, irrevocable copyright license to reproduce, prepare derivative works of, publicly display, publicly perform, sublicense, and distribute your Contribution and such derivative works" (Fedora Contributor, 2011).

The code in each of them is owned by its creator, but—and here the perspective drastically changes—the company claims the copyright for the whole Linux distribution. The argument being that it "is a collective work which has been organized by Red Hat, and Red Hat holds the copyright in that collective work" (Red Hat, 2006). The worker agreement is powered by and built on this claim of copyright on the assembled collective work, and the company stresses that it "usually uses" the GPL for their releases of the collective work, concluding that it is the only actor able to enforce the GPL in relation to the RHEL (Red Hat, 2006).This arrangement does not enable strategies based on dual licensing, as the work contains many modules that are independently covered by the GPL all the way back to the Linux kernel, and therefore are controlled by thousands of peer producers in common.

The company's copyright on the collective work facilitates the use of trademark law. Red Hat uses trademarks to prevent "exact redistributions of its property" (Birkinbine, 2017). The protection of its commodity thus does not come from copyright. Exact copies of Red Hat's General Public Licensed source code would need to use radically different names. It would not be sufficient to change it to Green Hat or Red Cap or something similar (Birkinbine, 2017). Here we have the example of CentOS that uses RHEL's source code but not its brand (Red Hat, 2018b). On the other hand, Red Hat has sponsored CentOS for the last five years, hired developers and today even owns the CentOS brand (Red Hat, 2018b).

On Red Hat's website for trademark guidelines, it is clearly stated that it will not "permit or consent to any use of its trademarks in any manner that is likely to cause confusion by implying association with or sponsorship by Red Hat" (Red Hat, 2019g). Taking a relaxed position toward copyright does thus not translate into an open attitude toward trademarks. The contradiction does not seem to concern the company. In the actual trademark guideline, it stresses its full support to the "open source software community" and to "open source rights with regard to copyrights" (Red Hat, 2006).

How trademark law regulates the uses of the copylefted source code is expressed as follows in the EULA:

> The 'Red Hat' trademark and the 'Shadowman' logo are registered trademarks of Red Hat in the U.S. and other countries. This EULA does not permit you to distribute the Programs or their components using Red Hat's trademarks, regardless of whether the copy has been modified. You may make a commercial redistribution of the Programs only if (a) permitted under a separate written agreement with Red Hat authorizing such commercial redistribution, or (b) you remove and replace all occurrences of Red Hat trademarks. (Red Hat, 2010)

To summarize, if you want to distribute RHEL's source code you have to take away the files containing trademark logos and rebrand it under a qualitatively different name.

Secondly, Red Hat centralizes and controls the Fedora community through the *Fedora Project Council*. The council consists of six voting members. The *Fedora Project Leader*, who serves as the chair of the council, is appointed by the company. Previously the leader had sole veto power; today, he/she has "a limited power to 'unstick' things", if consensus cannot be reached. Another Red Hat member of the council then coordinates the decisions in the community, so that they stay within budgetary limits (Birkinbine, 2017).

The rationale for this second support-and-control strategy in relation to the Fedora community, a strategy that has been implemented by various software companies, is to incorporate developments from the community's distribution into the proprietary version (Birkinbine, 2014, pp. 146, 152), in ways effective for the company.

If the first trademark strategy assures that the Linux distribution can be effectively commodified, the second strategy of economic support and governance control of the Fedora community is used by Red Hat, as already shown, to legitimate the idea that the company should own the copyright to the collective work of the Fedora project—the foundation of the trademark strategy. The regulation system is, thus, built on a feedback loop.

So, even if the copylefted code is instrumental in creating and maintaining a community of voluntary peer-producing hackers, the company has managed to secure the copyright to the collective work (being the license holder to the Linux distribution), govern the community of

programmers, enclose its product enough for commercial purposes with trademark law and prosper economically from its brand.

3.7 Role and Enactment of Ideology

Red Hat as a company depends on free software that focuses on the social value of effective freedoms (to act) which ideally expand, rather than being relatively diminished on a societal level by enclosures—which is the alternative offered by open source software. This does not deter the company from blending the free software position with the open source logic on an ideological level, or using the open source logic to make the free software logic more business-friendly. Those are the inner workings of the openness ideology, and in this section of the chapter we analyze a few texts by the company and its co-founder Bob Young, in order to expose Red Hat's ideological position.[18]

Free software's focus is on the social action in common, whereas the openness advocated by the Open Source Initiative (OSI) focuses on something being open for private interests and private powers to act on as an informational good and commodity. One position focuses on social *practices in common* and the other on software as *things* and *commodities*. This appropriation of a social production in the form of a privately owned interoperable informational goods in enclosed forms is what is concealed within the *openness ideology*; the latent focus on the private exploitation of open social resources and downplaying of commons-based social interaction on a societal level, is concealed under the epithet of open. Actually, the OSI version of openness aims to be the dominating norm when it only views free software as an acceptable *restriction* on openness, rather than pointing out that it is an *effective* openness. OSI's openness con-

[18] Free software's *enforced openness* in derivative uses focuses on fostering effective social actions (built on freedom of speech), often within commons-based peer production, and open source's *openness for subsequent enclosures*, as well as commodification, focuses more on the formal right to act, interoperability and informational goods. OSI in the end downplays the effective freedom to act in relation to the source code, as it, on a larger societal level, accepts the enclosure of the originally open source code. This subsequently leads to relatively more enclosed source code on a societal level that in the same proportion impedes effective freedoms to act on, or use the code. The position can be mapped onto traditional political ideologies of liberalism and socialism.

sumes free software's openness. The concrete effect of which has been a political neutralization of the copyleft principle.

The logic of neutralizing the copyleft principle can, in the case of Red Hat, be observed in how the company in its trademark guidelines expresses its full support for the "open source software community" and "open source rights with regard to copyrights" (Red Hat, 2006). Notably excluding the free software community and the GPL on which it mainly bases its business. FSF and free software are not mentioned at all in the 2006 trademark guidelines.

Seven years earlier, in 1999, the term free software was still part of Red Hat co-founder Robert Young's book on the company's early history (Young & Goldman Rohm, 1999), but it was already mingled and conflated with open source. In *Under the Radar: How Red Hat Changed the Software Business—and Took Microsoft by Surprise*, the openness ideology is already in play with an openness that short-circuits itself by including its opposite (enclosed commodities), and in the process downplays and conceals the copyleft principle.[19] The following analyses focus on the

[19] This openness ideology found clear expression in Open Knowledge Foundation's (today Open Knowledge International) *Open Definition* (OD) from 2005. OD was derived from the Open Source Definition (Open Knowledge International, 2017). OD conflates the two perspectives in a way that is illustrative of the ideological workings of Open Source in contrast with Free Software (Lund, 2017). In June 2017 the presentation of the influential open definition, version 2.1, was introduced in a pedagogical short version, in which some words were highlighted:

> Open means **anyone** can **freely access, use, modify, and share** for **any purpose** (subject, at most, to requirements that preserve provenance and openness)." (Open Knowledge International, 2017). This statement was followed by a claimed more succinct formulation: "Open data and content can be **freely used, modified, and shared** by **anyone** for **any purpose** (Open Knowledge International, 2017). (In January 2019 the presentation of the Open Definition 2.1 does not include this pedagogical short-version.)

Ideologically, we can see that the copyleft option is downplayed and put within parenthesis, far from being put in bold. This non-highlighted parenthesis is then completely omitted in the following and more succinct formulation. "Any purpose" conceals that it includes commercial uses (Lund, 2017). The ideology analysis deepens when we look at the two first paragraphs of the full definition where the OD says it promotes a "robust commons" where "interoperability is maximized" (Open Knowledge International, 2017). "Robust" is a *static* word, whereas interoperability should be *maximized*, a *dynamic* word. In cognitive capitalism, dynamic is a more positively valued characteristic than static. The definition and presentation of it are silent on the issue of robust commons potentially being weakening by a maximized interoperability that involves commercial enclosures (Lund, 2017).

paratexts of Young's book: Acknowledgements, Foreword and an included Timeline for the main company-related events up until 1999.

After the introductory endorsements for marketing purposes, on one of the first pages, under the sole title of the book, it is stated that all royalties from the book will be donated to the Free Software Foundation to "further its important work" (R. Young & Goldman Rohm, 1999). The text can be seen as a small counter-gift, as Red Hat bases its business model on General Public Licensed code, but it can also be seen as an act of identification with the foundation. Move one sheet forward to the dedication, and it is the contributors in open source projects who are honored. It is not about free software anymore: "To everyone who has ever contributed so much as one line of code to an open source project—Robert Young" (R. Young & Goldman Rohm, 1999). This conflating of the two different versions of openness in these two expressions occurs only one year after the concept "open source" was coined and the OSI formed. This was a time when the differences between free software and open software were highly debated (Barron, 2013). In the Acknowledgements section, Young's co-author Wendy Goldman Rohm then gives her thanks to both Richard Stallman and Eric Raymond, as well as to Linus Torvalds, the head developer behind the copylefted Linux kernel (Young & Goldman Rohm, 1999, p. xi). This once again conflates and blends the two understandings of freedom and openness. An image of *one* software and hacker movement *open* for all is constructed, one year after a decisive split occurred, creating two organizational parts of the same movement.

This literary use of "open source" is not required of Red Hat, as the company is built mainly on copylefted code. The mentioning of open source in the book is an oddity, not free software. The inclusion and juxtaposition of open source and free software, the conflating of two different versions of openness, implicitly lends support to the more business-friendly OSI perspective, as this position sees them as equals, albeit one being more "equal", or open/including, than the other. Open source is potentially used in this context to convince the reader that the problematic GPL is not a threat to doing business. The use of open source supports the business narrative around free software: openness is here used to open-wash free software, making it business-friendly. But the conflating of concepts also operates the other way around. Free software

infuses open source's business-friendliness with the social creditability of free software and the FSF's reputation. Free software portrays Red Hat in a better light. The juxtaposition of free software and open source works ideologically in both ways, as Red Hat and Bob Young attempt to have their cake and eat it; ultimately, it only strengthens the open source logic. Another general identifier of the openness ideology is that the paratexts do not mention at all the enclosed commercial uses tolerated by the open source logic.

In the book's paratexts, free software enters into a dialogue with open source: open source is equally as morally good as free software; free software is equally business-friendly. But, the dialogue renders the difference between the positions quite invisible, as any hint of a difference is omitted from the text. Nothing is really said in the book's paratexts about building expanding commons; the exception is the dedication praising code contributors to open source projects. This silence regarding the social practices and the community surrounding FOSS obscures the political dimension of FOSS. The consequences of all this is a depoliticization and business-friendly makeover of free software.[20]

The 2001 edition of Eric Raymond's *The Cathedral and the Bazaar* includes a foreword by Bob Young that reinforces the above impression. He opens his presentation of Raymond's importance by stressing that freedom "is not an abstract concept in business". The degree of freedom for suppliers and customers is, according to him, paramount to the success of any producer (B. Young, 2001, p. vii). Already, here, free software is placed within the open source logic: the more open a product, the better. A bit later in the text, open source software is the vehicle giving more freedoms to the software industry (B. Young, 2001, p. vii). It is not mentioned that this freedom leads to subsequent enclosures by the software industry. Instead, Young stresses that open source gives customers control over the uses of the technology (B. Young, 2001, p. x), in an

[20] This line of ideology analysis should not be stretched too far. To some extent, the conflict could be meaningless to stress for Red Hat and its co-founder, as the company bases its business on a General Public Licensed Linux distribution that is possible to combine with proprietary software in various ways. The GPL can be used in Red Hat's commercial business models, albeit within more limiting conditions than if the code had been licensed under an open source license. However, the downplaying of the difference and the relative lack of attention given to commons-based peer production still indicates Red Hat's ideological and political values.

expression that actively elides the consequences, which see the relative increase of enclosed code on a societal level. Young's position also contrasts with Red Hat's use of trademark law to impede easy distribution of its RHEL-package. The focus on the OSI kind of openness ends up legitimizing the business-adaption of the Fedora project (the community being open for the company's power to act, with a focus on corporate customers' needs), and turns the focus of attention away from the independence of commons-based peer producers.

The use of the openness ideology conceals, downplays and latently justifies the company's centralization and the introduction of social inequality into the peer production of the Fedora programming community, but it also has its own ideological influence on the community. The ideological use of the open source perspective on openness feeds into a corporate identity, or at least an acceptance of enclosed corporate uses of the peer produced utility. The ideology as expressed by Young shifts expectations of peer production from the peer producers' motives, to the corporate customers' needs. This of course affects the peer producers' self-understanding.

In a study of two open source animation projects, as a parallel, it has been identified how the peer producers continuously shift between different "value regimes" in their interactions with the market. The commoners express that different values, stemming either from the commons or from the market, sometimes feel incommensurable to them in terms of goals and ethics. But, on the other hand, they continuously work "to create commensurability" by aligning community goals with the capitalist logic. This is perhaps why—albeit a conclusion not drawn by the authors—the peer producers do not seem to notice that they sometimes shift between the two different value regimes even in the same sentence (Velkova & Jakobsson, 2017). That lived contradiction has thus become second nature to these programmers.[21]

[21] Velkova and Jakobsson's study also points to the fact that hierarchies of power are at play that "enable some actors to move between different spheres and to reconcile the different regimes of value, whereas others remain for longer periods of time in a single regime". Some can convert their commons-based activities into employments, and others not, remaining instead in perhaps precarious labor conditions (Velkova & Jakobsson, 2017).

Red Hat's use of the openness ideology feeds into such corporate value regimes within the Fedora project. The consequences are an eroded commons instead of an increasingly robust commons, and the dismantling of free software as a political alternative.

3.8 Conclusions

Red Hat makes a lot of money from free software, raking in more profit than its competitor Canonical from the more popular Ubuntu distribution, but either conflates free software and open source software or only speaks about open source and the open source community. The business model depends on four out of five business strategies for FOSS, taking advantage of the various exceptions and the network loophole in the GPL that allow for several forms of hybrid mixes of open and enclosed software. Additionally, the company's appropriation of the copyright to the collective work of the Linux distribution from the community is not carried out in the interests of the community, but in the interest of its shareholders and to facilitate the use of trademark law to partially enclose its products. This tells us that building commons is not the first priority of the company, and furthermore that openness is not really of importance either. A potentially open and horizontal community, the Fedora project, which could have distributed the freedoms to act in effective and thereby democratic forms, coordinated by a non-profit foundation, is legally and organizationally subsumed under a hierarchical business structure, through the Fedora Project Council that is legally controlled by Red Hat. Even if it is true that Red Hat has been one of the dominant corporate contributors to GPL-licensed projects—including projects outside of the company's control and related to the Linux kernel (Fedora Contributors, 2019)—it seems clear that the overall interest is a monetary self-interest, which has negative and de-politicizing effects on the Fedora project. Finally, the talk of openness and the open source community contrasts sharply with the company's use of trademark enclosures.

This use of enclosures gives the company's talk of openness a dimension of open washing. The company uses the term "open" ideologically to render the necessary enclosures in hybrid contexts less visible, but it also adds specific ideological dimensions to the open washing. It equates free

software and open source software, makes free software more business-friendly with open source, at the same time as this business-friendliness being beautified by free software's moral reputation. The centralization of commons-based peer production and the ideological use of openness to downplay and de-politicize the free software perspective on the importance of social commons, collaboration and solidarity (reciprocating the gift of openness with a return gift of openness), support the introduction of a capitalist business-logic centered on customer demand to commons-based peer production. This erodes the commons rather than strengthens them, and distorts the promises of peer production and the alternative political motives for engaging in it.

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4

Profiting from Open Access Publishing

4.1 Introduction

Elsevier is the world's largest scholarly publisher, with a specific presence in scientific, technical and medicine (STM) literature. The company was established as a publisher in 1880 and today forms part of the RELX Group plc, which up until 2015 was known as Reed Elsevier (Wikipedia contributors, 2018a). This group's activities span a wider spectrum than the academic publishing house Elsevier, but even Elsevier today focuses on the entire academic research lifecycle with its suite of services and products. The company is thus not only dedicated to providing subscribed journal content via libraries to users. The services today include software, data-management, tools for instruction and assessment, and they are directed not only toward university libraries but also to the whole of academia (Carpenter, 2017). On the other hand, Elsevier leverages its "disproportionally large" stock of published research to support and sustain this shift in business toward big data and provision of services (Tennant, 2018, pp. 5, 7).

The publishing of scientific journals and their content is a high-profile part of the company, and so is its open access (OA). The *Budapest Open*

A. Lund, M. Zukerfeld, *Corporate Capitalism's Use of Openness*, Dynamics of Virtual Work, https://doi.org/10.1007/978-3-030-28219-6_4

Access Initiative (BOAI) declared in 2002 that OA equaled "free and unrestricted online availability" (Budapest Open Access Initiative, 2002). On Elsevier's web page we can read that Elsevier not only publishes open access, but that it is "a leading open access publisher" (Elsevier, 2019c). The truth of this claim can be questioned, but the free online availability of a portion of the scholarly output does not in any way run counter to the fact that Elsevier is the most profitable part of the RELX group. This chapter will put the profit making and ideological actions of the academic publisher Elsevier in a societal context, but first, we will present a history of scholarly publishing and the movement for open access.

Scholarship has always been in need of open access to ideas. Early on in the twentieth century, scholarly publishing was in the hands of *learned societies* or scientist-driven institutions. Private and commercial actors played a small part in scholarly publishing, mostly because it was hard to make any profit by reconciling the highly specialized demands of the research community with mass production (Guédon, 2001, p. 23). A period of transformation began in the last quarter of the twentieth century. It was a complex development and no single event constitutes the whole transformation (Kranich, 2007, p. 87). The commercialization of scholarly publishing came about in phases.

The Second World War put an unprecedented strain on the world's information systems (Guédon, 2001, p. 20), but it showed that sciences and technology could be used to achieve specific aims; a lesson that after the war was put to work for economic growth. Post-war governments and companies in the era of "big science" backed private laboratories, and reserved larger parts of their budgets for science and universities (De Bellis, 2009, p. 11). Science also played an increasing role in the Cold War, and not only in the West. In the Soviet Union, *scientometrics* was founded at the end of the 1950s in order to model the international growth of science, whereas the launch of Sputnik in 1957 led to intensified efforts to improve the quality of information systems in the USA as well (De Bellis, 2009, pp. 12–13). The US defense industry and companies like Lockheed received governmental support for developing databases to manage the increased amounts of information that scientific activity produced, not only military information but also educational and medical information (Kranich, 2007, p. 87). Already by the 1960s

an information industry was maturing (Kranich, 2007, p. 87). Elsevier took part in this development and changed its business model after the war. Up until then it had focused on scholarly books, but after the war the company started to publish international scientific journals (Tennant, 2018, p. 7).

In 1964, Eugene Garfield created the *Science Citation Index* (SCI), today's web of science, in order to get an overview of scientific communication. He did so in order to solve the citation-tracking problem in relation to thousands and thousands of citations between articles (Guédon, 2001, pp. 20–1, 2014, p. 89). Garfield reduced the problem to manageable proportions, truncating the document base and merging many specialty cores of scientific journals into a general and generic core, following a kind of law of concentration. This created a notion of *core journals* and core science in relation to non-core journals of non-core science (Guédon, 2001, pp. 20–1, 2014, p. 89). SCI became the basis for the *Journal Impact Factor* (JIF), a new valuation tool for scholarly journals that was adopted by universities at the beginning of the 1970s, as an objective way to evaluate researchers. Journals now started to be graded against each other and researchers' choice of journals became important for their careers (Guédon, 2001, pp. 20–1). SCI and JIF suddenly created a scarcity of core journals and from that, status and economic value followed. Some journals suddenly were a *must-buy* for the libraries, whatever the price. And libraries were at the time a rapidly growing institution due to the post-war explosion of university studies (Guédon, 2001, pp. 22–3).

In the 1970s commercial actors realized the market potential in the fast-growing field of scholarly publications. They realized that the former gift economy surrounding the public good of publicly financed research, given away freely for publication by the researchers, could be exploited commercially. Robert Maxwell pioneered and tried to push his own Pergamon Press journals into the core category (Guédon, 2014, p. 90). Commercial actors soon approached the learned societies with the proposition of taking care of the practical dimensions of publishing, freeing the societies to concentrate on academic work. During the following two decades, for-profit publishers expanded in the field of scholarly publications (Edwards & Shulenburger, 2003, s. 12–13). Kranich states that

many learned societies handed over journal publishing to private firms during the 1980s. The aim was to contain membership fees and generate income. Politically, the Reagan administration helped the process along during the 1980s when it eliminated many governmental publications (Kranich, 2007, pp. 87–8).

This commercialization was deepened by the political and neoliberal restructuring, and the publishing industry started to restructure through mergers, in which large international conglomerates appropriated middle-sized publishing houses. The 1980s saw scholarly publishing rise to the forefront of the commercial publishing business, and it was no longer merely used to earn prestige for the company (Clark, 2001, pp. 14–15). Publishers realized that scholarly articles, not easily substituted within an inelastic market, combined with a strong market position, made it possible to charge high prices (Edwards & Shulenburger, 2003, pp. 12–13; Guédon, 2001, p. 23).

The *consolidation process*, characterized by capital centralization, continued during the 1990s (Larivière, Haustein, & Mongeon, 2015) and an oligopoly of a few commercial and transnational conglomerates was established (Kranich, 2007, p. 88). Elsevier was one of the conglomerates taking part in the process. It bought Maxwell's Pergamon Press in 1992 and became the largest scholarly publisher (Tennant, 2018, p. 7). In 1997 the company's merger with Kluwer was blocked by the European Union, but a few years later Elsevier acquired Harcourt General and Academic press. This deal secured almost 450 new scholarly journals, but was met with criticism from a library community that feared increased subscription prices.[1] In 2004, Elsevier followed up on the development by putting *Scopus*, their own version of SCI, in place (Guédon, 2001, pp. 24, 47; Malakoff, 2000).

The popularization of the Internet and electronic publishing also prompted a rapid response by for-profit publishers. Questions of profit levels here combined with questions about control, as they had with the introduction of numeric control in industry (Guédon, 2001, p. 39; Kranich, 2007, p. 87; Noble, 1986). Elsevier launched their TULIP project to develop electronic formats and delivery in 1991, and its new

[1] After the acquisition, Elsevier owned around 1500 scholarly journals (Malakoff, 2000).

licensing scheme was influenced by the software industry. Licenses made it possible to circumvent copyright's first sale doctrine that allowed free disposal of bought copies of a work (Guédon, 2001, pp. 39–40). This elimination of the fair-use rights affected users' rights to reproduce and view copyrighted material, and libraries' rights to offer interlibrary loans and archiving material for the future (Kranich, 2007, p. 89).[2] Guédon describes the licenses, the industry's use of copyright against copyright's fair use, as a "counter-revolution in the political economy of documents" (Guédon, 2001, p. 41). Under this new license regime, a library had nothing left to offer the users, when it ended its subscription to a database or a journal (Kranich, 2007, p. 89).

4.1.1 Serial Pricing Crisis (The Subscription Model)

Signs of a *serial pricing crisis* surfaced as early as the 1970s. Guédon contends that SCI was a crucial factor behind it. Core journals were already being targeted by corporations by the end of the sixties (Guédon, 2001, pp. 22, 24), but it was in the 1980s that academic journal prices soared and increased faster than library budgets (Kranich, 2007, p. 88). During a period between 1986 and 2003, when the consumer price index increased by 68%, the *subscription costs* of US universities tied to the Association of Research Libraries, ARL, rose by 215% or possibly up to 220%. The prices charged by commercial publishers were six-fold the prices of non-profit publishers at the time (Kranich, 2007, pp. 88, 113n7, 113n9; Panitch & Michalak, 2005). The new publishing system that was established by the late 1980s was a system where the subscription fees varied wildly between journals. Guédon points to a "total arbitrariness of the pricing", meaning that the price was completely disconnected from the production costs (Guédon, 2001, p. 24). This inelastic market goes to the heart of big publishers' business models and their later co-optation of

[2] These licenses restricted the use of public domain content in the publishers' databases, for example, Elsevier's *Science Direct* (Guédon, 2001, p. 43; Kranich, 2007, p. 88), and they were combined with the introduction of heavy files in order to maintain control and profit margins. The TIFF format could not easily be distributed via regular modems and were cumbersome to print (Guédon, 2001, pp. 39–40).

open access with hybrid journals. Already, in the 1990s, the publishing conglomerates could charge as much as USD 20,000 for some journal subscriptions, whereas the profit margin around the new millennia could be around 40% (Kranich, 2007, p. 88).

4.1.2 Big Bundles

Around the year 2000, the licenses for electronic material started to include requirements of "bundled or aggregated purchase of titles" (Kranich, 2007, p. 88). The model was pioneered in 1996 by Academic press, that later was acquired by Elsevier (Tennant, 2018, p. 18). The journal bundles often included material of low interest together with high-profile material (Guédon, 2001, p. 43; Kranich, 2007, p. 88). Elsevier's bundles come in two parts: the *complete collection* comprises all journals which a library has previously subscribed to, and the *freedom collection* includes discounted access to non-subscribed journals (Tennant, 2018, p. 18). It has marketed "big deals" and bundles as a large increase in the number of titles, for a very small increase in price. Digitalization made the publishers notice the "near-zero marginal cost of making an extra title accessible to a library", and realized they could "decouple revenue streams from the number of titles subscribed to" (Guédon, 2014, p. 94). The prices of these bundles have since then increased faster than inflation (Björk, 2017, p. 104).

The consequences of big deals in inelastic markets, with some journals being a *must-buy*, are several. First, they squeeze out individual subscriptions and e-licenses with smaller publishers from the library budgets. Second, it makes it harder to enter the market for new publishers relying on the subscription model (Björk, 2017, p. 104). Third, the big deals create a lock-in situation that is difficult to get out of for the universities and libraries. They convert thousands of smaller journal monopolies into a single large monopoly (Tennant, 2018, p. 18). Students and researchers get used to having access to large amounts of information and are insulated from considerations regarding the costs, as the contracts are signed at the university and library level (Björk, 2017, pp. 104–5; Odlyzko, 2015, p. 145). Fourth, downloads from a university library can potentially

become dominated by big deal offering publishers, which would increase their journals' impact factor and subsequently lead to higher subscription fees for them (Guédon, 2001, pp. 45, 47). The big deals lowered the price per article (Odlyzko, 2015), but the model also concealed that profit margins were maintained, that other publishers were crowded out, and that many of the titles were of little use to its constituency (Guédon, 2014, p. 94). Some studies, on the other hand, argue that the price per journal has increased if you take into account that researchers only cite a small number of the purchased journals (Shu et al., 2018).

4.1.3 OA as a Response to the Serial Pricing Crisis

Open Access is the counter-action against this serial pricing crisis. An alliance of research libraries, universities and other organizations was founded in 1998. It was called the *Scholarly Publishing and Academic Resources Coalition* (SPARC). The aim was to support alternatives to high-priced journals and aggregated databases (Kranich, 2007, p. 95). A few years later, the Budapest Open Access Initiative was launched by the Soros foundation's *Open Society Institute*. The initiative provided software, technical standards, funding and leadership (Kranich, 2007, p. 96). This initiative was followed by several other declarations. In the *Berlin Declaration*, the definition of openness became clear. Besides being open, it was stressed that the intellectual content, data and software also should be compatible and allowed to be used for "for any responsible purpose" ("Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities", 2003). This parallels OSI's view of openness (see Chapter on Red Hat) as being open also for subsequent enclosures. The declaration has been interpreted as being non-compatible with restrictions regarding commercial uses (cOAlition S, 2018b). From this the Open Access movement, which, in the 1990s, had the character of a grassroots movement, rapidly built up its own institutions around the new millennia.

OA is a complex phenomenon that takes on different forms. Academic peer-reviewed journals deliver *gold open access* in various forms, and institutional repositories or archives (run by universities or university libraries)

deliver *green open access*.[3] Gold and green open access relates to the publishing industry's commercial interests in different ways and they have different but interconnected historical trajectories. To fully understand OA, we need to take into account the distinction between *gratis* and *libre*. Gratis open access only removes the price barrier for users, whereas libre open access also removes some permission barriers that secure extended use beyond *fair use* (Suber, 2012, p. 65). A full copyright enclosure puts a lot of restrictions on what you can do with a work: you cannot distribute full-text copies or semantical metadata-enhanced versions, include works in databases and mash-ups, quote long excerpts, translate the texts or copy the text for indexing or text mining (Suber, 2012, pp. 73–4). This however is permitted with various libre license schemes like the Creative Commons.

4.1.4 Green OA

Green OA refers to researcher's archiving or publishing in institutional repositories connected to universities, often managed by the university library. The repositories focus on the research output from the hosting university in its totality, or on a specific discipline (Kranich, 2007, pp. 97–8). Institutional repositories can serve many different purposes for a university with various cost structures. The cost is minimal if the purpose is only to host the faculty articles, and the faculty manages the deposits themselves. The costs increase if the repository is a general-purpose tool: supporting long-term preservation, hosting many different sorts of content, assisting faculty with permissions, deposits and other forms of digitization. University cost specifications from around 2005 ranged between USD 6000 to USD 1,800,000 for the implementation, and between USD 8600 and USD 500,000 in order to maintain them operative (Suber, 2012, pp. 62, 134, 136, 208–9n4).

These repositories are a new feature of scholarly communication and include a range of resources like preprints, dissertations, theses, datasets

[3] From its start in early 1990s, OA went through three phases: the pioneering years between 1993 and 1999, the innovation years from 2000 to 2004, and the consolidation years between 2005 and 2009 (Laakso et al., 2011, p. 9).

and source code, but for the aims of this study they can mainly be understood as collections of parallel-published peer-reviewed articles (often the final peer-reviewed author's version, lacking copyediting and pagination) that also exist in subscription-based journals. The repositories provide permanent URLs in preparation for long-term preservation. Green OA is not believed to be self-sustainable and profitable on the market, as it does not cost anything to deposit works and data in the repositories, and no peer review is done in relation to the publishing. Repositories have thus often been financed and managed by different non-commercial institutions (Suber, 2012, pp. 52–3, 60, 62, 134, 136).

The deposits in the institutional repositories increased rapidly in the first decade of the twenty-first century and initiatives within the library community worked to federate the repositories.[4] Green OA was supported by new policies within the academic community and its funding agencies, requiring that their funded research had to be archived and made accessible through open databases. For example, the National Institute of Health (NIH) demanded this in relation to the database *PubMedCentral* (Annemark, 2017, pp. 34–5; Guédon, 2001, pp. 50–2). Between 2004 and 2011 the number of articles in PubMedCentral increased from less than 500,000 in 2004 to almost 2,400,000 in 2011, and monthly submissions to the first OA-repository arXiv increased from a thousand in 1997 to almost seven thousand in 2011 (Jackson & Richardson, 2014, p. 226).

The result was a system of open parallel publishing in institutional repositories of toll-accessed articles located behind subscription paywalls. This produced conflicts with the publishing industry, even if the parallel publishing was organized together with the use of embargo periods (Annemark, 2017, pp. 34–5; Kranich, 2007, p. 97). In 2004, Elsevier submitted concerns to a UK House of Commons committee about OA being a threat to scientific integrity and research standards. Three years

[4] The library community launched the Open Archive Initiative (OAI) in 1999 with the aim of providing access to publicly accessible and digital articles through a network of digital repositories (Kranich, 2007, p. 97). The more useful repositories complied with the OAI-PMH protocol (Open Archive Initiative-Protocol for Metadata Harvesting) for metadata harvesting, and could simultaneously be searched for information through either Internet search engines or more customized search engines (Jisc, n.d.; Suber, 2012, pp. 56–7, 188n6; University of Southampton, n.d.).

later, they launched a campaign against OA, in which they equated traditional publishing with peer review and OA with government censorship (Tennant, 2018, pp. 19–20).

The majority of toll-accessed or subscription-based journals started to offer blanket permission, or at least permission on request, for green gratis open access of some sort around 2008. This has been perceived as a victory for the open access movement (Suber, 2012, pp. 54, 59–60, 63, 71), but is a questionable victory, as the battle was more about embargo periods.[5] Twelve months of embargo time was not perceived as a threat to the industry around 2007, but suggestions by the Federal Research Public Access Act in the USA of introducing mandatory policies with embargo periods of only six months were understood as more problematic (Jackson & Richardson, 2014, p. 234).[6] Elsevier mounted resistance against public institutions' and funders' mandatory OA policies. In 2011 Elsevier-backed US congressmen and women put forward a Research Works Act (RWA) "which contained provisions to prohibit OA mandates for federally funded research" (Jackson & Richardson, 2014, p. 234; Wikipedia contributors, 2018b). This in turn was one of the drivers behind Tim Gower's Elsevier boycott "The cost of knowledge" (Jackson & Richardson, 2014, p. 235).

To this day, Elsevier has a "long and complicated list of embargo periods, with variations depending on the article version, geographic location, research funder, discipline, and where an author wants to share their work" (Tennant, 2018, pp. 22–3).[7] This regulatory flexibility was used as a power tool around 2011, when research funders demanded mandatory policies on shortened embargo periods for green OA, and Elsevier instead

[5] The role of piracy in the process leading up to this partial acceptance of a publishing model is not yet, according to our knowledge, well researched.

[6] The publishing sector's interest groups argued in the Brussels declaration of 2007 that short embargo periods of six months were a threat to the subscription model (Annemark, 2017, pp. 37, 39). In 2010 the US *Scholarly Publishing Roundtable* (SPR) gathered representatives from both libraries and publishers such as Elsevier, AIP, PLoS and the American Society of Plant Biologists, and made recommendations of swift but gentle implementation of green open access (Scholarly Publishing Roundtable, 2010, p. ii). However, Elsevier's representative Yongsuk Chi refused to sign the document because it allowed too much state involvement (Annemark, 2017, p. 49).

[7] Parallel publishing of articles that Elsevier has previously published behind a subscription pay-wall is regulated by a restrictive CC license that prohibits derivative works and commercial uses (Tennant, 2018).

introduced prolonged embargo periods for research connected to OA publishing in institutional repositories (Styrgruppen för OpenAccess.se, 2011; Svensson, 2011).[8] Tennant confirms that many of Elsevier's policies on embargo times go against funder mandates (Tennant, 2018, p. 24). Such power strategies stifled green OA's development, but the development also showed that a modest gratis green OA with longer embargo times was compatible with the subscription model (Suber, 2012, p. 91).

In 2012 the influential government-initiated *Finch report* in the UK strongly recommended gold OA rather than parallel publishing in repositories as the main strategy going forward with OA policies (Finch, 2012; Jackson & Richardson, 2014, p. 235). It also stressed the need for libre licenses, and the UK research council put forward a requirement of the attribution-only Creative Commons-license (CC-BY) in a draft policy (Jackson & Richardson, 2014, p. 236). Two years later, the European Commission research program Horizon 2020 made use of OA as a fundamental principle, but without taking any stand in relation to green or gold OA (European Commission, 2013). Regardless, the focus from this point started to shift from green to gold OA.

4.1.5 Gold OA

Gold OA publishes openly the peer-reviewed and copyedited version of a text, and the publishing is immediate (Suber, 2012, pp. 52–3, 62). It covers publishing costs by charging for dissemination, often by Article Processing Charges (APCs), rather than charging the reader for access to the scholarly articles (Suber, 2007, p. 173). APCs were first introduced in 2000 (Solomon, 2013, p. 26), but it was unclear to begin with if they were profitable. At the end of the decade, in 2008, Springer acquired *BioMed Central* (BMC)—a pioneering commercial experiment with OA publishing—in a clear sign that they were (Solomon, 2013, p. 26).[9] On

[8] This action is also confirmed by university librarian Helena Juhlin at a seminar held at Linnaeus University, Växjö, April 29, 2019.

[9] BMC was funded by venture capital, and pioneered commercial OA-publishing of peer-reviewed articles. The enterprise was soon financed by a mix of author charges, advertisements and institu-

the other hand, not all academic journals' OA publishing use APCs. In 2013, 49% of 340,000 published articles that were published as OA used APCs, as did 27% of all the journals listed in the Directory of Open Access Journals (DOAJ) (Björk & Solomon, 2012). It is thus a myth that all OA journals charge publication fees (Suber, 2012, p. 138). Seventy percent of the full OA journals charged *no* publication fees in 2012, whereas, in contrast, 75% of toll-accessed journals including OA articles did (Suber, 2012, pp. 138–9). This tells us that hybrid journals have more accentuated for-profit motives than full OA journals.

The numbers of high-prestige OA journals also increased around the time of the Finch report (Suber, 2012, p. 55), but gold OA was—with increasing demands regarding libre licenses—expected to spell trouble for the publishing industry as the recommended CC-BY licenses allowed commercial reuse. The fear was that it would allow third parties to set up competing services on new platforms (Jackson & Richardson, 2014, p. 236). On the other hand, the industry started to realize that APCs were not a disruptive force to their system (Bosch & Henderson, 2017).

The OA-movement has not only introduced APCs and libre licenses to academic publishing. It has also introduced the *mega journal* or "repository" journal (Jubb, 2013, p. xxvii). The public library of science, *PLoS*, was an early OA-project that followed in 2002 after the pioneering commercial experiment with BMC in 2000. PLoS began as an advocacy group, boycotting publishers who did not allow free electronic versions in institutional repositories with half a year of embargo time. The project turned into a non-profit publisher thanks to a USD 9 million grant from a foundation (Kranich, 2007, p. 96; Solomon, 2013, p. 26; Wikipedia contributors, 2019a, 2019b). It first used APCs to create high-end competitors to commercial publishers, and their first journal *PLoS Biology* was launched in 2003, but the APCs were not enough to achieve financial stability (Kranich, 2007, p. 96; Solomon, 2013, p. 26). In order to gain financial stability, the project introduced *PLoS One* in 2006, the first mega journal. The journal published articles from all disciplines within

tional support (Kranich, 2007, p. 96; Laakso et al., 2011, p. 9). It also applied the *cascade theory* to legitimate that peer-reviewed submissions that had been rejected by the project's top journals could instead get published in lower ranked journals (Jackson & Richardson, 2014, p. 231).

science and medicine and introduced a new, quick and limited form of peer review that focused on assuring basic scientific and ethical standards, rather than assessing the scientific importance and relevance of the articles. Instead, users were allowed to review the articles after they were published. PLoS One was an economic success early on and published 2000 articles a month in 2012 (Jackson & Richardson, 2014, pp. 223–4, 227; Solomon, 2013, p. 26). PLoS adapted the peer-review process in order to lower costs, rather than reducing traditional print costs that were absent in the new digital landscape. PLoS One realized, unlike the commercial uses of big bundles, that the size of the journal was not a matter of importance. The mega journal was also attractive for researchers because of lower APCs and high acceptance rates (Jackson & Richardson, 2014, pp. 227–8). Of course, doubts about quality control still exist, but the counter-argument is that traditional peer-reviewed journals that decline 19 out of 20 submissions are also probably turning away a lot of good material (Jackson & Richardson, 2014, p. 230).

PloS One was such a success that it led all other publishers into the mega journal market. Mega journals are not inherently open access but were pioneered by OA-projects, and definitions of the concept point out OA as a defining characteristic (Mudrak, 2019). In 2014, PloS One had several mega journals on its side: Sage Open, Springer Plus, BMJ Open, BMC research notes, Scientific Reports and a few others headed by learned societies and corporate actors. Elsevier's Cell reports is in this context a more selective kind of broad OA journal that focuses on the "entire life sciences spectrum" and new biological insight in general. For this, Elsevier charged USD 5000 for APCs, whereas BMC and Springer charged USD 675 and USD 690, with most of the rest charging between USD 1200 to 2000 (Elsevier Inc, 2019; Jackson & Richardson, 2014, pp. 229–33; Wikipedia contributors, 2019d). Thus, the same dominant transnational publishers continue to prosper from new journal forms and gold OA, even if they still predominantly depend on selling subscriptions (Björk, 2017). The particular combination of openness and pay-wall subscriptions that really helped publishers to contain OA's disruptive power was the popularization of the *hybrid journal*: a journal form that had already been in the making since the early 2000s.

4.1.6 Hybrid Journals: A Dialectical Synthesis, or Just a Commercial Co-optation of OA?

Gold OA refers to scholarly articles published under open access in scholarly journals, but on the journal level, there are *full* OA journals and *hybrid* journals. Hybrid journals, also called open choice journals, were invented by subscription-dependent publishers, as a way to incorporate OA within their general business plan (Guédon, 2014, p. 99). In a hybrid journal, some articles—often the majority—are toll-accessed, often through a subscription, but a minority of them are openly accessible (Jackson & Richardson, 2014, p. 236).[10]

OA articles in *hybrid journals* can be traced all the way back to 2000, but they were popularized by Springer in their *Open Choice program* of 2004 (Björk, 2012, p. 1497). The hybrid model became the preferred OA-route for large for-profit publishers during this time. It was left to actors like BMC (acquired by Springer in 2008) to launch suites of full OA journals. Normally, a publisher had one or two full OA journals, whereas the rest of their publications were predominantly subscription-based with an OA option. But the uptake of OA through these hybrid journals has not grown as expected (Jackson & Richardson, 2014, p. 238). According to a study from 2012, hybrid journals' OA articles are only a small segment of APC-funded OA articles. The uptake of authors publishing with APCs in hybrid journals initially grew, but started to plateau around 2008. The large publishers' uptake of authors choosing the APC option was less than 2% (Björk, 2012, pp. 1497, 1502). This percentage was either persistent over time between 2009 and 2012 (Suber, 2012, p. 141) or decreased between 2007 and 2011 (Jackson & Richardson, 2014, p. 239) or increased to 3.8% of all published articles in the hybrid journals at the end of the period (Laakso & Björk, 2016).[11]

[10] Hybrid journals sometimes open up the access to all their articles after an embargo period (Suber, 2012, p. 140).

[11] In the time-span between 2008 and 2009, Elsevier had 21,250 articles in hybrid journals (430 OA), Springer had 100,000 (1,520 OA), Taylor and Francis had 15,000 (24 OA), Wiley 24,000 (342) (Jackson & Richardson, 2014, p. 240). The uptake for the various publishers was: Elsevier 2%, Springer 1.5%, Taylor & Francis 0.1%, and Wiley 1.4%.

The growth for this category of OA articles in absolute numbers comes more from expanding the hybrid model to more journals (Björk, 2012, p. 1497). 2000 hybrid journals published 8000 articles in 2009, and 10,000 hybrid journals published 45,000 articles in 2016 (Kungliga Biblioteket, 2019, p. 10). The major for-profit publishers' hybrid journals doubled in numbers between 2010 and 2012, from 2000 to 4400. As the publishers' total number of journals was more or less the same, the result was that the share of hybrid journals increased from a quarter to half of their journals (Björk, 2012, p. 1502), but the share of OA articles was distinctly smaller. OA articles in full OA journals or hybrid journals only made up somewhere between 2.9% to 5.3% of the total number of peer-reviewed articles during the first decade of the new millennium (Laakso et al., 2011, p. 7).

The hybrid journal has a different business model to the full OA journal. Publishers already received enough revenue from subscriptions to hybrid journals (often included in bundles) to not be dependent on the uptake of OA articles and could therefore set the APCs higher, especially on an inelastic market (Björk & Solomon, 2014b, p. 101). Publishers therefore preferred to introduce gold OA as an option in hybrid journal forms, but they could also acquire OA publishers and create entirely new OA journals (Guédon, 2014, p. 99). Charging APCs also became more common in full OA journals from 2013 onward (Björk & Solomon, 2014b, p. 93).

The five major for-profit publishers (Springer, Elsevier, Wiley, Taylor & Francis and SAGE) have thus increasingly embraced the growth of Gold OA after the publication of the Finch report (Bosch & Henderson, 2017). At the same time, the subscription model has proven resilient, although it has been met with a growing resistance from both the library community (Lehtomäki, 2016a, 2016b, 2017a, 2017b; Persson, 2018) and from research funding agencies.[12] *Science Europe* is coordinating a group of national research funding agencies in Europe under the name of *cOAlition S*. It was formed in September 2018 with the

[12] OA-advocates understand the publishers' growing embrace of gold OA during this period as also being a result of the protests from the library community and different national authorities and consortiums that for example canceled their contract with Elsevier (Persson, 2018, pp. 4–5; Wideberg & Lundén, 2019).

support of the European Commission and it has launched a *Plan S* that puts forward a radical demand of full and immediate OA for all research funded by its members from 2020 onward. COAlition S thus requires that research funded by its member organizations be published in journals and on platforms that are compliant with Plan S (cOAlition S, 2018b; Science Europe, 2019b).[13] After the campaign's launch, an implementation guide has pointed out that *transformative contracts* will be allowed during a transition period between 2020 and 2023 (cOAlition S, 2018b). The following section will describe how plan S and the transformative contracts affect the commercial publishers' business models.

The (increasingly contested) domination of the subscription model is important to hold in mind as a reference point, when assessing that full gold OA kept on expanding during the period. A process that is ongoing to this day. The full OA journals increased from about 4440 to 7815 between 2009 and 2012 in DOAJ (Jackson & Richardson, 2014, pp. 224–5), and were up to 11,936 journals in 2018 (DOAJ, 2018a, 2018c). Even more interesting in relation to this surge in OA publishing is the increased use of libre licenses in relation to gold OA. In 2012, 80% of the journals in DOAJ were only delivering gratis OA (Suber, 2012, p. 72), but in 2018 a majority of the journals in DOAJ had some kind of CC license. Out of a total of 11,683 journals, 4885 used the often recommended attribution-only license, 4713 retained the right to restrict against commercial uses of some sort and 1553 used the copyleft logic of the share-alike licenses (DOAJ, 2018b). The use of libre licensing within hybrid journals is more opaque and not well researched, but a quick look at published journal lists suggests that the majority of hybrid journals today offer libre licenses (Springer Nature, 2019b).

The forms of dissemination in the academic OA publishing landscape are presented in Table 4.1.

[13] As of April 2019, the cOAlition S has 15 national research funding agencies, with added support from the Wellcome Trust, Bill & Melinda Gates foundation, Riksbankens Jubileumsfond and Campagnia di San Paulo (Science Europe, 2019a).

Table 4.1 Dissemination forms within the OA landscape

	Full gold OA journal	Hybrid (subscription / gold OA) journal
Gratis articles for reader	*All* articles are gratis	Only the OA articles are gratis
Libre licenses (often Creative Commons)	A majority of articles are libre	A majority of OA articles are libre
Toll-accessed articles (subscription fees)	No	The majority of the articles
APCs	*Some* journals use APCs (increasing)	Majority of journals use APCs
For-profit/Non-profit	Some journals are for-profit/some not-profit	Predominantly for-profit

Source: Björk and Solomon (2012), Springer Nature (2019b) and Suber (2012, pp. 134–47)

4.2 Scientific Publishers' OA Business Models in General and Elsevier's in Particular

Library Journal's price survey from 2017 shows online publishing and OA continuing apace, but nothing has changed with the publishing model and the high prices. Ultimately, most of the revenue is generated by subscriptions. In 2017, the average price for subscriptions in *chemistry* was USD 4773 and in *physics* USD 4369 (Bosch & Henderson, 2017).[14] The inelastic subscription market is still characterized by attempts by publishers to price their subscriptions in relation to each client's economic ability and willingness to pay, rather than the average marginal costs for the publisher (Björk, 2017, p. 104). Publishers have, for example, experimented with new ways of pricing depending on the population, or with tiered pricing based on the Carnegie classification of higher education institutions in the USA. A database model, in which all the content in an e-journal bundle or package is seen as a

[14] Non-disclosure agreements are very much at play and make information asymmetrical. Such enclosures impede transparency as comparisons between universities are made impossible (Björk, 2017, p. 104). Library Journal's survey had to use the standard retail price for printed journals as many journals do not make their online-only pricing available (Bosch & Henderson, 2017). The survey's result should therefore be taken as a rough estimate of contemporary tendencies.

database, with no need for "title by title reconciliation", has also been tried out (Bosch & Henderson, 2017).

Gold OA's business model is characterized by the logic that *some pay for all*. Some OA journals have subsidies from universities, libraries, foundations, learned societies, museums or government agencies, while other OA journals charge APCs for accepted articles that could be paid by the author or their funders or employers. OA journals financed by institutional subsidies tend not to collect publication fees (Suber, 2012, p. 136), whereas for-profit publishers do. In 2012, for-profit publishers, in addition, tended to get additional revenue from advertising, add-on services and printed versions (Suber, 2012, p. 137). Today most OA journals are e-only and often use the CC-BY license, which limits the use of add-on services.

Gold OA can be profitable, but hybrid journals are particularly so.[15] The international project *Open APC* has gathered data from over 55,000 OA articles, and the average APC of 33,148 articles published in full OA journals was 1485 euros, whereas the average APC price of the 22,472 articles published in hybrid journals was 2480 euros (Kungliga Biblioteket, 2019, p. 10). On the other hand, the actual cost of producing and publishing an article in a scholarly journal arguably lies somewhere between USD 100–500, according to new publishers like Scholastica, Ubiquity, PeerJ or Hindawi (connected to Wiley) (Brembs, 2016; Linders, 2019).

The prices for hybrid APCs are much higher than on the full OA market, because the hybrid publishers already have the revenues from subscriptions in place: "Uptake of the hybrid option remains low and publishers do not have as strong an incentive as full OA publishers to increase uptake via moderate pricing" (Björk & Solomon, 2014b, p. 101). Many of the hybrid journals, as in the case of Springer, come in bundles which tie up the APCs with normal subscription licenses (Björk & Solomon, 2014b, p. 101). These hybrid journals have generated such high profits that, for a long time, well-known universities have hesitated to renew their licensing contracts; the effect has also been to discourage

[15] The market for hybrid journals is characterized as dysfunctional by several scholars (Björk & Solomon, 2014b; Tennant, 2018).

faculty from submitting open access articles to hybrid journals that are charging publication fees (Kranich, 2007, pp. 197–8; Suber, 2012, p. 62).

The hybrid model has also created another form of discontent. Critique against "double dipping" has been frequent in relation to hybrid journals. This means that the publisher is accused of charging subscriptions fees for OA articles that have already been paid for. Double dipping, pocketing APCs without lowering subscription fees, is not accepted by the library community and there are expectations that publishers "discount subscription prices based on OA uptake" (Jackson & Richardson, 2014, p. 239). Back in 2012, Suber wrote that there is an important distinction between the minority of hybrid OA journals that reduce subscription prices in proportion to the "author uptake of the OA option" and only charge subscribers for the non-OA articles, and the majority which charge both subscription and publication fees for the OA articles (Suber, 2012, p. 141). The problem is that it is easier said than done to control this. There are two ways to counter-act "double dipping" in practice: *offset-agreements* where after a year or two the publisher reduces the subscription costs for participating organizations based on the publishing costs of affiliated researchers, and Read & Publish agreements based on predetermined publishing and reading-access costs (Kungliga Biblioteket, 2019, p. 14). The latter agreements are yet not so common, but are increasing rapidly and Springer Nature, Wiley, Taylor and Francis have struck a handful of such deals in the last few years. Elsevier agreed to its first Read & Publish agreement with a Norwegian consortium in April 2019, but only after demanding a higher price than for its current subscription-offer to the consortium. The Norwegian consortium and its members will not get refunded if they fail to publish their "allocated number of open access articles", but they have to pay for all the extra OA-published articles (McKenzie, 2019). In this context, it has become common to talk about "the total cost of ownership" for successful universities that pay a lot for subscriptions as well as for a high number of APCs (Lawson, 2015), and thus are experiencing the negative side of the "some pay for all" logic.

Still, there are many factors that affect subscription pricing: inflation, changes in page extent and in frequency, and competitiveness with other titles (Jackson & Richardson, 2014, p. 240), and the arbitrariness in

pricing in itself can also make it difficult to identify double dipping. Elsevier has also been a target for criticism about double dipping, but it claims on their web page that they do not practice it (Elsevier, 2018c). Still, Bernstein Research stated in their investment advice for Elsevier in 2014 that it would probably be impossible for the publishers to prove beyond doubt that they were not double dipping. They consider this to be advantageous, as "the publishers seem to use practices which leave wiggle room to keep at least some of the money" (Aspesi & Luong, 2014, p. 1). If true, this is of course a clear case of profiting from openness in more than one way (Table 4.2).

Table 4.2 Four main publisher's mix of hybrid and full OA journals

	Number of journals	Hybrid journals	Full OA journals	Dominant market niche[a]
Springer Nature	3000+	2000+	600 (ca.)	STM (several successful mega journals)
Wiley	1500 (ca.)	1416	107	STM (learned societies)
Sage	1000+	Ca. 800 (only 12 pure subscription journals)	200+	Social sciences and humanities
Taylor & Francis	2600+	2000	15 (subsidiary *Cogent OA*)[b]	Social sciences and humanities
Elsevier	2500+	1900+ (34,000 published gold OA articles in 2018)	Ca. 250 (45 new in 2018)	STM (with a long tail of publications in many areas)

Source: Authors' elaboration based on data from (Elsevier, 2019c; Informa, 2019; Linders, 2019; RELX Group, 2019c, p. 14; Sage Publishing, 2019a, 2019b, 2019c, 2019d; Springer Nature, 2019a, 2019b; Wiley, 2019a, 2019b)

[a]All major publishers have broadened their publishing activity and compete today with each other in most of the various academic disciplines (Linders, 2019), but they also lean toward specific core areas and have their own distinct company history

[b]The Informa web page is not clear if these 15 articles are the only full OA journals, and if the 2000 journals are all hybrid, but the numbers are in line with Elsevier's and Springer Nature's number of hybrid journals and seems plausible as an illustration

Academic and scholarly publishing plays a different part in Springer Nature, Wiley and Sage, than it does for Elsevier. Springer Nature presents itself as a "global research, educational and professional publisher" and as a pioneer within open research (Springer Nature, 2018). Wiley is focused on scholarly publishing (STM), professional development and global education (Wikipedia contributors, 2019e), whereas Sage publications, besides scholarly journals, also owns other imprints (Wikipedia contributors, 2019c). In comparison, Elsevier, or the RELX group, is not only active within publishing. Business segments like risk and business analytics, legal information and business exhibitions also form part of the company (RELX Group, 2019c). This contextualizes the companies' differing revenues (Table 4.3).

4.2.1 Plan S: A Challenge to the Hybrid Journal and the Subscription Model

Plan S's key principle is that all research funded by national and European research councils and funding agencies will be published immediately under an open license from January 1, 2020. To be compliant with this, a journal or platform must offer full copyright retention to the authors and institutions, be transparent about the "costing and pricing" affecting the publication fees, and—to avoid double dipping—not have "a mirror/sister subscription journal with substantial overlap in editorial board" (cOAlition S, 2018b, p. 5). In the plan, it is explicitly stressed that the model for hybrid journals is not compliant with Plan S (cOAlition S,

Table 4.3 Revenues of Springer Nature, Wiley and RELX group

	Springer Nature (2017, million euros)	Wiley (2018, million USD)	RELX group/Elsevier (2018, million pounds sterling)
Revenue	1637 (1835 USD)	1796	7492 (9830 USD)/2538 (3330 USD)

Source: Authors' elaboration. NB. Springer Nature presents its revenues in euros, Wiley in USD and RELX group in pounds sterling. USD is used as the base of comparison. See USD value (as of May 7, 2019) in parenthesis for Springer Nature and RELX group (John Wiley & sons, Inc., 2018; RELX Group, 2019c; Springer Nature, 2018)

2018a), but an implementation guide suggests a transition period of three years, during which funded research can be published in hybrid journals that have signed a *transformative agreement*. Contract negotiations need to be concluded by 2021 at the latest, and the agreements must include a "scenario that describes how the publication or platform will be converted to full Open Access after the contract expires" (cOAlition S, 2018b, pp. 6–7).

The implementation guide also clarifies the position on open licenses. It first states that the material in compliant journals and on compliant platforms should be licensed in a non-exclusive way to grant the right to share and adapt the work "for any purpose, including commercially" (cOAlition S, 2018b, p. 4). This position is elaborated further:

> For scholarly articles, cOAlition S requires the use of the Creative Commons Attribution (CC BY) 4.0 license. In addition, cOAlition S will accept the use of the CC BY-SA 4.0 license, and publishing in the public domain (CC0), in line with the cOAlition S aim of maximum re-use of the research funded. (cOAlition S, 2018a, p. 4)

The logic mirrors the open definition and OSI's more permissive licenses (see chapter on Red Hat), and only accepts a copyleft license as a complement. This is in line with how openness ideology is played out, and the for-profit dimension is highlighted. Still, plan S accelerates the timeline for OA and it has created tension and met with resistance from the publishing community, where Springer Nature and Wiley have tried the transformative agreements, whereas Elsevier up until recently has refused to do so (Wideberg & Lundén, 2019).[16] On November 22, 2019, the Swedish Bibsam consortium reached what they called a transformative agreement with the company, *but* without getting any promises about the company letting go of its hybrid journals after the agreement expired. The agreement was a read-and-publish agreement where one pre-payment secured gratis Open Access publishing in many of the company's hybrid journals for all articles with a corresponding author

[16] Market leaders such as Elsevier and Microsoft, in the realm of software, often favor pay-walls, whereas companies like Springer Nature and IBM experiment more with openness in order to strengthen their business models as non-dominant market players.

connected to the consortium's organizations. But in relation to Elsevier's Cell Press hybrid journals the agreement only contained a pilot. The same quota system as in the Norwegian agreement mentioned earlier was used in the pilot (Wideberg, 2019a, November 22, 2019b, November 25).

4.2.2 Case Description

The RELX Group plc is owned by two publicly listed holding companies that control 52.9% and 47.1%, respectively, of the shares in the mother company. One is traded on the stock exchange of London, and the other on the stock exchange of Amsterdam, but the RELX group is managed on a "unified basis" (RELX Group, 2018, p. 71). During the last decade, the company has increased its acquisition of other companies and included the provision of information and data analytics as a business segment (Tennant, 2018, p. 7). In 2013 the reference management and social platform *Mendeley* was acquired, and three years later, the preprint and publishing community *Social Science Research Network* (SSRN) was added to the portfolio, followed up by the acquisition of the institutional repository support platform *Bepress* in 2017 (Tennant, 2018, p. 10). This shift has not changed the fact that the company still accounts for roughly 25% of all scholarly published papers. Around 2010, Elsevier had 2310 toll-accessed or subscription journals, and 68 hybrid journals (Jackson & Richardson, 2014, p. 240; Tennant, 2018, pp. 7–9). Today it has, as presented in Table 4.2, more than 2500 journals, with more than 1900 being hybrid journals and 250 being full OA (RELX Group, 2018, p. 71). The average yearly price increase for subscriptions is estimated to be around 4–5%, and digital products generate over 75% of the company's revenue (Tennant, 2018, p. 7, 14). The company expanded further into scholarly publishing in 2016, by introducing a competitor to the Journal Impact Factor-metrics called *CiteScore* (Tennant, 2018, pp. 7–9).

The following description of the company's development during the new millennium is based on four investigation points in time: 2002, 2007, 2012 and 2017. During this time the company's revenues, profits and profit margins steadily increased (see Table 4.4).

Table 4.4 RELX/Reed Elsevier revenues, profit and profit margins

Year	Revenue (million pounds)	Changes in revenue (%)	Profit (op./gross profit in million pounds)[a]	Changes in profit (%)	Profit margin (%)	Change in profit margin (%)
2002	5020	–	1133	–	22.5	–
2007	4584	−8.7	1137	0.3	24.8	10.2
2012	6116	21.8	1713	51	28	24.4
2017	7355	46.5	2284	101.5	31.1	38.2

2002 used as base year

Source: Authors' elaboration based on the annual reports and financial statements of Reed Elsevier from 2002, 2007 and 2012, and the RELX annual report and financial statement of 2017 (Reed Elsevier, 2003, p. 1, 2008, p. 2, 2013, p. 2, 51; RELX Group, 2018, p. 2, 8, 55)

[a]This category focuses on the adjusted operating profits which equals the net income of the company (Law Insider, 2019)

Elsevier is a large corporation with a complex and changing structure. It is possible to get a sense of the different business (market) segments of the company and the developments within and between them by looking at the annual financial reports (see also Table 4.5). In 2002, Reed Elsevier consisted of four different strands. Besides STM, it had legal, educational and business strands. STM represented 26% of the revenues, whereas legal contributed 27%, education 20% and business 27% (Reed Elsevier, 2003, p. 8).

In 2002 the company successfully integrated Harcourt STM business, and subscription renewals to its print journals as well as to the company's database service *ScienceDirect* were strong. The migration to e-only contracts was accelerating, resulting in less revenue than combined print and online sales, but providing a "platform for the sale of new electronic services" and improved operational efficiency (Reed Elsevier, 2003, pp. 2–3). The number of articles on ScienceDirect increased from 1.8 million to 3.3 million through new publishing, uploading of back files and migration from Harcourt's IDEAL platform. Downloads from ScienceDirect increased by 70% during the year, and the majority of important customers took up the service at this time, whereas the rest could often access web editions of journals (without the extra functionality) as part of their subscription. The outlook for the strand was considered to be good,

Table 4.5 Revenue and profit of business segments

Year	STM 2002/Elsevier 2007/Scientific, technical & Medical 2012, 2017			Legal 2002/ LexisNexis 2007/ Legal 2012, 2017			Education 2002/ Education discontinued 2007			Business 2002/Reed Business 2007/ Business information 2012/Risk & Business Analytics 2017			Exhibitions 2012, 2017			Risk solutions 2012		
	R	P	%	R	P	%	R	P	%	R	P	%	R	P	%	R	P	%
2002	1295	429	*33.1*	1349	287	*21.3*	993	183	*18.4*	1383	234	*16.9*	–	–	–	–	–	–
2007	1507	477	*31.7*	1594	406	*25.5*	752	121	*16.1*	1483	260	*17.5*	–	–	–	–	–	–
2012	2063	780	*37.8*	1610	234	*14.5*	–	–	–	663	119	*17.9*	854	210	*24.5*	926	392	*42.3*
2017	2478	913	*36.8*	1692	332	*19.6*	–	–	–	2076	759	*36.5*	1109	285	*25.7*	–	–	–

Source: *The annual reports and financial statements of Reed Elsevier from 2002, 2007 and 2012, and the RELX annual report and financial statement of 2017*. Revenues (R), Profit (P) and Profit margin (%) (Reed Elsevier, 2003, p. 2, 2008, p. 19, 2013, p. 9; RELX Group, 2018, p. 9)

despite academic budgets being under pressure (Reed Elsevier, 2003, p.3). The other strands were all quite profitable, but less so than the STM strand.

Five years later, in 2007, Reed Elsevier sold its educational business, although it still had a profit rate of 16% (Reed Elsevier, 2008, p. 26). STM journals, legal services and business services each roughly constituted a third of the revenues (education not included): Elsevier 33%, LexisNexis 35% and Reed Business 32% (Reed Elsevier, 2008, p. 27). The STM sector continued to prosper from a "continued expansion of our online information and workflow solutions". This expansion included an acquisition of Belstein's chemical compounds database, new support services for professionals in the medical field, and the selling of a software business (Reed Elsevier, 2008, pp. 20–1). During 2007, the impact factors of a substantial majority of Elsevier's scholarly journals increased, and the future outlook was positive with a growing stock of digital products (Reed Elsevier, 2008, pp. 20–1).[17]

In 2012, Elsevier and the STM segment had 7000 employees and still represented a third of the company's total revenue (34%), whereas the other business segments at the time were Risk Solutions & Business Information (26% of the revenue), legal services (26%), and exhibitions (14%). Although, in terms of profit, STM generated as much as almost half of the company's total profit (45%) (Reed Elsevier, 2013, pp. 9, 12, 15). The range of customers included: "scientists, academic institutions, research leaders and administrators, medical researchers, doctors, nurses, allied health professionals and students", and of course the institutions behind these actors. The "primary research market" saw over one million submitted research papers, which was a "double digit increase on the prior year". The company mentions that "over 10,000 editors managed the peer review and selection of these papers, resulting in the publication of more than 330,000 articles in almost 2,000 journals". This scholarly material was in turn accessed by over 11 million people with almost 700

[17] Already in 2004, Elsevier had launched *Scopus*, a new "abstract and index database and navigational tool" (Reed Elsevier, 2005, p. 4). Two years later, in 2006, the database contained 30 million article abstracts from more than 15,000 peer-reviewed publications of scholarly articles (Reed Elsevier, 2007). At the same time, between 2006 and 2007, the use of ScienceDirect increased by as much as 20% (Reed Elsevier, 2008, pp. 20–1).

million downloads (Reed Elsevier, 2013, p. 12). Another important service, besides ScienceDirect and Scopus (now containing abstracts and bibliographic information on around 50 million articles), was *Geofacets*, containing third-party geological data for oil and gas exploration, and *Reaxys* for synthetic chemists (Reed Elsevier, 2013, p. 13).

The year 2012 was also the first year that the term "open access" was mentioned in the annual reports, which is interesting, as it is portrayed as a long-standing phenomenon in which the publisher Elsevier is well positioned. However, the subscription model is still perceived as the principal, and even in the future, the primary business model (Reed Elsevier, 2013, p. 14). At this time, 1500 of the company's journals were said to be hybrid journals and 30 journals were fully OA (Reed Elsevier, 2013, p. 14).

In the 2017 annual report, open access is mentioned six times (RELX Group, 2018, p. 14, 17).[18] The RELX group still consisted of the STM, risk and business analytics, legal and exhibition segments. STM constituted 34% of the revenue, of which 45% came from North America, 25% from Europe and 33% from the rest of the world. A major part of the revenue came from subscriptions (72%), and the rest came from transactional activities (26%) and advertising (2%).[19] This year the STM segment only generated 40% of the profit, in comparison with 45% in 2012 (RELX Group, 2018, p. 9, 14).

If we take a look at the activities behind these numbers, 1.6 million research papers were submitted in 2017. These papers were handled by 20,000 editors, double the amount in 2012, who managed the peer review process and the selection of articles to publish (RELX Group, 2018, p. 14), together with 72,000 editorial board members and 830,000 peer reviewers (Tennant, 2018, p. 7).[20] The number of employees in the segment was now 7500, an increase of 500 since 2012 (RELX Group, 2018, p. 14), though still far from the 20,000 editors and 830,000 peer

[18] "Open access" is mentioned *twice* in the annual reports of 2013 and 2014, and *three* times in the 2015 and 2016 annual reports (Reed Elsevier, 2014, p. 16; RELX Group, 2015, pp. 16–17, 2016, pp. 14, 16–17, 2017, p. 16).

[19] The category "transactional" is opaque, but includes the APCs.

[20] It is unclear from these numbers if they include people who sit on multiple boards or review more than one article per year.

reviewers. Peer reviewers in general are unpaid or underpaid within scholarly publishing (Tennant, 2018, p. 17; Smith, 2006; Mulligan, Hall, & Raphael, 2012). In the end, 430,000 articles were published in about 2500 journals, and 26 new "subscription and open access journals" were launched. Eventually, ScienceDirect contained 15 million "pieces of content" and Scopus 70 million bibliographic publications from 22,500 journals, with 900 million downloads being effectuated (RELX Group, 2018, p. 2014, pp. 14–15).[21]

The revenue and profit of each of these business segments—and their development over time—are presented in Table 4.5, in order to wrap up this presentation of Elsevier and the RELX group. In the table, the profit rate of each segment and its development are presented, rather than the segment's share of the whole company's profit.[22]

4.2.3 Elsevier's OA Products

The focus here will be on the scholarly publishing side of the company, but as Elsevier publishes more than 1900 hybrid journals and around 250 full OA journals, the following overview only serves to illustrate different pricing models related to OA.

Elsevier's subsidiary Cell Press could provide an initial instructive example. Its *Cell Reports* is a high status full OA journal where the APC is USD 5200. The subsidiary's six other full OA journals' APCs are placed in the range from USD 2900 to USD 3800. Some have discounts for members. Many of the hybrid journals of the same subsidiary, on the other hand, require the same high APC of USD 5200, like Cell Reports (Elsevier, 2019a, 2019d). In comparison, Elsevier's OA mega journal

[21] The use of big data in services of all sorts are mentioned in relation to the STM segment, but is highlighted in relation to all sectors of the company. HPCC systems (high performance computing cluster) is presented as Elsevier's "open source big data technology" (RELX Group, 2018, pp. 10, 15). Big data seems to be of especial importance to risk and business Analytics (RELX Group, 2018, pp. 20–2), but LexisNexis also continued to develop its "analytical decisions tools" (RELX Group, 2018, p. 29) (RELX Group, 2018, p. 34).

[22] The numbers in the table should be interpreted in an indicative and illustrative way, as they are based on categories that have changed between the years. The profit is the adjusted operating profit, the net income of the company (Law insider, 2019). Other sources claim that the profit could be as high as 40–50% before taxes (Van Noorden, 2013, p. 427).

Heliyon had an APC for accepted papers of USD 1250 in 2018, a price that increased to USD 1500 in 2019 (Elsevier, 2019d, 2019e; Heliyon, 2018a). The overall APC range for Elsevier journals is between USD 150 and 5000 (Tennant, 2018, p. 20).[23]

Elsevier's lower APC price spectrum for full OA journals ranges mostly between USD 500 to approximately USD 950, whereas the lower price spectrum for hybrid journals' APCs (with some exceptions) ranges approximately between USD 1100 and 1700 (Elsevier, 2019e).[24] The general impression from this tentative comparison is that hybrid journals still have higher APCs. The most common APC price range for Elsevier's hybrid journals is between USD 2501–3000 (Morrison, 2017).

The hybrid journal market is driven by journal brands, and motivated by high ranking that, in turn, creates monopoly effects and higher APCs, but there is also a study that shows a moderate correlation between the pricing of full OA journals and ranking estimates (Björk & Solomon, 2014b).[25] Casting a quick glance at a very limited sample of full OA journals in Elsevier's APC price list and combining it with the Scimago Journal & Country Rank (SJR) (Scimago Lab, 2018) lends some support to such a conclusion.[26] Although, in relation to hybrid journals' OA prices, such factors as funding availability as well as discipline categories seem equally or more important for Elsevier. The company differentiates its pricing, depending on the journal's discipline, in a clear way. STM journals in biomedicine, chemistry, physics and astronomy, earth sciences and engineering have an average APC of around USD 2500, whereas Arts and Humanities, Business and Economics and Social sciences, on the other hand, have—in that order—an average APC of USD 1452, USD 1612, and USD 1835 (Björk & Solomon, 2014a, p. 25; Lawson, 2014).

Elsevier thus exploits both the monopoly effects of branding and the various levels of funding in different disciplines in their price setting.

[23] USD 5200 is the highest APC that we have found.

[24] The limits for this lower spectrum are only estimates.

[25] The APC prices in full OA journals are increasing, and a positive correlation between high impact factor and increasing publishing cost is identified (Kungliga Biblioteket, 2019, pp. 10–11).

[26] SJR takes its data from Elsevier's Scopus.

4.3 Scheme of Flows and Actors

Many different actors are involved in scholarly publishing. Researchers, universities, funding agencies, research administrative state agencies, as well as other state agencies on various levels (cOAlition S, 2018b; Kungliga Biblioteket, 2019, p. 19) take part in this venture along with the publishers.

Researchers take on many roles in the process: as authors, editors and peer reviewers. Researchers are paid wages in relation to their research, but are not paid for publishing their research outputs, and rarely so for peer reviews of each other's submitted intellectual works (Tennant, 2018). Editors of journals, who organize the peer review process, can, on the other hand, be compensated economically to various degrees, but the common understanding has been that the economic compensation is limited (Smith, 2006). A recent investigation by Science Guide, on the other hand, shows that some editors actually could earn quite high salaries, but it is also true that economic compensation in many cases does not cover all of the editors' work (de Knecht, 2019).[27]

The publishers of scholarly publications could be for-profit companies and their employees, learned societies and their academic members, university organizations of various sorts, as well as the researchers themselves in various peer constellations.

The journals can be financed by for-profit companies, but can also be financed or have subsidies from universities, libraries, foundations, learned societies, museums or government agencies. OA journals financed by institutional subsidies tend not to collect publication fees, but for-profit publishers often do this. APCs could be paid by the authors or their funders or employers (Suber, 2012, p. 136).

The state's and research funders' monetary flows do not only support journals but also help universities and the university libraries to acquire subscriptions, maintain institutional repositories and finance APCs for

[27] There are also several types of editors. Most journals have a chief editor, one or two full editors, up to a dozen associated editors and even more editorial board members (Robson, 2017). Elsevier is claimed to be willing to compensate editors in order to prevent them from leaving and setting up an OA journal elsewhere. Science Guide also points out the potential effects of Plan S in this regard (de Knecht, 2019).

the authors, or alternatively the flows run directly from funding agencies to researchers by including the APC costs in research grants (Kungliga Biblioteket, 2019, p. 8). Various studies have shown that around 30% of the APC is paid for with grant money. A European study claims that an additional 55% comes from overhead funding connected to grants and departments and only 12% from the researchers themselves. In another study, it was shown that the researcher in "developing nations" paid for 39% of the APC (Björk & Solomon, 2014b, p. 95).

Still, though, the majority of for-profit publishers' revenue comes from institutional library budgets. Customer-corporations contribute a minor part of the revenue related to subscriptions, and personal subscriptions make up an even smaller part of it. Some symbolic revenue can also come from advertisements (Ware & Mabe, 2015, p. 23). In Elsevier's case, 72% of the revenue came from subscriptions in 2017, 26% from transactional activities (APCs) and 2% from advertising (RELX Group, 2018, p. 9, 14).

Increasing gold OA publishing will shift the main source of monetary flows from the library sector to university faculties, external research funders or individual researchers (Kungliga Biblioteket, 2019, p. 5).

4.4 Regulations

Elsevier has a general policy in relation to gold OA. Three options are offered: two CC licenses and a company-specific user license. The CC licenses are presented as a choice between a commercial and a non-commercial license. The commercial license is an attribution-only license that allows commercial uses, but also all other uses (CC-BY) (Elsevier, 2018b). The copyleft option is not offered. The third option is, instead, the company's user license that is mandatory for all resources in the *open archive* that consists of the archived material of 118 Elsevier journals, offered for free to "subscribers and the general public" to "read and download" after an embargo period (RELX Group, 2019b).[28] This user license prohibits commercial uses, allows copying, translations (under certain

[28] The most common embargo periods are 12 months and 48 months, but one journal *Limnologica* has an embargo time of 5 years (RELX Group, 2019b)

circumstances) and text mining for non-commercial purposes, but does not allow redistribution, display and adaptations. The limitations are presented within parenthesis, in passing (RELX Group, 2019a). Thus, no adaptations, redistribution and derivative works can be made from this open archive's resources.

This company policy for gold OA is applied and further specified on the journal level. Elsevier's mega journal *Heliyon*, for example, offers both CC licenses, with the non-commercial option as the default (Heliyon, 2018b).

Contracts related to Elsevier's subscription-based journals, including hybrid journals, are often negotiated with various national consortia. These license agreements often come with non-disclosure agreements that contribute a lack of information, supporting arbitrary price discrimination, to the price inelasticity created by "must buy" journals in the scholarly publications market. Tennant concludes that "[s]uch a lack of disclosure is a profoundly anti-competitive practice, designed to protect the financial interests of a for-profit corporation at the expense of public access to information and public funds" (Tennant, 2018, p. 15).

Some change is occurring regarding these contracts. Finnish *FinELib* has published their ongoing agreement with Elsevier between 2018 and 2020, leaving some pages containing Elsevier's business secrets blank. In the agreement, the company grants a non-exclusive and non-transferable right to access and use a bundle of journals and services (Elsevier, 2018d; Elsevier & Consortium Finelib, 2018; FinELib, 2018a). The agreement contains a gold OA pilot, in which the members of the consortium get a 50% discount on the APC of more than 1500 hybrid journals and 100 full OA journals (Elsevier, 2018a; FinELib, 2018b).

In FinELibs agreement with Elsevier, it is stated that affiliated authors retain their copyright on their work when publishing in the journals included in the Gold OA pilot, but the authors grant an exclusive right to the company "to publish and first distribute the journal article". Later it is clarified that the authors have the same right to reuse the published article as a third party under the selected CC license (Elsevier & Consortium Finelib, 2018). Thus, not even in this limited case do the authors really retain their original copyright. Elsevier explains that the exclusive rights that the author grants the company in relation to OA

articles include the "the right for the publisher to make and authorize commercial use" (Elsevier, 2019b). Authors publishing in toll-accessed subscription journals transfer their rights to Elsevier to an even higher degree. The original right that remains with the author in both these cases is the right to be attributed, but this is a moral right that in many jurisdictions cannot even be transferred. In relation to both OA and subscription articles, the exclusive rights transferred to the company include the right to grant rights to others (Elsevier, 2019b).

Regarding green OA, finally, we have already seen that the embargo periods for parallel publishing are flexibly regulated in order to support the business model through contracts that take into account "article version, geographic location, research funder, discipline, and where the author wants to share their work" (Tennant, 2018, pp. 22–3).

4.5 Role and Enactment of Openness Ideology

OA is not the dominant form of scholarly publishing, but the main publishers offer the researcher OA options in both hybrid and full OA journals; it is in this context that Elsevier calls itself a "leading open access publisher" (Elsevier, 2019c).

The complexities of the OA landscape facilitate several ideological positions. *First*, we have the difference between the journal level and article level in Elsevier's OA discourse. It seems that OA articles transform hybrid journals into OA journals. *Second*, the growing numbers of OA articles are put up for display, but they still make up a small percentage of OA articles in relation to the total amount of peer-reviewed articles in the company's journals. *Third*, Elsevier embraces the openness ideology perspective by choosing attribution-only licenses, instead of the copyleft logic that is not present at all in the company's policy. On the other hand, the company also promotes a non-commercial option for everybody except itself.

Let us now turn our attention to how Elsevier writes about openness. Up until 2012—the year of the Finch report—OA was never mentioned

in the company's annual reports. This silence is significant, as the first decade of the millennium was an important expansion phase for OA. In the 2012 annual report, this former silence is made *invisible* and the company stresses that alternative payment models, "so-called 'author-pays open access' or 'author's-funder-pays'" have emerged over the last 15 years, and that Elsevier has promoted them "to address the needs of customers and researchers" (Reed Elsevier, 2013, p. 14). Why then the silence on OA during the previous years? The increasingly radical recommendations and mandatory policies for OA that were put forward by the OA-movement, universities and research funders in this period are completely left out of the picture. Why is nothing said about green OA and shorter embargo periods, if customers' and researchers' needs really are in focus? The answer is as shown that Elsevier during this period was working actively against demands for green OA.

Actually, it is revealing that the company, in 2012, only spoke of alternative *payment* models in relation to OA. Open access is thus only mentioned as an appendix to payment models. The concept is not presented in its own right and nothing is said about what defines the open accessibility. OA is firmly contained within a commercial setting.

Five years later, in the 2017 annual report, open access has become part of the main road forward. Tennant talks of a "public transformation" in which the company comes out in favor of Open Science (Tennant, 2018, p. 20). The term OA is used 6 times when the STM segment of the company is presented: "In 2017, Elsevier launched 26 new subscription and open access journals, including Materials Today Physics, Joule from Cell Press and The Lancet Planetary Health" (RELX Group, 2018, p. 14). Open access journals are presented in juxtaposition to subscription journals. This time we read that OA has been developing an alternative model for the *dissemination* of research, not an alternative payment model, for the last 15 years (RELX Group, 2018, p. 17). The origin in time for OA here seems to be a moving target in the annual reports, but in 2017, there is no longer any need to establish a commercial setting. The open dissemination of research can be stressed explicitly, even though it is pointed out that the paid subscription model will remain the main distribution model (RELX Group, 2018, p. 17). Having said that, Elsevier still claims to be one of the largest OA publishers in the world: "In 2017, we

published over 27,000 open access articles, a double-digit growth on the previous year, making us the second largest open access publisher in the world. Over 1,890 of Elsevier's journals now offer the option of funding publication and distribution via a sponsored article fee" (RELX Group, 2018, p. 17).

Several hidden assumptions are made in the annual report. Articles and not journals are highlighted in the argument, taking attention away from hybrid journals, but also equating hybrid journals to OA journals, making it the norm that OA journals require APCs. OA is presented as optional, which leaves the impression that it will always remain a minor alternative. It is against this backdrop that the company claims to be one of the largest OA publishers: OA is contained within the business model, defused politically and used to open-wash the company. This appropriation of OA in the 2017 annual report avoids mentioning the ongoing boycott of the company as well as the critique of various national consortia and negotiating partners. This is a significant ideological silence in the material.

Open-washing emerges in several other forms in 2017. Elsevier is taking steps to compete with the institutional repositories of green OA (even if nothing is said about green OA):

> Next to subscription and open access journals, Elsevier has also invested in other models to address the needs of the research community. SSRN for example is an open-access online preprint community where researchers post early-stage research, prior to publication in academic journals. Mendeley data enables researchers to make their research data publicly available by providing an open research data repository. Bepress, which joined Elsevier in 2017, helps academic libraries showcase and share their institutions' research via institutional repositories for greatest impact. (RELX Group, 2018, p. 17)

Green OA has gone from being a threat that needs to be contained with embargo periods, to being seen as a new market segment, and the egalitarian concept of community is appropriated ideologically. OA is furthermore ideologically used to conceal the not-so-open effects of the mentioned business practice. Mendeley has, for example, actively

prohibited its users from exporting their data to competing services, like, for example, the free software reference management tool Zotero, even if Mendeley has been harvesting Zotero's databases since 2009 (Tennant, 2018; Zotero, n.d.-a, n.d.-b).[29] And SSRN is likewise a competitor to green OA repositories that focus on the company rather than the independent community of researchers that could be seen as a way to create a "'locked-in' monoculture for researchers where researchers and institutes are forced into using their services" (Tennant, 2018, p. 9). The commercial advantages of such lock-in features are many. CiteScore, Elsevier's competitor to the Journal Impact Factor (JIF), for example, strongly favors the company's own journals in relation to other publishers' journals (Tennant, 2018, p. 9). CiteScore builds on the company's abstract and index database, Scopus (that includes many other publishers' titles) and an enclosed algorithm. The mentioning of *open access community* and *open research data repository* in the quote above is thus an example of deceitful open-washing.

The company today actually claims to advocate a transition to OA (Tennant, 2018, p. 20). The Vice President for policy and communications, Gemma Hersh, wrote a programmatic text in 2017, outlining this transition. First, she makes a case for the need for green OA with embargo periods, as not everybody can afford gold OA (Hersh, 2017). It is, thus, implied that gold OA has to involve APCs, and embargo periods are portrayed as a non-contentious phenomenon. The transition dimension is then stretched out into the future: "Indeed, in a world where over 80 percent of articles continue to be published under the subscription model, green open access will surely remain an important component of many transition strategies" (Hersh, 2017). The importance of this lock-in effect is later stressed in the conclusions: pioneering countries moving into full gold OA would still have to pay for the rest of the world's

[29] Zotero's reference management system is licensed under Affero GPL v. 3. Zotero describes the relationship to Elsevier like this: "Mendeley 1.19 and later have begun encrypting the local database, making it unreadable by Zotero and other standard database tools. Elsevier made this change a few months after Zotero publicly announced work on an importer, despite having long touted the openness of its database format as a guarantee against lock-in and erroneously continuing to state in its documentation that the database can be accessed using standard tools. At the same time, Mendeley continues to import data from Zotero's own open database, as it has since 2009" (Zotero, n.d.-a).

subscription-based research (Hersh, 2017). This insight informs the next claim about creating a geographical border between Europe and the rest of the world in relation to OA. According to Hersh, Europe could transition into a system of full gold OA, but the rest of the world would want to stick to subscriptions and green OA with embargo periods (Hersh, 2017). The consequence of such a system is that OA-published articles would only be openly available in Europe, and nowhere else, which is a distortion of OA (Moody, 2017). More importantly, the system would risk fixating the lock-in effect that Hersh stresses in the conclusions. Elsevier's transition to OA focuses a lot of its energy on arguing for the status quo, or on distorting the understanding of OA. Hersh's text also presents the current prices, subscriptions and APCs on a price inelastic market as natural, and argues that APCs would have to be higher in a full gold OA landscape (Hersh, 2017).

Elsevier has increasingly, over the last decade, given priority to a business-contained, politically defused and gradually co-opted OA. This strategy has been so successful that, in its 2018 annual report, an explicit distinction is made between subscription journals and OA journals for the first time. 45 new "full open access journals" and 9 new subscription journals have been launched (RELX Group, 2019c, p. 14). This distinction is made at a time when Plan S is launching a threat against the whole subscription model. Suddenly it is not the intermixing of openness and enclosures that is important for the market leading publisher, perhaps it is the distinction itself that has become valuable? At the same time, OA publishing is said to be growing rapidly, but not fast enough to disrupt the subscription system (RELX Group, 2019c, pp. 14–16, 42, 48, 61).

4.6 Conclusions

A total of 830,000 peer reviewers, of which a large part can be estimated to be unpaid or underpaid, are open to Elsevier's and other commercial academic publishers' exploitation. On top of that, Elsevier and other commercial academic publishers are prospering from research that is paid for by someone else, and *that* someone else (often the public) are in most

cases paying the companies to publish the research. This is profit for free at its prime.

The company also profits from openness in another and more direct way by charging high APCs for its OA publishing, and by not reimbursing allocated articles (within Read & Publish agreements) that have not been published. It is also hard to control the company's claim that it is not using the commercial strategy of double dipping in relation to hybrid journals. And more abstractly, it is a fact that the use of APCs on a philosophical level perverts the openness that is part of the company's business model (and of course also other for-profit publishers' "open" business models), in the sense that someone else is forced to pay for the openness and thus generate a profit that is enclosed by the company. Company representatives like Gemma Hersh actively naturalize the APCs. The company also profits indirectly from openness by open-washing enclosed and toll-accessed subscription articles in hybrid journals with their OA-publishing. Hybrid journals that are offered on a price inelastic market caused by "must-read" journals that leave the customers no freedom to act other than to buy the company's bundles of journals; markets that are characterized by a lack of information due to the systematic use of non-disclosure agreements that enclose and conceal the business contracts' content. The OA option ideologically puts these toll-accessed, subscription journals in a better light, at the same time as contributing through these practices and ideological maneuverings to a commodification of OA publishing by naturalizing the use of high APCs (as the revenue from the subscriptions makes the publishers less dependent on APCs).

Recently Elsevier has started to co-opt and commodify even green OA's institutional repositories. This move, together with the many other platforms and services (like Mendeley, Scopus and CiteScore) that concerns the whole of academic life, risks creating a closed system in which the universities become locked into and dependent on the company.

The company does not, on the other hand, share the openness ideology in any way other than offering a license option for OA publishing that is open for subsequent enclosures, but this strategy does not threaten the profit margin of the company, since the company is paid in advance by the authors. Elsevier has instead been in the frontline against OA. In each phase, it has warned against either how OA threatens academic

integrity and quality, or how it is connected to state censorship, or how it is not affordable to all countries. However, increasingly as the hybrid journals and full OA journals start to add profits without disruptive effects on the dominant subscription model and the company is getting more successful in providing services that lock-in the whole of the academic research cycle, it has publicly transformed itself and today ideologically presents itself as one of the largest OA publishers. Today it talks about dissemination of research and the research community in relation to OA, rather than as before about payment models.

Ideologically, the company has not only used OA to portray hybrid journals in a better OA light, they have also used the number of OA articles to present themselves as one of the largest OA publishers, even if the uptake of OA articles in hybrid journals is quite insignificant. It is also interesting that the company in its latest annual report abandons its earlier ideological position by acknowledging and making a distinction between subscription journals and full OA journals. One reason for this could be that OA is now firmly established in a company setting without being disruptive, at the same time as Plan S is being launched as a threat against the subscription model as a whole. This makes it ideologically possible and logical to both support full OA publishing and advocate for the subscription model. Gemma Hersh now defends the latter model by stressing the lock-in effects created by the sheer number of existing subscription journals, and by promoting a domesticated version of the former so-disliked green OA model. OA advocates, following the unfolding of Plan S comment that Elsevier does not seem overwhelmingly interested in signing transformative agreements. Open access seems to be of little importance to its self-proclaimed champion.

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5

Profiting from Open Audiovisual Content

5.1 Audiovisual Content Platforms and YouTube

5.1.1 Audiovisual Content Platforms

What are the most popular platforms for watching online videos? Different sources (Alexa, Similarweb and others) rank them differently. However, some basic conclusions can be drawn.

First and foremost, YouTube (YT) is the dominant player, ranked as first in this category by any measure or consultant company. For instance, YouTube receives 1 billion unique visitors from the USA each month, compared to 150 million attracted by Netflix (eBizMBA, 2019).

Secondly, after YouTube, the most consumed video content comes from adult sites. Sources differ greatly regarding the ranking and traffic of specific sites, but it is quite clear that platforms such as Pornhub, Xvideos and Xnxx (ranked 8th, 9th and 12th among all Internet websites, according to Similarweb) receive lots of attention from users, contribusers and produsers. Interestingly, most of them are based on the same business

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Table 5.1 Top 10 of audiovisual content websites

Website	Profit from	Content	Average rank	Alexa rank	Similar web rank
youtube.com	Openness	User generated and professional content	2	2	2
pornhub	Openness	Adult	17.5	27	8
netflix.com	Enclosures	Movies, shows	19.5	23	16
xvideos	Openness	Adult	28	47	9
twitch.tv	Openness	Gaming	32.5	26	39
xhamster	Openness	Adult	39.5	60	19
porn555	Openness	Adult	41	41	n/d
Livejasmin	Enclosures (services)	Adult	45	44	n/d
xnxx	Openness	Adult	53	94	12
youku.com	Openness	Licensed content	190.5	251	130

Source: Author's elaboration based on Alexa.com and SimilarWeb.com Top 500 rankings

model as YouTube (See Yansen, 2015). In turn, Netflix, that is, video content based on a pay-per-view business model, appears in third place. Noticeably, similar platforms (Hulu, Amazon, HBO) are not even in the top 100. Next comes Twitch, a platform devoted to streaming videogames, using a business model quite similar to that of YouTube, based on content created by produsers, advertising, a partner program and so on. At the bottom of the list is Youku.com, the only Chinese platform in the Top 10. Acquired by Alibaba, the company licenses professional content and delivers it for free with the aim of attracting attention to the ads the platform displays (Table 5.1).

5.1.2 YouTube

YouTube, launched in 2005, is not only the world's biggest video website by any metric but also the second Internet site by traffic, only behind Google search engine—actually, Google acquired YouTube in 2006. As of January 2019, YouTube has 1.9 billion monthly active users worldwide, who watch some 5 billion videos daily. Their average viewing

session is 40 minutes—a 50% increase from the previous year. Videos are uploaded by some 50 million produsers worldwide (Omnicore, 2019).[1]

What is the most popular content on YouTube? Although the question seems a simple one, the answer is not quite straightforward. You Tube videos are uploaded and streamed through "channels". A glance at the top ranked channels may prove useful to understand the kind of content that dominates YouTube (Table 5.2).

The table might be surprising in several respects. Six of these top channels are devoted to children's content and five to music. This is partly due to the fact that children and music listeners tend to repeatedly watch the videos they like. Children's content comes in two forms: animated videos and reviews of toys. More strikingly, the channel ranked 2nd is devoted to wrestling—rather than more popular sports. Music content is varied, and Indian, Brazilian and Turkish music channels rank higher than Justin Bieber.

This leads us to the political geography of the ranking. YouTube is a US platform, but only 5 out of the 16 most viewed channels—that is, the produsers that are generating a good deal of YouTube's revenues—are based in the USA. Furthermore, Indian websites come in the first and third place, but Turkey, Brazil, Philippines, Sweden, Argentina, Russia and Thailand are home also to some extremely popular channels. Even more remarkable is the fact that only 7 out of these top 16 channels use English as their main language. This simple fact—people attracting global attention while speaking languages other than English—is extremely unlikely to be seen in science, business and other global activities.

The pattern does not change if we focus on the most recent tendencies. For instance, Table 5.3 displays the ranking in January 2019.

So, is this good news? Is it a symptom of a democratization of content production? Does it potentially refute the cultural imperialism hypothesis? That could be the case to some extent.[2] But, at the same time, it might indicate quite the opposite. In terms of global political

[1] However, according to Statista, the annual rate of growth in users has been in decline from 13% in 2016 to 9.2% in 2017 and a projected 7.5% in 2018 (https://www.statista.com/statistics/805671/youtube-viewer-number-growth-world/).

[2] The degree to which this content is molded to satisfy the standards of hegemonic Western commercial capitalistic culture is a matter that we cannot deal with here. However, it is important to

Table 5.2 Ranking of YouTube 16 most viewed channels, by content category, country and language

Rank	Channel name	Content company/ multichannel network	Views (billions)	Main content	Country	Primary language
1	T-Series	T-Series	61.2	Music	India	Hindustani
2	WWE	WWE	29.9	Sports (wrestling)	USA	English
3	SET India	Sony Pictures Networks India	28.6	Entertainment	India	Hindustani
4	Ryan Toys Review	N/A	27.3	Children's content	USA	English
5	netd müzik	netd.com	27.2	Music	Turkey	Turkish
6	Canal KondZilla	ONErpm	22.9	Music	Brazil	Portuguese
7	ABS-CBN Entertainment	ABS-CBN	21.2	Entertainment	Philippines	Filipino
8	Movieclips	N/A	20.5	Film	USA	English
9	PewDiePie	N/A	20.3	Entertainment	Sweden	English
10	Cocomelon-Nursery Rhymes	N/A	19.5	Children's content	USA	English
11	El Reino Infantil	N/A	18.7	Children's content	Argentina	Spanish
12	Get Movies	N/A	18.6	Children's content	RUS	Russian
13	Little Baby Bum	N/A	18.4	Children's content	USA	English
14	JustinBieberVEVO	Vevo	18.3	Music	Canada	English
15	Маша и Медведь	N/A	18.1	Children's content	Russia	Russian
16	Workpoint Official	Workpoint Entertainment	17	Entertainment	Thailand	Thai

Source: Socialbakers.com, Wikipedia, YouTube

Table 5.3 Ranking of Top 10 YouTube channels by views in January 2019

Channel	Monthly views in January 2019 (billions)	Main content	Country
T-Series	2.91	Music	India
Cocomelon-Nursery Rhymes	2.27	Children's content	USA
SET India	1.45	Entertainment	India
Badabun	1.17	Viral content	Mexico
Like Nastya Vlog	1	Children's content	Russia
ZeeTV	0.9	Entertainment	India
Vlad and Nikita	0.82	Children's content	USA
SAB TV	0.8	Entertainment	India
Kids Diana Show	0.73	Children's content	USA
ABS-CBN Entertainment	0.72	Entertainment	Philippines

Source: Statista.com and YouTube

economy, it looks like a US-based company *outsources* the production of content—since platforms such as YouTube are profiting from content delivered by produsers. The fact that those produsers (and contribusers and users as well) come from outside the USA means, above all, that instead of expropriating minerals or exploiting cheap labor from the global south, imperialist countries are profiting from informational goods (which objectify knowledge, affects and so on) and attention (consuming ads) delivered by produsers, contribusers and users from all over the world.

Indeed, it is not only that content production is increasingly spread over different regions of the world but also that consumption of that content and more importantly, ads, is not limited to developed countries (Table 5.4).

Thus, although the USA is ranked first, it turns out that 87% of YT traffic comes from the rest of the world.

Thus, imperialism on YouTube means, first and foremost, that cultural diversity is welcomed as it generates profits that can be shared between local elites and the US-based platform.

state that the fact that content is produced all over the world does not necessarily imply cultural diversity.

Table 5.4 Top 5 countries by YouTube traffic (January 2019)

Country	Share (%)
USA	16.40
Russia	6.44
Brazil	5.67
UK	3.77
India	3.52
Other countries	64.2
Total	100

Source: Similarweb.com (https://www.similarweb.com/website/youtube.com#overview)

Table 5.5 Most viewed videos on YouTube

Video	Number of views (billions)
Luis Fonsi—Despacito ft. Daddy Yankee	5.76
Ed Sheeran—The Shape of You	3.93
Wiz Khalifa—See You Again ft. Charlie Puth	3.89
Mark Robson—Uptown Funk ft. Bruno Mars	3.36
Masha and the Bear: Recipe for Disaster	3.33
Psy—Gangnam Style	3.25
Justin Bieber—Sorry	3.04
Maroon 5—Sugar	2.83
Taylor Swift—Shake it Off	2.69
Katy Perry—Roar	2.68

Source: Statista (https://www.statista.com/statistics/249396/top-youtube-videos-views/)

However, the picture is not complete if only the ranking of channels is taken into account. When we turn to most viewed individual videos, we find a more usual imperialist panorama (Table 5.5).

Apart from Psy, Masha and the Bear and, to some extent, Luis Fonsi, this rank has the familiar shape of good old imperialism: Anglo-Saxon entertainment industries spreading their commodities all across the world.

5.1.3 YouTube Economics: Employees, Revenues and "Partners"

Information regarding job figures is scarce. When Google acquired YouTube, the latter had some 67 employees (Associated Press, 2006). By

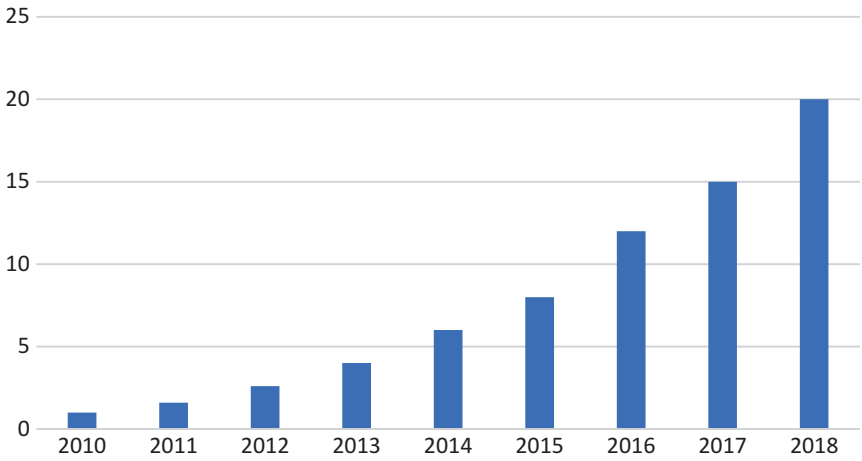

Fig. 5.1 YouTube Ad revenues (2010–2018, billions of USD). (Source: Author's elaboration based on Statista.com, Business Insider Intelligence and Gutelle, 2018)

2010 the company managed to employ some 600–700 workers. Nowadays, and according to YouTube itself, there are some 1100 workers (called "YouTubers" in a confusing wording choice) at the company's main headquarters in San Bruno (https://careers.google.com/locations/san-bruno/). However, the buildings are capable of accommodating some 2800 employees. So, the estimation that in 2019 YouTube has some 2000 employees seems plausible (Omnicore, 2019).

It is even more difficult to find information regarding revenues. However, combining several sources—which are far from being scientific, systematic or transparent—we have put together Fig. 5.1.

Despite possible inaccuracies, it is quite clear that YouTube itself (never mind Google and Alphabet) generates non-negligible amounts of profit.[3]

In turn, this results in the exorbitant valuation of YouTube, which, according to some sources, might exceed USD 100 billion (Jhonsa, 2018). This is interesting because for some years YT operations were seen

[3] According to Omnicore (2019) the total costs of running YouTube were USD 6.35 billion, thus leaving room for a net profit.

Table 5.6 Most viewed ads on YouTube in 2018

Ad	Views (millions)	Brand
Alexa Loses Her Voice	50	Amazon
YouTube Music	39	YouTube Music
Real Support Makes Real Heroes	31	Oppo F7
Dream Crazy	27	Nike
Safety video with the Lego Movie Characters	25	Turkish Airlines
Who Wouldn't	25	Groupon
Moving On	17	Samsung Galaxy
HomePod	16	Apple
Heart of a Lio	13	Gatorade
Rescue Blue the Dinosaur	10	Lego Jurassic World

Source: Thinkwithgoogle.com

as non-profitable. However, the platform has demonstrated categorically how a profit from openness business model can succeed.

Which companies advertise on YouTube? Some insights can be gleaned from the official YouTube rank of most watched videos in 2018 (Table 5.6).

Nonetheless, the landscape is quite dynamic, as the most viewed ads (and the companies behind them) change at a fast pace. For instance, in the first quarter of 2019, the ads leaderboard included the following brands: Google Pixel 3, NFL, Echo Spot, Oreo Cookie, Doritos, Red Bull, Pepsi, Hyundai Motor America, Gillette and Apple.

Moreover, companies that produce the most successful ads are not necessarily those which spend more on total advertising. Some data on YouTube's top advertisers is published by Media Radar, listing GEICO (insurance), Samsung, Rosegal (online apparel retailer), Disney, AT&T, Walmart, L'Oréal, Romwe (online apparel retailer), CBS, Grammarly (writing software), P&G.[4]

On the other hand, many produsers expect to receive money back from YouTube advertising. Since those produsers deliver content that attracts a mass audience—which, in turn, consumes ads—You Tube is deeply interested in engaging with these professional or revenue-seeking

[4] Source: https://advertisers.mediaradar.com/Top_YouTube_Advertisers

produsers. To do so, the platform has devised several ways of sharing some revenues. The main one is the YouTube Partner Program (YPP) and the second in significance are the Multichannel Networks.

> The YouTube Partner Program (YPP) lets creators monetize their content on YouTube. Creators can earn money from advertisements served on their videos and from YouTube Premium subscribers watching their content. You can apply to join the YouTube Partner Program from your account in Creator Studio. (YouTube Partner Program overview[5])

For several years, YouTube allowed any produser to enter the YPP and thus to receive money if their videos received mass views. However, recently the platform tightened the rules.

> You're eligible to apply to join the YouTube Partner Program (YPP) if you meet all of these requirements:
>
> YPP is available in your country
> You have more than 4,000 watch hours in the previous 12 months
> You have more than 1,000 subscribers
> You create content that meets YouTube Partner Program policies
> You have linked an approved AdSense account
> (YouTube Partner Program overview)

This threshold implies that many produsers who dragged significant amounts of attention to YouTube on a sporadic basis are not eligible for the YPP. Moreover, channels that were eligible at some point might lose "monetization" due to this new policy:

> YouTube does reserve the right, at its discretion, to remove monetization from channels if a channel is inactive and not uploading or posting Community posts for 6 months or more.

[5] Available at: https://support.google.com/youtube/answer/72851?hl=en

> Channels will lose monetization if they violate any of the YouTube Partner Program policies, regardless of their watch hours and subscriber count. (YouTube Partner Program overview)

Indeed, the YPP targets produsers who commit themselves to uploading contents *on a regular basis*. A couple of viral videos are not enough anymore.

YPP is by far the largest "monetization" mechanism, but not the only way by which produsers can attempt to make money.[6]

A second "monetization" strategy involves multichannel networks (MCN). Instead of subscribing to YPP (and dealing with the Google AdSense application process), produsers can try to deliver their content through MCNs, which act as intermediaries (Ab, 2019). MCN companies such as Full Screen, Ritual Network and BBTV deal with different issues: target audience development, brand sponsorship, digital rights management (preventing misappropriations of produsers' content and vice versa, produsers violations of third party copyrights) and certainly monetization (getting the money from YouTube, taking a share and paying the produsers their cut). MCNs deal with hundreds of thousands of channels.

Despite the huge success of MCNs up to 2016, in the last couple of years, many of them have gone into decline and some of them even shut down while still owing lots of money to produsers (Alexander, 2019a). More to the point, MCNs are less and less an option for smaller channels. As YT toughened up its policies regarding MCNs (threatening companies that minor violations of YT policies by produsers would imply them paying large damages), thousands of channels often arbitrarily labeled as risky were dropped by MCNs (Alexander, 2018a).

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[6] The platform suggests three additional ways:

1. *Super Chat*: Allows contribusers who purchase the super chat to highlight their messages within a live chat streamed by a produser ("creator" or YouTuber).
2. *Merch*: The merchandise shelf allows produsers to showcase their branded merchandise on YouTube.
3. *Channel memberships*: Channel memberships allow produsers to charge a monthly payment to users and contribusers in exchange for members-only perks like badges, emoji and other goods.

Source: https://support.google.com/youtube/answer/72851?hl=en

5.2 Scheme of Flows and Actors

The actors in the YT profit from openness business model are quite similar to those described in the abstract model in Chap. 2. Two peculiar features are: (i) the advertising company is the owner of the platform-owner corporation, that is, Google (Alphabet Inc.) owns YouTube; (ii) a good deal of produsers' content arrives to the platform through the MCN's intermediation services. However, it is useful to enumerate the whole range of actors involved in the YT production process.

1. *Platform owner corporation*: YouTube, as described, hosts videos, attracts audiences, delivers ads, manages channels, collects and distributes the revenues, deals with legal and technical issues. However, Google (Alphabet Inc.) is the owner of the platform.
2. *Workers of platform owner corporation*: Some 2000 YouTube workers are divided into four teams: "engineering", "product and design", "business and operations" and "trust and safety". However, it must be kept in mind that they are Google employees.
3. *Advertising company*: In this particular case, Google is not only *the* advertising company but also the owner of YouTube. Moreover, the advertising company has already collected vast quantities of personal data on its own (which is crucial for targeting ads).
4. *Content companies*: Several companies produce professional content based on wage labor (such as T-Series), while others acquire the rights for specific "premium" content (e.g. Vevo) or close deals with smaller produsers (MCNs like BBTV) in order to distribute their content through YouTube and other media landscapes. However, the boundaries between the two former options are blurring, as content owner companies are tending to acquire or manage MCNs. For instance, Vevo is actually a joint venture between Universal Music Group, Sony Music, Abu Dhabi Media, Alphabet Inc. and Warner Music Group and Disney acquired Maker Studios turning it into Disney Digital Network.
5. *Content companies' workers*: Some content developing companies have huge numbers of employees (e.g. 201,000 at Disney as of September

2018) while MCNs typically have a relatively small workforce (e.g. 400 at BBTV in March 2018). Of course, most of these workers produce content for different platforms and not only YT.

6. *Advertisers*: These companies come from sectors like digital technology (Samsung, Apple, Amazon, Grammarly), media groups (Disney), food and beverages (Doritos, Pepsi), consumer packaged goods (Procter and Gamble), and the automotive industry (Honda, Ford).
7. *Produsers*: Produsers are the key actors in developing content for the platform. They conceive, film and edit their audiovisual content. Produsers upload their videos directly without either expecting any economic compensation or hoping to make money through the YPP or MCNs. Some of the latter think of themselves as entrepreneurs and call their productive activities labor, while others do not (Dolcemascolo, 2019). Moreover, a tiny but famous fraction of produsers eventually develop their own firms and MCNs (e.g. PewDiePie), that is, a bottom-up process. Produsers also perform tasks carried out by contribusers and users.
8. *Contribusers*: Contribusers watch videos and ads, and give away their data. But they also add comments, share videos on other social networks and so on.
9. *Users*: Users watch video content and ads and give away their data.

In sum, capitalist actors include Google (YouTube, Google as an advertising company) and content companies (intermediaries such as MCNs and companies producing content, such as Disney and Sony, though they are increasingly intertwined). Additionally, in some rare cases, produsers become capitalists. The last capitalist actors are corporations placing ads on YT. In turn, non-capitalist actors include on the one hand YouTube's and other Alphabet workers—engaged in the advertising process—but also waged workers at content producing companies and intermediaries. On the other hand is non-waged labor performed by most produsers, contribusers and users. Between the waged and non-waged workers, we find produsers who receive some kind of regular income (from YPP or MCNs): they are not waged laborers, but neither are they occasional contributors creating content in their leisure time.

The interplay between these actors can be better understood by looking at the flows that they exchange. These flows are also quite similar to those suggested in the abstract schema presented in Chap. 1.

(a) *Attention* 

Produsers, contribusers and users provide attention to the platform owner corporation. The main route goes from them to the advertising company and then to advertisers. However, attention is also important for content producing companies, MCNs and produsers, who critically depend on receiving attention flows.

(b) *Data* 

Users, produsers and contribusers provide data to the platform-owner corporation. It is structured and processed by Google and then used to sell ads to advertisers. Data regarding content and ad consumption is not only delivered to advertisers, but also to other interested parties such as content producing companies, MCN and produsers.

(c) *Content*

Audiovisual content arrives to the platform from three sources: produsers who directly upload their content (subscribed to YPP or not), produsers who submit their content to MCNs, which, in turn, upload it to YT and content producing companies that develop the content themselves by hiring workers and/or outsourcing parts of the productive process.

(d) *Wage labor* 

Wage labor (as labor in exchange for wages) comes from two main sources: Google workers (which include but exceed YT workers) and content company workers (mainly from content producing companies, but also from MCNs' relatively small workforce).

(e) *Money* 

Excluding wage labor, money flows can be split between those coming into the platform and those that are paid by the platform. The former includes mainly money coming from advertisers. However, other sources of monetization arise from users and contribusers paying for additional services (Super Chat, YouTube Music

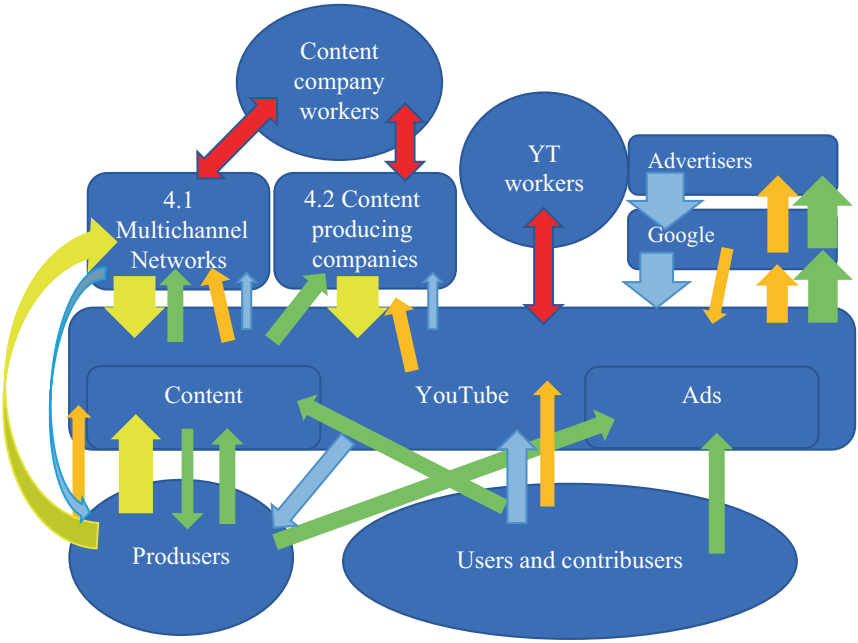

Fig. 5.2 Actors and flows in YouTube profit from openness business model. (Source: Author's elaboration)

etc.). The latter includes money that the platform pays to the content producing companies, to the MCNs—which after taking a cut, transfer money to their produsers—and to individual produsers through YPP (Fig. 5.2).

5.3 Regulations

YouTube's profit from openness business model relies heavily on invisible but powerful legal means.

It is well known that audiovisual content is covered by copyright law. Less known is the fact that a work gets protected under copyright law from its very conception. A produser becomes the lawful copyright owner of her videos from the very moment she fixes her work in some tangible

medium (e.g. a mobile phone). Thus, registration or other paperwork is not necessary to enjoy copyright protection.

That is the reason why if YouTube, an MCN or any other third party wants to use produsers' (or other content owners) original content, they need a specific license. How to deal with millions of licenses? YouTube, as other social media resorts to a very simple procedure: obtaining the licenses through the "Terms of Service" that every single user is required to agree to in order to watch videos or use any other of YouTube's features.

YouTube's "Terms of Service" apply to content. However, content refers not just to videos, but rather to every kind of informational good, including comments.

> "Content" includes the text, software, scripts, graphics, photos, sounds, music, videos, audiovisual combinations, interactive features and other materials you may view on, access through or contribute to the Service. (YouTube, 2019f)

Regarding licensing, YT proceeds through two steps, as other platforms do. The first involves the produser's acceptance that she is the rightful owner of the content or at least that there are no infringements of copyright law regarding the content she uploads.

> 7.7 You agree that Content you submit to the Service will not contain any third party copyright material, or material that is subject to other third party proprietary rights (including rights of privacy or rights of publicity), unless you have a formal licence or permission from the rightful owner, or are otherwise legally entitled, to post the material in question and to grant YouTube the licence referred to in paragraph 8.1 below. (YouTube, 2019f)

Then, the terms and conditions establish that the produser grants two kinds of licenses on the content she uploads:

> 8.1 When you upload or post Content to YouTube, you grant:
>
> A. to YouTube, a worldwide, non-exclusive, royalty-free, transferable licence (with right to sub-licence) to use, reproduce, distribute, prepare derivative works of, display, and perform that Content in connection

> with the provision of the Service and otherwise in connection with the provision of the Service and YouTube's business, including without limitation for promoting and redistributing part or all of the Service (and derivative works thereof) in any media formats and through any media channels;
> B. to each user of the Service, a worldwide, non-exclusive, royalty-free licence to access your Content through the Service, and to use, reproduce, distribute, prepare derivative works of, display and perform such Content to the extent permitted by the functionality of the Service and under these Terms. (YouTube, 2019f)

Point A means that produsers allow YouTube to do whatever the platform wants with the content. This includes making money without any compensation necessary.

Point B refers to the license the produser gives to YouTube users, that is, people watching videos through the platform. At a first glance, both clauses could seem quite similar. However, YouTube restricts the uses that users can legally make of the content licensed by produsers. Section 5.1 of Terms of Service reads:

> You agree not to distribute any part of or parts of the Website or the Service, including but not limited to any Content, in any medium without YouTube's prior written authorisation, unless YouTube makes available the means for such distribution through functionality offered by the Service (such as the YouTube Player). (YouTube, 2019f)

Summing up this and the following clauses, YT only allows users to use content uploaded by produsers within the scope of the platform. Thus, despite the license given to the user seeming wide-ranging and generous, YT only permits uses which benefit the business model of the platform.

So the licenses clearly establish free access to content. Both the platform and users are able to access the content for free. However, openness is different in some ways: content is completely open for the platform (it can produce derivative works, redistribute them etc.) but not so open to

the users. Most content appears to them as enclosed on the YT platform. Of course, there are technical means through which to open up the content. But these circumventing tactics are explicitly forbidden by the Terms of Service.

Nonetheless, there is a caveat. When produsers upload content to YT, the default option is indeed a YouTube Standard license, which crystallizes the features described above. However, produsers are given the option to license their content under a Creative Commons (CC BY) license that allows any user to share and adapt the content. This includes copying, redistributing, remixing, producing derivative works, both for profit or not for profit. Although it is difficult to estimate a share of YT content under CC BY licenses, it looks like it is a tiny fraction.

The terms of service include regulations regarding copyright infringement as well. YouTube has become very strict regarding copyright violations. Section 6 reads:

> 6.1 YouTube operates a clear copyright policy in relation to any Content that is alleged to infringe the copyright of a third party. Details of that policy can be found here: http://www.youtube.com/t/copyright_notice
>
> 6.2 As part of YouTube's copyright policy, YouTube will terminate user access to the Service if a user has been determined to be a repeat infringer. A repeat infringer is a user who has been notified of infringing activity more than twice.

For instance, if a produser includes in her video some music for which she has not secured the appropriate rights, and some other party files a complaint, YT not only takes down the video, but also issues a warning to the produsers twice and, after that, shuts down the channel altogether.[7]

Another important policy included in the terms of service is that of community guidelines that the users, contribuser or produsers must agree to in order to use the platform's services. Community Guidelines revolve around content that is not welcome on YouTube allegedly for moral or ethical reasons (whether explicitly against the law or not). This includes

[7] YT has made efforts to make it quite easy to file a copyright complaint and also to answer it. See https://www.youtube.com/static?gl=GB&template=terms

detailed policies on: harassment and cyberbullying; hate speech, impersonation, content featuring firearms, content that disrespects child safety, nudity and sexual content, violent or graphic content, harmful or dangerous content, spam, deceptive practices and scams, fake engagement, sale of illegal or regulated goods and additional policies.

But, how are these community guidelines related to the profit from openness business model? YouTube developed (and is still developing) these policies after a series of scandals sometimes referred to as "adpocalypses" (Alexander, 2019b). In a nutshell, over the last three years, several brands noticed that their ads were displayed on offensive videos. Some of those companies demanded explanations from YouTube which, in turn, punished produsers who produced or uploaded that kind of content. Other brands took even more drastic action and withdrew their ads completely. Content related to child pornography, anti-Semitic imagery (notoriously by PewDiePie), violent content (like Paul Logan filming a suicide victim) scared brands such as Nestle, Disney, Procter & Gamble and AT&T that paused or withdrew their advertising (Alexander, 2018b; McCormick, 2017; Salinas, 2019). In this context, sharpening the community guidelines became a crucial concern for YouTube. So, the guidelines may or may not be about ethics and morals, but they certainly are about making money.

This series of advertising crises also resulted in another two related policies we shall discuss in this chapter: on the one hand, the increase in the threshold of views and subscribers for a channel to be eligible to enter the YPP and thus monetize its content. This means that many small channels which might pose a risk for YT business—as their potentially abusive content is difficult to monitor—are prevented from displaying ads. On the other hand, YT put much more pressure on MCNs for them to drop channels that were not completely in accordance with the community guidelines.

Another important set of regulations regarding YT's profit from openness business model is that associated with the YPP. In order to be eligible for YPP, produsers are obliged to have a Google AdSense account. Google AdSense is a program run by Google that displays advertising (through Google Ad Words) around produsers' content (that is not necessarily limited to YouTube videos, and might include webpages). Google AdSense's

Terms of Service stipulates payments related to the "number of valid clicks on Ads", but does not specify the share passed on to produsers (AdSense Terms of service, Clause 5) and also mentions a "payment threshold" that is not defined either.

The revenue share varies, of course, depending on several variables, but Google offers some examples. Interestingly, the company states that the share for "content" (for instance on prosumers' websites) is 68% (see AdSense Help, AdSense Revenue Share). This is much higher than the "55% of net income recognized by YT" that is stipulated in the first clause of YPP Terms of Service—that also defines a threshold of USD 100 for transferring the money. The 13% difference might be understood as the charge for the specific use of YT's platform.

There are also many other relevant regulations both inside and outside the YT legal ecosystem—such as contracts between MCNs and produsers. However, for our purposes here, we can sum up the goals that YouTube fulfills through the use of this complex set of regulations. For profit from openness to thrive, the platform has put in place a normative framework which guarantees that:

1. Produsers and contribusers give up their copyrights—allowing YT to play their videos and display their comments even with commercial aims without any obligation of paying them.
2. Users can freely access the videos, but not modify or make money on them, or distribute them outside the platform.
3. Produsers do not upload videos or comments that make brands reluctant to advertise on the platform.
4. Produsers take full responsibility for any violation of third party copyrights or other legal infringements, thus avoiding any legal liability for YT.
5. Produsers have monetary incentives to submit their content, through either the YPP and Google's AdSense or the Multichannel Networks. But it must be noted that both are options for which a produser can *apply* only *after* having submitted her content *and handed over some of her rights*.

These goals are achieved through the combination of three main instruments: Terms and conditions, You Tube Community Guidelines and YouTube Partner Program policies. Contracts between produsers and third parties, such as MCNs must align with these YouTube policies.

5.4 Profits and Exploitation

The ratio between revenues and employees (known as RPE) is sometimes used as a measure of labor productivity or labor exploitation. In the case of YouTube, the company is making some USD 10 million per employee per year. It turns out to be a colossal figure, not only when compared to MacDonald's (USD 66,000), Starbucks (USD 84,000) or Accenture (USD 87,000) but also to Facebook (USD 1.6 million) and Alphabet itself (USD 1.3 million) (Craft.co, 2017). Where are these revenues coming from? Is it the case that employees are being highly exploited? From the perspective of our theoretical framework, it is crucial to note that revenues and profits are mainly driven by partially unremunerated content uploaded by produsers. It is not so much that revenues are based on exploiting 2000 employees, but much more on exploiting some 50 million produsers. More precisely, though exploitation in its usual Marxian sense (waged workers receiving less value than they produce) is very likely to take place, it is not remotely enough to understand the revenues YouTube makes.

That is where *exploitation through reproduction* and *through attention* enters the picture. Both concepts are useful to tackle situations where the production of use values that are crucial for the companies to make profits are generated outside the factory, the working day and wage relations.

Exploitation through reproduction refers to the unpaid uses of codified knowledge (see Chap. 1). In this case, it alludes to repeated streaming of videos without reimbursing the full amount of the value that the produsers generate. This could mean either that YT does not remunerate the produsers at all or, more likely, that it pays them only a small share of the value they generated.

How does this kind of exploitation take place on a concrete level?

On the one hand, YouTube profits from *videos that are not under the partner program*. Although these videos display ads and thus generate revenues for the platform, produsers do not receive a share. As mentioned above, in 2018, the threshold for entering the YPP was raised from nothing to 4000 viewing hours in the last 12 months and 1000 subscribers. Therefore, it's very likely that the share of channels not eligible for monetization has increased significantly.

On the other hand, channels *within YPP* receive a small amount per view. To avoid confusion, this does not only refer to the share produsers receive (55%), but also to the figure that YT charges advertisers. Let's take the case of music content. If compared with Spotify, Apple, Google Play, Deezer, TIDAL or any other streaming service, year after year, YouTube provides the worst revenue payouts for artists (Table 5.7).

As the table shows, to earn a minimum wage, produsers need to surpass 2 million views each month. This is only possible for a tiny fraction of produsers. A Bloomberg report based on Bärtl's research stated that "96.5 percent of all of those trying to become YouTubers won't make enough money off of advertising to crack the U.S. poverty line" (Bloomberg, 2018).

The rate that YT shares with popular channels is not only low, but has also been shrinking. While, in 2015, small produsers earned USD 0.0018 per play, in 2017, that figure dropped to USD 0.0006, partially recovering in 2018 to almost USD 0.0007 (Sánchez, 2017, 2018). This figure is

Table 5.7 Streaming platforms per-stream rate and total plays needed to earn a minimum wage (2018)

Streaming music service	Per-stream rate	Total plays needed to earn a US minimum monthly wage (USD 1472)
Napster	0.01900	77,474
TIDAL	0.01250	177,604
Apple Music	0.00735	200,272
Google Play Music	0.00676	217,752
Deezer	0.00640	230,000
Spotify	0.00437	336,842
Amazon	0.00402	366,169
Pandora Premium	0.00133	1,106,767
YouTube	0.00069	2,133,333

Source: Sánchez (2018)

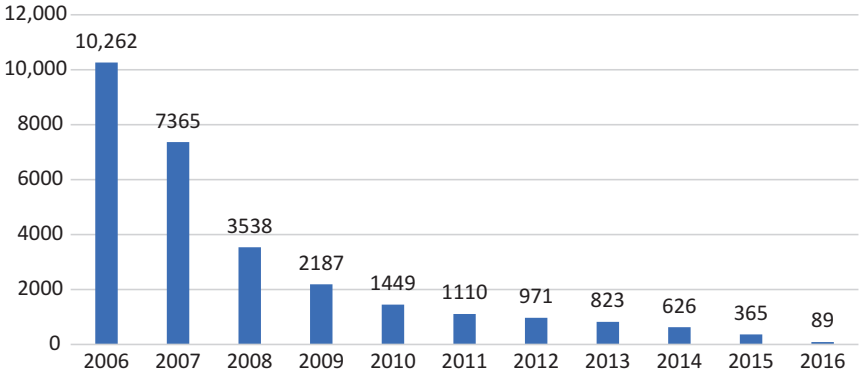

Fig. 5.3 Median views per uploaded video. (Source: Bärtl, 2018)

likely to be related to the number of videos available on the platform. The more produsers there are willing to upload videos, the less YT is willing to pay them. As the supply goes up, the price drops. This shows how the ideological discourses we will discuss below are key to the YT business model. The platform needs committed produsers believing that they are going to become rich, despite the material consequence of their heartfelt belief being precisely to reduce their chances of making money out of YT. Indeed, it is not only the case that YT is paying less for each view, but also that channels need to upload more and more videos to receive the same amount of views (Fig. 5.3).

To be sure, the bulk of the money YT makes comes from the top 3% channels—comprising some 150,000 channels. The 90% of views they represent (see Fig. 5.4)—6039 billion views a month—explains most of the revenues based on exploitation through reproduction, although YT must reimburse some 45–55% of those revenues to the channel owners.

On the other side of the spectrum, only roughly 10% of views are generated by all other channels. However, 10% means no less than 671 million views a month without any obligation to share revenues.

But let us go back to the channels that garner thousands or millions of views and an enormous number of subscribers. The fact that YT pays some 55% of the revenues to them does not mean that the produsers

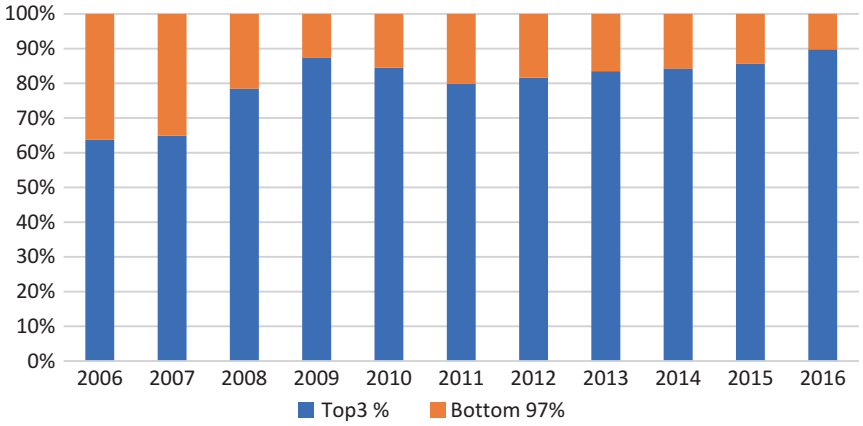

Fig. 5.4 Share of views of YouTube videos between top 3% channels and bottom 97% of channels, by year. (Source: Bärtl, 2018)

receive that share. This is because most of the highly successful channels are managed by an MCN (multichannel network). Arguably, they are successful (i.e. make some money) precisely because an MCN handles their content. As discussed above, these companies deal with legal issues (especially dealing with copyright issues related to YT and third parties), attract a good deal of attention and offer an alternative for the produsers to make money bypassing the YPP and its insidious technicalities. However, this comes at a price. Not surprisingly, the MCNs get a share of that 55%. Their cut might vary from 5% to 40%—for instance, Disney Digital Network and Freedom Network take 40%, while FullScreen retains 30% (Zach, 2018). But there are also other clauses. Many MCNs do not transfer any money until a certain minimum threshold has been surpassed. Most of them have clauses locking in the produsers so they cannot move their content to other networks during a certain period—for example, Machinima used to stipulate a three-year period (Zach, 2018). At the same time, in the last couple of years, MCNs have grown stricter regarding the requisites that channels must meet in order to be managed by them. This includes copyright issues, but also viewing figures: for instance, BBTV set the threshold at 100,000 views per month

(Alexander, 2018a). Not only do they not accept new channels, but they have also been kicking out thousands of "creators" (Alexander, 2018a).

Moreover, MCNs can disappear before transferring the money to their "creators". The extreme example is that of Defy Media, that shut down in November 2018, allegedly owing USD 1.7 billion in revenues to some 50 produsers (Alexander, 2019a).

In sum, MCNs' intermediation, by taking a cut and other complementary policies, participates in the exploitation through reproduction of produsers.

But there is yet another kind of exploitation that might be taking place on YouTube, which is exploitation through attention. It refers to the asymmetry between the value involved in consuming videos and the value of handing over users' attention for exposure to ads and different kinds of content. That is, the potential asymmetry between the value of an additional unit of video reproduction and the value of an additional unit of attention consumed. While marginal costs of informational goods are extremely low (i.e. those related to playing a video once it is produced), marginal costs of attention are incremental (because attention becomes increasingly scarce as it approaches its physical limit).

According to StopAd blog, people receive on average one ad every four minutes on YouTube (Tunikova, 2018). An article published in Forbes states that "viewers retain 95% of a message when they watch it in a video compared to 10% when reading it in text" (McCue, 2018). This is interesting because it shows that exposure time to written ads and audiovisual ads should not be equated. Images tend to engage our attention on a more emotional and unmediated level than text, raising the intrusiveness per unit of time.

Now the question arises, is the exchange of videos for attention to ads a fair exchange or is it exploitative? The answer might vary in each specific case: some viewers are more likely to internalize ads, while at the other end of the spectrum many use ad blockers. Nonetheless, the big picture seems clear enough: if the aggregate strategy proved to be non-profitable for YT and the advertising companies, it would not remain in place. But on the contrary, it is expanding year after year.

5.5 Role and Enactment of Openness Ideology

There are many ideological maneuvers that facilitate YT's profit from openness business model. Here we are going to deal with just a few of them: gaining attention and making money, the relation between the signifiers and meaning of "creators", "creativity", "partners" and the concepts of Community and Freedom.

5.5.1 Gaining Attention and Making Money

YouTube's business model critically relies on produsers willing to cede their contents. They do so at least for two reasons. The original, and still central, one concerns getting attention. The second one, which is dependent on the first, relates to the expectation of making money (Burgess & Green, 2018).

In its origins YouTube was devised as an outlet for amateur content and did not promote the platform as a means for produsers to make money. Occasionally and behind the scenes YouTube sent checks to popular videos produsers on an individual basis. But at some point around 2012 the business grew so big that YT needed to roll out the partners program. Later on, the company discovered that the idea of making money on YouTube could be used as a means to attract more produsers, especially the more engaged ones. To disseminate this ideological belief, the concept of the *YouTuber* was crucial: it was all about young people that not only became famous, but also quite rich through sharing their videos on the platform. Stories of a handful of YouTubers flooded the media across the globe, especially focusing on the millions they were earning and the fact that they were ordinary people, implying that everyone could become a successful YouTuber.[8] The company itself explicitly encourages this by stating that produsers making big money are on the rise.

[8] See, for instance: https://www.cnbc.com/2018/12/19/the-top-10-youtube-influencers-earned-180point5-million-in-2018.html, or https://www.renderforest.com/blog/how-much-do-youtubers-make

> For instance, in 2015 YouTube's CEO Susan Wojcicki stated that: "The number of channels making six figures a year has grown by over 50%".[9] Regarding 2017, Mediakix echoes that "The number of creators earning five figures per year jumped 35% while those earning six figures increased by 45%."[10] According to Bärtl, and not surprisingly, this strategy proved to be very effective, since the number of content-providing channels grew, on average, by 20% each year since 2006. (Bärtl, 2018, p. 16)

Of course, the ideology of the successful individual who thrives and flourishes in a market economy is not new. What distinguishes the YouTuber narrative is that you don't need a huge amount of capital to start with. You don't even need to start a company, YouTube is already there. And you don't need to be a worker either. You just need to be a "creator", that is, do something to attract attention using a camera and a digital device. But how does the YouTube deal work out for wannabe YouTubers? As we discussed above:

> Regarding attention, in 2006 the top 3 percent accounted for 63 percent of all views. Ten years later, the top 3% concentrated 90%. Conversely, the bottom 85 just got some 458 views per month. (Bärtl, 2018)

So, it is far from being clear that small channels get a lot of traffic. On the contrary, their share of total views is shrinking. Moreover, the ratio between uploaded videos and views is on the rise. This means that wannabe YouTubers need to upload more and more videos (work more) for fewer views. And in terms of income, as discussed above, only a few produsers earn a minimum wage.

Summing up, and recalling our theoretical framework, it is not the case that ideological discourses are lies, or false consciousness. It is rather that they present partial truths while veiling deeper truths. So, it is true that some produsers got rich by uploading videos. But there are some deeper and concealed facts: (1) those YouTubers receiving attention and making money are just a tiny fraction; (2) this fraction is shrinking; (3) many of them got excluded from the partners program after the 2018

[9] See https://videoter.com/400-hours-of-video-is-uploaded-to-youtube-every-minute/

[10] See http://mediakix.com/2017/04/youtuber-statistics-content-creators-demographics/#gs.HbBF12yJ

change (as mentioned above); (4) Last, but not least, YouTube *needs* the produsers to believe that they are going to receive attention and money if they work hard enough and upload enough content.

5.5.2 Creativity, Creators and Partners

Companies using the profit from openness model cannot avoid addressing a delicate issue: how to convince produsers, that is, unremunerated content producers, to deliver their content for free. In the case of YouTube, as in many others, this is based on the flows of attention that content producers are eager to receive, in the belief that for some of them some money is going to be paid back to them eventually.

YouTube undertakes a crucial discursive operation to shore up this ideological scheme, concerning the words used to name produsers of content and the fruits of their activities. This includes concepts such as "Creators", "Partners", "Community" and "Freedom". Let us begin with creator and creativity.

Above all, YouTube tries to avoid calling what produsers do "labor" or "work", as this could spark associations regarding wages and other employer-employee-related issues. Shunning words like workers, laborers or even producers, YouTube insists on calling them *creators*. People uploading content are raised to the status of creative, innovative subjects (Dolcemascolo, 2019).

This appeal to creativity is associated with notions like playing, having fun and so on, in other words enjoyment, as opposed to money-making activities.

This notion of "creators" might be useful to engage at the same time two different ideal types of produsers. On the one hand, those with entrepreneurial aspirations, who want to feel like heads of innovative start-ups, seeking their first million. On the other hand, those who upload videos because they enjoy sharing their "creativity" and are mostly not concerned with the flows of money around their videos.

In another ideological maneuver, YouTube uses the word *partners* for produsers willing to monetize their content, that is, a subset of "creators". The intention of this is to elide the asymmetries between the parties

involved. Produsers are far less important than partners, as they have no bargaining power and cannot discuss the terms and conditions settled in the agreement that binds them.

But what does it really mean to be a creator for YouTube? We can find some hints in YouTube Creators Academy, where the platform provides video lessons for the produsers to develop different skills. In the course entitled "Create great content", the first lesson is called: "10 fundamentals of a creative strategy". It begins with a revealing statement:

> We've worked with many creators over the years, and along the way they've shared with us common creative strategies that helped them develop great videos and build a loyal community. We call these the '10 Fundamentals', which we've grouped in three buckets: Get viewers; Keep viewers happy; Keep yourself happy. (YouTube, 2019a)

Thus, the platform is not disguising its aims. To be creative can be boiled down to three dimensions, and these are not labeled "leapfrog innovations", "novel aesthetics", "introducing new topics", "radical uses of imagination" or any other concept related to inventiveness. On the contrary, two of these "buckets" are firmly and obviously rooted in YouTube's business model, without any need to conceal that fact. Thus "Get viewers" and "Keep viewers happy" are the main components of what YouTube wants to teach about creativity. The third bucket, "keep yourself happy" is also mostly alien to definitions of creativity but clearly linked to YT's business model. This is because keeping produsers happy is a way to stimulate them to produce more content, and to do so without putting pressure and expectations on future economic rewards. YT is based on manipulating affects to get the job done, and this lesson is no exception. Again, this does not mean that "keep yourself happy" is a lie, that YT does not want happy produsers. As with other ideological tools, it is a partial truth that veils a deeper truth: they need happy produsers to work (almost) for free.

5.5.3 Community

Community is a very important concept in YouTube's discourses. It evokes affective bonding, a shared destiny, proximity and solidarity. The

tension between the notion of community and the commercial aims of the corporation has been pointed out by several authors (Burgess & Green, 2018; Dolcemascolo, 2019; Van Dijck, 2013).

Dolcemascolo (2019, chapter 5) noted that the term "community" has two related yet distinguishable meanings on YT. On the one hand, it refers to the social connection between everybody interacting through the platform: YouTube as a vast community.[11] On the other hand, "community" sometimes refers to the network that a produser forms with her audience (users and contribusers that interact with her content) around her channel.[12] The two uses are disparate, but they share the ideological function of evoking certain feelings in order to boost business. This ideological function can be described around at least five discrepancies between the traditional notion of community and YT's use of the concept.

1. The *rules that govern the "community"*—the Community Guidelines—are decided by a *corporation*. There are not many examples of this before the advent of cognitive capitalism.[13] Moreover, although this set of rules aims to justify itself on moral grounds ("common sense", YouTube states), actually the guidelines are rather defined by the goal of attracting advertisers. As discussed above, it was the adpocalypse crisis during 2016–2018, which tightened the rules and reshaped the YT "community" itself, and not an abstract ethical impulse.
2. Moreover, produsers, contribusers and users are encouraged to denounce violations of those norms. For example, at the very beginning of Policies and Safety Guidelines, the platform states:

> You might not like everything that you see on YouTube. If you think that content is inappropriate, use the flagging feature to submit it for review by our YouTube staff. (YouTube, 2019d)

[11] For instance, the Community Guidelines read: "When you use YouTube, you join a community of people from all over the world." (You Tube, Community Guidelines)

[12] This notion appears in the Creator Academy. For example, in "YouTube basics", under the title "Some words to know", it reads: "Community refers to connecting with your audience on a deeper level." (YouTube, Creators Academy)

[13] It can be argued that enclaves, dependent on some mining or industrial corporation, functioned and still function that way, as companies set the rules, assuming functions usually performed by the local or national state. The analogy might be further explored, despite the fact that these kinds of communities were probably exceptions and it seems unlikely that YouTube would fashion itself on such examples.

This invitation to support YouTube's staff and avoid any risks of upsetting advertisers does not seem to fit into the notion of a thriving local community or a Linux forum.

3. *Everything is measured, and it is measured on an individual basis*. Non-commodified communities (and more broadly, social relations) that are mainly driven by affects and solidarity are not based on analytics, and especially not based on individual accounts of performance. Indeed, while communities (whether based on physical or "virtual" proximity) are woven with the threads of solidarity and collective belonging, YT communities are instead tied together with analytics of views and subscribers. If your metrics drop, it is quite unlikely that other produsers or companies will help you to pay the bills. To be sure, it is not the case that noble feelings are not relevant on YT, it is just that they do not come from the companies. Solidarity and affects are indeed present at the bottom: users and contribusers are driven by these feelings.
4. In the same vein, produsers, and particularly celebrities, YouTubers or networks are rarely motivated by aims that are contrary to increasing their incoming flows of attention and money. This does not mean that produsers do not engage in affective behavior, but that those affective behaviors most often coincide with the rational goal of increasing their fan base. *Most actions stem from a rational calculation aimed at increasing their network of followers which can coincide or not with other emotions*. Even when YT talks to produsers about communities in the second sense (audiences of specific channels) there is no attempt at concealment: "communities" and "audiences" are used almost interchangeably:

> Building a community on YouTube lets you have a deeper connection with your audience and can lead to long-term channel growth. If your viewers love what they see and have positive interactions, they're more likely to share your videos and recommend them. When creators take the time to interact authentically with their loyal community, it can encourage audience participation and ultimately result in a larger fanbase. (YouTube, 2019e)

Thus, produsers are overtly invited to build their "communities" not for any moral or affective rationale, but in order to multiply their following.

5. The very system by which successful produsers function as attention hubs is far from resembling the notion of community. The sharp division between stars and fans does not parallel an urban neighborhood or Wikipedia's community. Produsers and companies "share" content, but they do so in order to attract attention. In this hunt for attention, produsers are not trying to build authentic ties of solidarity with each other, but are rather *competing* for scarce resources (attention and ads).

In summary, rules determined by a corporation in order to attract advertisers, encouragement of surveillance, measurement on an individual basis, competiveness and rational calculations aimed at maximizing audiences and profits, all of these features do not resemble a physical or digital community. Thus, YouTube invokes the notion of community, but what it actually builds, perhaps might be better described as networks (heterogeneous, ephemeral, people engaged for different reasons, some of them highly instrumental) and audiences. Nonetheless, here it suffices to point out that the notion of community is not a descriptive or even a performative term, but an ideological tool that aids the platform's accumulation process.

5.5.4 Openness and Freedom

Although openness is not the most frequently used term in YT's official discourse, it is important to draw a simple conclusion already mentioned in Sect. 5.3: for produsers, contribusers and users, most content is free access, but not open. You cannot create derivative works, download it or distribute it, as the YT standard license only allows you to watch content on the platform. Neither are the algorithms that govern video displaying, ads and so forth, open; nor is the data that the platform collects. Content and data are, on the contrary, open for the platform. The typical asymmetry of profit proper to the openness business model becomes apparent:

openness for the platform goes hand in hand with enclosures for produsers, contribusers and users.

Freedom, instead, is a very important notion for YT, which states so explicitly: "Our values are based on four essential freedoms that define who we are" (YouTube, 2019b). These four freedoms read as follows:

Freedom of Expression
We believe that people should be able to speak freely, share opinions, foster open dialogue, and that creative freedom leads to new voices, formats and possibilities.
Freedom of Information
We believe that everyone should have easy, open access to information and that video is a powerful force for education, building understanding and documenting world events, big and small.
Freedom of Opportunity
We believe that everyone should have a chance to be discovered, build a business and succeed on their own terms, and that people—not gatekeepers—decide what's popular.
Freedom to Belong
We believe that everyone should be able to find communities of support, break down barriers, transcend borders and come together around shared interests and passions.
(YouTube, 2019b)

What is the ideological bias of these freedoms? Do they not point to some very basic universal consensus? Well, perhaps. Let us take the first two and the last: freedom of expression, freedom of information and freedom to belong. They sound pretty good, and it is quite true that platforms such as YT have done a very impressive job improving all of them. However, what is missing is that they are *dependent on the algorithm* that chooses which videos appear as results of searches for specific people, what video plays next and so on. This, in turn, leads to two kinds of unfreedom: the algorithm is not open, in the sense that you lack the freedom to understand how it works, why it suggests some videos instead of others and so on. This means that you are not so free to connect with your audience: your expression might have no audience at all (especially

if you are not particularly committed to commodifying yourself and your videos), or be targeted to a certain audience for whatever reason, very likely because of profitability. This is yet more relevant in terms of the "freedom of information", as your music taste or your political opinions might be reinforced and/or subtly molded by the algorithm. Indeed, it has been pointed out that the algorithm tends to play videos that confirm your previous beliefs, instead of challenging them (Uzzi, 2017). This, in turn, might contribute to the impoverishment of social conversation, leading to increases in hatred and post-truth discourse.

This is also connected with the "freedom to belong": communities are bound by algorithmic rules that promote self-reinforcing patterns. Multiplicity is stimulated, a diversity of discourses flourish, but plurality (in the sense that the diverse opinions are engaged in a common space, a shared dialogue) is not; opportunities to *belong* are surely fostered by YT and similar platforms, while *freedom* to belong is not necessarily.

Unfreedom related to the algorithm's governance of choices and the secrecy regarding its workings is undoubtedly connected to the YT profit from openness business model, for instance, because videos that attract ads are more likely to be displayed. Nonetheless, the problem with complex algorithms determining what information feeds human minds largely exceeds this economic issue and constitutes a first order political issue. It is not only the case that some human bosses driven by maximizing profitability decide what we watch, but also that algorithms which no human can fully understand might take control of the information selection process at some point (Harari, 2016, 2018).

Ideology is even more blatant regarding the third freedom. In this case, freedom is immediately related to freedom of enterprise: "build a business and succeed on their own terms". What does "on their own terms" mean exactly? Terms seem quite narrowly defined by YPP, Community Guidelines and the YT algorithm. The idea that "people—not gatekeepers—decide what's popular" again conceals the functioning of the YT algorithm and the capitalistic logic behind it.

This subsumption of freedom under commodification resembles that of creativity: another intrinsically human characteristic emerges subsumed

under capitalist logic.[14] And commodification is opposed to the exercising of a positive freedom (see Chap. 1). Indeed, commodification cannot be understood as a form of freedom (as YT states), but as the epitome of unfreedom under capitalism. Noticeably, this contradiction between freedom and making money becomes apparent even in another piece of YouTube discourse. In the conclusion of one Creator's Academy course we read:

> As a creator on YouTube, you should always exercise your freedom of expression. However, if you want to ensure that your content attracts advertisers, keep in mind the above best practices and our Advertiser-friendly content guidelines as you create your content. (YouTube, 2019c)

The word "however" clearly points to the contradiction between the exercising of freedom (of expression) and attracting advertisers. Contrary to the four freedoms mentioned above, the platform clearly recognizes here that truly exercising freedom might be in tension with commodifying and earning money from content.

5.5.5 Summary

All of these ideological maneuvers can to some extent be summarized and informed by recalling some concepts of classical sociology. From Max Weber's work onward, through Merton, Parsons, the Frankfurt school and all the way up to Habermas, a crucial distinction was made between two kinds of social action: on the one hand, instrumental action, and on the other, non-instrumental or consummatory action. The former are actions that are nothing but a means toward certain goals. They are associated with modern societies: economic actions where some methods are selected to meet certain objectives; actions based on rational arguments, calculations and facts. This is, certainly, the kind of action that lies at the core of capitalism. Capitalism only emerged, Weber (1958) beautifully suggested, as instrumental action conquered most spheres of human

[14] This use of freedom certainly reminds us of Marx's notion of doubly free labor power (see Chap. 1): a freedom that is inextricably linked with the commodification of human productive power.

action—also provoking the rise of the notion of the individual (as an autonomous being, freed from the ties to their community) dialectically related to that of society. The commodity in itself is the epitome of capitalism and instrumental reason: something produced as a pure means to make money in a rational way. Non-instrumental or consummatory actions, on the contrary, include those actions that are self-fulfilling; they are aims in and of themselves. These include actions motivated by values, tradition (as Weber puts it), affects, enjoyment, pleasure or what Habermas (1984) called communicative action. It is said that some of them were more extended in premodern societal organizations, usually described as communities. Indeed, in classical sociology, the community (as a social organization where affective and traditional actions dominate) is opposed to the society-individual (where instrumental reason rules). But how is this related to YouTube ideology?

The basic ideological operation that YouTube performs consists of waving discursive flags of non-instrumental actions (communities, creativity, freedom, affects, happiness, playing, enjoyment) only to encourage produsers, *contribusers and users to indulge their deeper instrumental goals (receiving videos, making profits on them, attracting audiences, selling them products)*. Under the umbrella of a rhetoric of creativity, communities and so forth, platforms such as YT promote the most extreme commodification, not only of produsers' work, but also of the produsers, contribusers and users themselves.

This is not to say that all the praise the platform directs toward non-instrumental actions is false, but rather that it hides the deeper truth: it is, in itself, a discursive instrumental action, devised to obtain one very specific goal: making profits.

5.6 Conclusions

YouTube (YT) is the world's biggest video website by any criteria: as of the beginning of 2019, 50 million produsers had uploaded 5 billion videos that are being watched daily by some 1.9 billion active users.

Starting its operations in 2005, YT was acquired by Google in 2006, and from then onward it has developed a successful business model,

which is used by most commercial audiovisual content platforms on the Internet. Despite the platform only employing 1100 workers, its revenues have been growing, reaching USD 20 billion in 2018, and the platform's total valuation might exceed USD 100 billion.

YouTube's income comes mainly from advertisers, such as GEICO, Samsung, Rosegal, Disney, AT&T, Walmart, L'Oréal, Romwe CBS, Grammarly and P&G.

Companies advertise on YouTube because of the huge and extremely targeted (due to Google's use of big data) audience. Users watch ads (and give away their data) in exchange for having free access to the content they are interested in. Part of this content arrives from content producing companies that use YT as one of their landscapes (like Sony or Universal), but most of it is generated by a wide range of produsers. Produsers, in turn, have different rationales for delivering content. Some of them just want to share their ideas and expressions, while others are presumably driven by their eagerness to earn money through their YT channels (like PewDiePie or SoyGermán). To attract the latter produsers, YT has consciously developed the YouTube Partner Program, which allows for "monetization" of eligible channels. Nowadays, eligible channels are those with at least 4000 watched hours in the last 12 months and 1000 subscribers that also carefully comply with Community Guidelines (respecting copyrights of thirds parties, avoiding hate speech, nudity and other content that could deter advertisers). YT shares some 55% of advertising revenues generated by those channels with their respective produsers. The other way by which a produser can expect earnings is by joining a multichannel network (MCN), which takes care of marketing, monetization, paperwork, audience targeting and other issues, thus partially ameliorating the arduous side of produsers' activities. However, MCNs take a cut that oscillates between 5% and 40% of the 55% that YT pays back.

For YouTube to thrive, the amount of money that it pays to the content producers must be way below the sum it receives from advertisers. This is where exploitation enters the picture.

There are several forms of exploitation taking place around YouTube's profit from openness business model. The most important concerns *exploitation through reproduction*, which refers to repeated streaming of videos without reimbursing the full amount of the value that the produsers

generate. On the one hand, YouTube pays nothing for displaying ads on *videos that are not under the partner program*. As the threshold to enter the YPP becomes higher, more and more channels increase YT profits this way. On the other hand, channels *within the YPP* receive an extremely modest amount per view. The payment per view has been decreasing from 2015 and also the ratio between videos and views is on the decline: produsers upload more videos to receive less money. Research showed that only 3.5% of produsers earn a minimum wage—which implies having more than 2 million views each month. Finally, MCNs, by retaining a share, might augment produsers' exploitation—despite the fact that the YT cut is not increased.

For exploitation—and the profit from openness business more broadly—to run smoothly, YT needs both some legal regulations to be in place and a solid ideological foundation. Regarding regulations, and within the framework of copyright laws, the Terms of Service, Community Guidelines (included in the former) and the YouTube Partner Program are the main legal tools through which the company achieves three kinds of aims: (i) that produsers and contribusers relinquish some of their copyrights—allowing YT to do whatever the company wants with their videos without any obligation of paying them back; they also allow users to freely access their videos, but not create derivative works, distribute them outside YouTube or earn money through them; (ii) that produsers are committed to not uploading content that deters advertisers and take full responsibility for any infringement of third parties' rights, including but exceeding copyrights; (iii) that a scheme of monetary incentives is established in order to attract content developed by produsers eager to earn money, but without YT losing their absolute control and management of the scheme.

The ideological discourse, in turn, is heavily based on the enrichment of so-called YouTubers. Despite it being true that many produsers have got rich, that is only a part of the story. In fact, produsers receiving attention and earning money are but a tiny fraction, which is actually continually shrinking—as the threshold for entering the YPP was set higher and many produsers were excluded from MCNs. More importantly, what is partially concealed is the fact that YouTube *needs* the produsers to believe

that they are going to receive attention and money if they work hard enough and upload enough content.

Nonetheless, ideological discourses from YT go way beyond instilling aspirations of enrichment. Produsers are called "creators" (dispelling any resemblance with "workers"). But for YT, creativity is not related to inventiveness but rather with attracting and maintaining audiences. At the same time, creativity (as with other crucial concepts) is related to "keeping yourself happy" and other non-instrumental feelings. So, there are several complementary ideological discourses that contribute to shaping a simple idea: upload videos to earn money, but keep yourself happy with what you are doing just in case you end up making no money at all.

The notion of "community" is also invoked. But the rules that govern the "community" are determined by a corporation in order to attract advertisers, surveillance of produsers is encouraged, action is measured on an individual basis, competiveness and rational calculations are stimulated in order to maximize audiences and profits. Neither of these features suggests an authentic physical or digital community.

"Freedom" is also appealed to by YT. However, freedom is ultimately dependent on the algorithms that decide who watches what content and which ads are displayed in order to serve YouTube's commercial aims. It comes as no surprise that, under capitalism, commodification disguised as freedom turns out to be its very opposite.

In summary, YouTube invokes values associated with non-instrumental actions (communities, creativity, freedom, affects, happiness, playing, enjoyment) as an ideological maneuver to encourage produsers, contribusers and users to help the platform to achieve its instrumental goals: commodifying not only produsers' works but also produsers, contribusers and users themselves, and making profits from them.

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6

Profiting from Massive Open Online Courses

6.1 MOOCs in General and Coursera in Particular

6.1.1 What Are MOOCs?

MOOC stands for massive open online course. The expression refers to structured courses delivered through the Internet, aimed at unlimited participation and free access. The courses include, on the one hand, pre-designed content (such as filmed lectures, texts and problem sets), and on the other hand, content developed as the course unfolds (participation in forums, comments from teachers, wikis, the grading of exams etc.). Despite the concept gained currency in 2008, 2012 was the turning point for MOOCs, as several major platforms emerged, including those that became the biggest: Coursera, Udacity and edX. There are many

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A. Lund, M. Zukerfeld, *Corporate Capitalism's Use of Openness*, Dynamics of Virtual Work, https://doi.org/10.1007/978-3-030-28219-6_6

different types of MOOCs. They can deliver education directly to individuals, which is the most well-known option, but they can also be incorporated by higher education institutions into their productive processes. For example, many institutions use Coursera's courses as material for their face-to-face classes. Finally, corporations can make use of—in some cases specifically tailored—MOOCs to train their workforce. For instance, it has been reported that Google enrolled 80,000 workers on a HTML5 course offered by Udacity (Lapowsky, 2013).

According to Class Central—a portal specialized in researching MOOCs—in 2018 there were 101 million enrolled "learners", of whom 20 million were new students, that is, they were enrolling on a MOOC for the first time. The content for the 11,400 courses offered were provided by some 900 universities around the world. However, the most important recent trend points toward "monetization". MOOCs are succeeding in increasing their revenues, as we will discuss when analyzing Coursera.

Indeed, MOOCs are strained by the tension between commodities and commons that shapes informational goods and cognitive capitalism in general. The word "open" suggests that the courses are free access.[1] However, several platforms were established as or became for-profit firms. To deliver knowledge for free (or, in the worst-case scenario, at infinitely lower tuition fees than other alternatives) while obtaining profits could seem strange from a perspective anchored in industrial capitalism. However, as this book tries to show, this kind of profit from openness is widespread in informational capitalism.

Of course, not all MOOCs are for-profit. But the main platforms certainly are, as Table 6.1 shows.

But how do for-profit MOOCs make money? They make money through different kinds of certifications, credentials (i.e. by certifying the achievements of so-called learners) and related services.

Noticeably, even those theoretically not-for-profit platforms increasingly charge fees for their certifications, so the business model is quite

[1] Incidentally, it is important to point out that the other meaning of "open", which is the most important for free and open source software, and more broadly for the "open knowledge" movements that is, the possibility of modifying and redistributing derivative works, is generally not recognized by any of the MOOC providers.

Table 6.1 Top 5 MOOC platforms by enrollment in 2018

Platform	Current enrollment (millions)	Profit	Certification Fee	Partnerships and alliances	Country
Coursera	37	For-profit	Yes	Stanford University, Princeton University, Arizona State University, University of Maryland College Park, University of Illinois at Urbana-Champaign	USA
edX	18	Non-profit	Yes	MIT, Harvard University, Boston University, UC Berkeley, Kyoto University, Australian National University, University of Adelaide, University of Queensland, IIT Bombay, IIM Bangalore, Dartmouth College, Universidad Autonoma de Madrid, Curtin University	USA
XuetangX	14	For-profit	Yes	Tsinghua University and Peking University, Zhejiang University, Nanjing University, University of Science and Technology of China, Shanghai Jiaotong University, Renmin University of China, Beijing Normal University, China Agricultural University, Hong Kong Polytechnic University and National Tsinghua University.	China
Udacity	10	For-profit	Yes	Georgia Institute of Technology, San Jose State University, Facebook, Google, Salesforce, Cloudera, Nvidia, Autodesk, Cadence	USA

(*continued*)

Table 6.1 (continued)

Platform	Current enrollment (millions)	Profit	Certification Fee	Partnerships and alliances	Country
FutureLearn	8.7	Non-profit	Yes	University of Birmingham, University of Edinburgh, King's College London, University of Leicester, University of Reading, Open University, Monash University, Trinity College Dublin, Warwick University, University of Bath, University of Southampton	UK

Source: Prepared by author based on Shah (2018d), webpages of each MOOC and Wikipedia

Table 6.2 "Monetization" strategies of MOOCs

Firm	Monetization strategy
edX	Certification
Coursera	Certification, specialization, security assessments, employee recruitment, applicant screening, human tutoring or assignment marking
UDACITY	Certification, Nanodegrees, employers paying to recruit talented students, students' résumés/CVs and job matching services, sponsored high-tech skills courses

Source: Wikipedia, MOOCs

similar. Informational goods (content) are delivered for free, but the recognition (Zukerfeld, 2017a, chapter 4), that is, an intersubjective knowledge that ratifies the possession of certain skills by the learner, is not free.

But although charging a fee for each course certificate might be the main way in which MOOC providers generate revenues it is by no means the only one for most of the companies. Table 6.2 shows different monetization strategies used by different platforms in different periods.

Indeed, although MOOCs have been widely used to deliver free access content to millions of "learners", the capitalist nature of several platforms is becoming more and more clear as time goes by. The year 2016 was probably the turning point representing a shift toward a much clearer monetization approach. A report by Docebo (2016) mentioned several trends in this regard, that can be summed up as follows:

1. *No more Free Certificates*: There was a time when most of the certificates were free. Now, as part of the business model, certificates are increasingly being sold.
2. *MOOC firms are creating their own credentials*: Beyond certifying individual courses (and charging for that), MOOC platforms devise their own "degrees" (and charge for this certification as well): Udacity's Nanodegrees and Coursera's Specializations.
3. *Big funding*: in 2015, Coursera raised USD 61.1 million and Udacity USD 105 million in venture capital. Investment came from universities, as the example of Open University investing £13 million in its subsidiary Future Learn shows.

How much are MOOCs charging for their certifications? For instance, in 2015 Udacity was charging USD 200 a month for Nanodegree programs. If the student completed the program in less than a year, half of the money was refunded. Thanks to this policy, Udacity was the first MOOC firm that became profitable.

Coursera's courses have different prices. However, the median, that is the most frequent price, is USD 49. We will focus on Coursera below.

EdX, in spite of being presented as not-for-profit, offers a very similar scheme, with four different types of certificate: Verified, Professional Education, Credit and XSeries. Professional Education, interestingly, has similar pricing system to Coursera's courses: USD 49 is the median—although some cost as much as USD 949. On the other hand, these Professional Education courses are not free access. It is not only the certification which is paid for (as in Coursera and Udacity), but also access to the course as a whole that is behind the paywall (Shah 2016).

FutureLearn, despite being formally a charity, has developed a fee scheme as well. On the one hand, FutureLearn has a flat price for each certificate: £34. On the other hand, the platform launched *Programs*, a new paid credential (similar to Coursera's specializations, or Udacity's Nanodegrees). FutureLearn launched 18 programs in 2016 and 200,000 people enrolled. Finally, FutureLearn, partnering with Deakin University in Australia, launched postgraduate degrees.

> Not all courses included within FutureLearn's degrees will be free. Each degree will consist of around 80 two week courses, out of which up to 16 will be free. Tuition fees for the Master's degree will range from A$30,000 to $40,000 (£18,000 to £24,000), while the graduate certificate and the diploma will each cost A$13,140. (Shah, 2016)

There are lots of interesting topics to discuss regarding for-profit MOOCs: their great achievements regarding inclusiveness, low rates of completion of the degrees, articulation with labor markets, pedagogical strategies and so on. However, here we are interested mainly in their profit from openness business model and its ideological and regulatory underpinnings. To tackle this topic we now turn to our case study: Coursera.

6.1.2 Coursera

Founded in 2012 by Andrew Ng and Daphne Koller, two Stanford computer science professors, Coursera is the biggest for-profit MOOC. According to Forbes, Coursera is placed among the 25 startups that are expected to become Unicorns (companies valued at more than USD 1 billion) (Feldman et al., 2018). In June 2018, Coursera had 280 employees, and its impressive metrics concern not only enrollment figures, but also and increasingly the revenues the company is making. Therefore, it is quite clear that Coursera has found a solid model for profiting from openness (Table 6.3).

Coursera is not only linked with individual learners, but also with universities (partnering with some 150 of them) and enterprises (having some 1400 corporate customers, 60 of them in the Fortune 500). Regarding contents, Coursera offers some 3000 courses (mainly provided and certified by universities), 250 specializations (i.e. combinations of courses resulting in a specific set of skills) and 12 fully online degrees (Shah, 2018b). Interestingly, there is nothing to prevent corporations from providing and certifying courses and specializations instead of universities. Currently Google is offering its "Google IT Support Professional Certificate", which is composed of five courses.

Building on the monetization strategies discussed above, we can detail those pursued by Coursera (Table 6.4).

Table 6.3 Coursera revenues, funding and "learners", 2012–2018

Year	Revenues (USD millions)	Funding (running total) (USD millions)	"Learners" (millions)
2012	n/a	22 (22)	2
2013	1	63 (85)	4
2014	8–12	– (85)	11
2015	n/a	61.1 (146.1)	17
2016	50–60	– (146.1)	23
2017	100	64 (210.1)	30
2018	140	– (210.1)	37

Source: Authors' elaboration based on Shah (2018a, 2018b, 2018c, 2018d), Feldman et al. (2018) and Koller (2013)

Table 6.4 Coursera's products and prices

Client	Product	Price (USD)	Total currently provided
Individuals	Courses	49 (certified) per course per learner Free to audit (no certification, assessments and grading)	3000
	Specializations	39–79 per month	250
	Degrees	15,000–30,000	12
Corporations	Corporate training	400 per learner per year	1400
Universities	Coursera for partners	3000 per course development + per-learner fee (8–25)	n/a

Source: Author's elaboration based on Shah (2018b), Bowden (2018) and Kolowich (2013)

Unfortunately, we do not have figures regarding Coursera's provision of courses for university students. Although Coursera has been trying to expand this revenue stream for several years now, the specific Coursera for partners program is still a pilot,[2] launched in 2018 and only a small group of universities are experimenting with it. However, it seems that this program has a lot of potential for growth, especially in less developed countries. In this regard, it is no surprise that early adopters include three private Latin American universities.

[2] The only available data for Coursera for partners is old. It comes from The Chronicle of Higher Education:

> In a typical case, the company would charge the university a flat fee of $3,000 for "course development." After that, Coursera would charge a per-student fee that would decrease as more students registered for the course. The first 500 students would cost the university $25 per student; the next 500 would cost $15 per student; the university would pay the company $8 for each student beyond that. (Kolowich, 2013)

The same figures can be found in a contract from 2013 with the University of Tennessee available at: https://parezcoydigo.files.wordpress.com/2013/06/signedcourseracontract.pdf

6.2 Scheme of Flows and Actors

There are eight kinds of relevant actors in this case. Some of them appear as depicted in Chap. 1: the platform-owner corporation, workers for the platform-owner corporation (actors 1 and 2). Others are similar but present some specificities: the content providing company and workers for this company are universities and teachers, respectively (actors 3 and 4). Moreover, the distinctive feature of this particular business strategy—differing from other profit from openness models—relies on the fact that content-delivering teachers are not specifically paid for that task. On the contrary, teachers are employed for teaching face-to-face classes, conducting research and so on. So, consenting to having classes recorded or even to develop content are duties that imply no further compensation from universities, from Coursera's standpoint.

Thus, in comparison with our abstract schema, teachers who deliver courses combine the functions of workers for the content company (producing content as waged labor) with those performed by "produsers" (producing content as a non-waged activity). This is the reason why there are no "produsers" in this specific schema: they are subsumed under the teachers' role. The actors are:

1. *Platform-owner corporation*: Coursera
2. *Workers for the platform-owner corporation*: developers, support, marketing, sales.
3. *Content company*: universities that provide courses to Coursera, or other content developers. Universities are usually the course owners.
4. *University workers*: Teachers who develop content. They hand over their content to the universities.
5. Private companies that contract Coursera's courses to train their workforce, and also to identify and hire the most skilled workers among the "learners".
6. Universities that partner with Coursera to offer courses for their students. These universities—in contrast with those mentioned as content companies—want to use the content provided by Coursera as a resource for their students. At some point, they are expected to share

some of their revenues (fees paid by off-line/on-campus students) with Coursera.
7. *Contribusers*: Students or "learners" of online courses, specializations and degrees who are engaged in a range of tasks from making comments to grading other learners' assignments.
8. *Platform users*: Students or "learners" who enroll on online courses, specializations and degrees, but do not produce content—other than data and their own exams, and so on.

Regarding flows exchanged between actors, the first distinctive feature of this case study concerns the flow of recognition. Recognition is a specific kind of attention that we did not identify in our general schema. However, here recognition is measured and certified through credentials, playing a crucial role in the whole business strategy. Indeed, universities deliver very specific credentials through Coursera which many "learners" find so valuable that they are willing to pay for them. Secondly, as monetization comes from this source, Coursera does not need to resort to on-platform advertising and flows of ads become irrelevant. That's the reason why, in turn, attention flows play a different role here: they are relevant enough when directed to teachers that agree to relinquish control of their content in exchange for some attention paid to their names or courses—giving away goods for free, with the expectation of monetizing by other means, such as conferences or sales of books or services. Data flows are useful inputs for Coursera to assist with redesigning courses, selling services, understanding the learning process and so on, but they are not the core of Coursera's business. So, the flows of Coursera are as follows:

(a) *Attention* 

Learners provide flows of attention to the platform. More precisely, they pay attention to content, but in the very act of doing so they are paying attention to universities that are promoting themselves on the platform and, more importantly, to teachers who are so eager to receive attention that they cede their original content.

(b) *Recognition* 

In this particular profit from openness model, recognition—through certificates—plays a crucial role. MOOCs provide a platform and content, but above all sell social recognition, that learners usually receive from universities. Thus, recognition is the most monetizable resource.

(c) *Data* 

Learners produce and share a large quantity of data. This is not only personal data, but mainly data related to the learning process: skills, learning pace, virtues and limitations of the courses, that is, data that might be relevant for employers.

(d) *Content*

Content is produced by teachers and provided mainly by universities or independent content developers to the platform and from the platform to "learners". Content refers to: texts, videos, presentations, exercises, tests.

(e) *Waged labor* 

Waged labor is provided by teachers hired by universities, and also by the platform workers. This includes on the one hand, tutors and other workers directly involved in the learning process, and on the other hand, IT and marketing staff and so on.

(f) *Money* 

Money flows to the platform from (i) individual learners interested in certifications, specializations and other degrees (ii) companies that use courses in a work environment for training courses and the like, and those that pay for job recruitment (iii) universities that partner with Coursera to offer Coursera content to university students.

Money also flows from the platform to universities, according to specific arrangements. Universities, in turn, pay teachers under variable contractual agreements (full-time, zero-hours contracts etc.)

Now we can put together these flows and actors in Fig. 6.1.

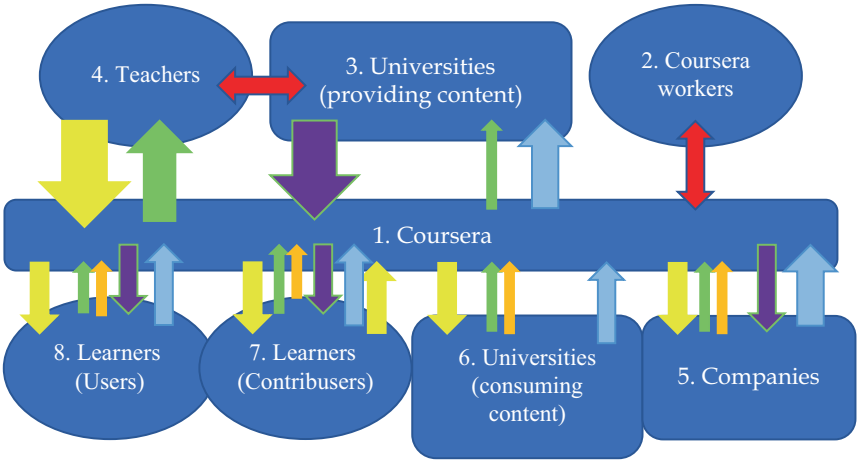

Fig. 6.1 Actors and flows in Coursera's business model. (Authors' elaboration)

6.3 Regulations

Coursera's (and the MOOCs') profit from openness model depends critically on some copyright issues. Beyond the basics of copyright law, there are four kinds of relations that need to meet specific regulations to keep Coursera's business running smoothly. First and foremost is the relation between teachers (content producers) and universities. If teachers were owners of the content, they might ask for monetary compensation for each reproduction of their content. Companies tend to avoid this risk by combining two methods. The first consists of claiming that since the teachers are employed by universities, the latter are entitled to the fruits of the former's labor. The second entails signing specific contracts with content providers, resulting in the teachers giving up their rights to the content they produce—in order to garner more attention, or because they want to contribute to the public sphere of knowledge, and so on. Second is the relation between Coursera and universities. A legal framework is needed to split the revenues that the courses generate. Third, as "learners" sometimes replace teachers work by grading assignments and answering questions, the terms and conditions are important to ensure that these contribusers refrain from claiming their copyrights, that is, a

monetary retribution for their productive contributions. Last but not least is the relation between learners and the content provided by Coursera, framed by the license the company gives for accessing the content. We will deal with these four relationships in the following subsections.[3]

6.3.1 Who Owns the Courses: Teachers or Universities?

Although online courses are produced by academics, universities present themselves as the rightful owners of such content, and therefore entitled to give these courses to MOOCs such as Coursera. But who lawfully owns academic content and courseware related to an online course? The answer is a complex one and embroiled in controversy. As Kranch puts it:

> Strong arguments can be made for granting intellectual property rights for distance education course materials to either the academics who produce them or the institution that employs the academics. (Kranch, 2008, p. 355)

We have addressed these arguments in depth elsewhere (Zukerfeld, 2017b, pp. 56–70), but we can provide a synthesis here.

A work is under copyright protection from the very moment it is created and fixed in a tangible form that is perceptible directly or with the aid of a device (See US Copyright Office—FAQ). This means that every work is related to its author and placed in the private domain from its conception. This is counterintuitive and scarcely known. Most teachers, and indeed everybody else, are unaware that they are entitled to certain rights from the moment they fix their original expressions of an idea in a tangible medium. Thus, unless indicated to the contrary, copyright of texts, power point presentations and similar resources developed by an individual are vested in that individual, that is, academics.

[3] There are other relevant legal frameworks, such as those that regulate how much Coursera's clients (individuals, universities, companies) must pay for products. However, for the sake of conciseness, we will not deal with those in this chapter.

But on the other hand, copyright law includes the notion of "works made for hire", in order to support claims made by corporations.[4] For instance, WIPO (World Intellectual Property Organization) introduces a general rule regarding the book publishing industries.

> Copyrighted material created by employees, as part (within the scope) of their employment duties, is usually owned by the employer. When someone creates a work under a contract of service (i.e. when it is part of his job) copyright will belong to the employer, unless the employer and employee have agreed otherwise by means of a contract. It is often thought that when a work is commissioned, the person commissioning it and paying for it owns the copyright. This will depend a great deal on national laws; in most legal regimes the author keeps his copyright when the work is commissioned unless the contract includes an assignment. In some countries, the commissioning of photographs and of portraits are exceptions to this rule. (WIPO, 2008, p. 15)

However, things get complicated as this general comment applies to the book publishing industry in general but not to books produced by academics—even when they are full-time staff and books were written during working hours. Therefore, extrapolating this rule to online content is not straightforward. With these caveats in mind, two basic ideas might be introduced.

If the original content is commissioned (e.g. freelance work) or if the author is not a proven employee, the author might keep her copyright, unless a contract specifies the opposite. Certainly, when a firm commissions a work of authorship it is highly unlikely that it would not use a

[4] Take the US law. The current definition of "Works made for hire" can be found in section 101 of USC 17:

> A "work made for hire" is—(1) a work prepared by an employee within the scope of his or her employment; or (2) a work specially ordered or commissioned for use as a contribution to a collective work, as a part of a motion picture or other audiovisual work, as a translation, as a supplementary work, as a compilation, as an instructional text, as a test, as answer material for a test, or as an atlas, if the parties expressly agree in a written instrument signed by them that the work shall be considered a work made for hire. (USC 17, 101, disponible en http://www4.law.cornell.edu/uscode/17/101.html)

contract which vests the copyright in the company—universities in our case.

If the original content creator is a full-time member of faculty or a full-time employee in a firm, and there is no contract stipulating otherwise, it is likely that the courts will rule that the content she creates must be owned by the institution or firm.

Interestingly, administrators of universities and other higher education institutions have so far been accepting that all copyrightable materials other than online courses produced by academics should be owned by faculty members (Latourette, 2006, p. 629). Why are online courses so approached so differently? In short, the answer concerns profits. Indeed, the main driver of the disputes regarding copyright ownership is the fact that objectified knowledge authored by academics becomes an informational good, a reproducible commodity that can potentially generate profits for the institutions. As in all other spheres and throughout the history of capitalism, courts and laws tend to make rulings which favor the accumulation of capital instead of furthering justice, equity or any other rationale. Of course, for the strategy to run smoothly, content producers need to believe what university administrators tell them, and this depends critically on an ideological bedrock, as we shall discuss below.

But, is it the case that most universities tend to neglect faculty ownership of online courses, that is not paying royalties to academics? Although data is relatively scarce, the answer is affirmative. Sanders and Richardson (2002) found that only 9.4% stated that academics/teachers retained ownership. Consistently, a study carried out by Hoyt and Oviatt (2013, p. 171) states that "in only 10% of cases faculty members owned the courses".

6.3.2 Contracts Between Universities and Coursera

Coursera signs contracts with universities (called "partners" in legal jargon) that include, among other things, the license over the contents and the royalties arrangement.

Regarding the license, Coursera enjoys a truly open license, as the company obtains:

> a nonexclusive, sub-licensable, worldwide license to copy, distribute, modify, create derivative works based on, publicly perform, publicly display, and otherwise use Course Content on Coursera Properties and for reasonable marketing purposes. (Coursera and University of North Carolina, 2015)

What about revenue sharing? Coursera has signed contracts with different arrangements. There are at least two different models. *The Chronicle of Higher Education* has published a contract between Coursera and the University of Michigan dated in 2012. The most relevant issues are addressed in the following extensive quote:

> Company will pay to University 6–15% of gross revenues received by Company for Courses offered through the Platform. The applicable percentage of the Revenue Share will be set forth on the Course Development Agreement for each Course.
>
> - Company will pay University:
> - 6% of gross revenues for a Course with a 3-month Course Lifespan;
> - 9% of gross revenues for a Course with a 12-month Initial Period;
> - 12% of gross revenues for a Course with a 24-month Initial Period;
> - 15% of gross revenues for a Course with a 36-month Initial Period;
>
>   – In addition to the duration of the Course as provided above, for each Course offered under the Coursera Monetization Model, Company will also take into account the number and quality of assessments offered for each such Course in determining the applicable percentage of gross revenues such that the percentages identified above may be adjusted up or down at Company's reasonable discretion.
>   – Upon request by University, Company may, at its sole discretion, provide for a higher percentage of Revenue Share for Courses of short Course Lifespan whose topic is such that a shorter Course Lifespan is warranted.
>
> - In addition, Company will pay University 20% of Gross Profit on the aggregate set of Courses provided by University or Instructors. Calculation of gross profits will account for deduction of all costs specific to University Courses, including, but not limited to, any previous Revenues Share paid to University by Company, costs of captioning and translation of University Courses, hosting and website charges, costs for

> tutoring and grading, etc. for University Courses. (Coursera and University of Michigan, 2012, p. 28)

The share may vary between 6% and 15% of the course revenues in addition to 20% of gross profits. However, the contract specifies "that the percentages … may be adjusted up or down at the company's reasonable discretion". It would be interesting to know what the concrete shares turned out to be for different courses but unfortunately we lack that information.

However, there are other contracts in which the share that the university receives is higher:

> Coursera will pay to Partner fifty percent (50%) of Net Sales received by Coursera for Courses offered through the Platform under the Verified Certificate service. (Coursera and University of North Carolina, 2015, exhibit A)

Universities seem to be better off with this 2015 arrangement. However, "net" as in net sales might be an elusive concept, as they emerge after taxes and especially "distribution costs" that only Coursera can determine have been deducted. Again, unfortunately we lack data regarding the amount of money kicked back to the universities that signed this kind of agreement, nor do we have any information concerning how many universities signed either one or the other model.

Nonetheless, in 2016 Coursera presented this kind of agreement as the standard:

> Universities receive 50 percent of the cash receipts from learners who pay for Course Certificates associated with a course they teach on Coursera. (Koller, 2016)

In any case, the share of revenues between universities and Coursera does not affect the content producers, aka teachers. Interestingly, in all the contracts we had the opportunity to peruse, Coursera makes the universities responsible for any copyright issues that might arise with the teachers. For instance:

> Before uploading Course Content to the Platform, or allowing its Instructors to do so, Partner will ensure that it has obtained the required licenses and rights to the Course Content as well as a release of liability from the Instructor(s), any guest presenters, and any participants in a course video, such as individuals in a classroom or individuals being interviewed ("Participant") by having each Instructor, guest presenter, or Participant, as applicable, sign the relevant Instructor Release, Guest Presenter Release, or Participant Release, and providing a copy of same to Coursera.(…). As between Partner and Coursera, Partner will be responsible for reviewing and obtaining any necessary licenses, waivers, or permissions with respect to any third-party rights to Course Content provided by Partner. (Coursera and University of North Carolina, 2015, 1.3)

6.3.3 Learner Produced Content: Terms and Conditions

Coursera is well aware of the value of learner produced content, and that by default, under copyright law users are owners of commercial and moral rights regarding this content. Therefore, a license that gives the company ample freedom to use and modify such content is required. That is why the terms of use include a section entitled "Your Content" that reads as follows:

> User Content
>
> The Services enable you to share your content, such as homework, quizzes, exams, projects, and other assignments you submit, posts you make in the forums, and the like ("User Content"), with Coursera, instructors, and/or other users. You retain all intellectual property rights in, and are responsible for, the User Content you share.
>
> How Coursera and Others May Use User Content
>
> To the extent that you provide User Content, you grant Coursera a fully-transferable, royalty-free, perpetual, sublicensable, non-exclusive, worldwide license to copy, distribute, modify, create derivative works based on, publicly perform, publicly display, and otherwise use the User Content. This license includes granting Coursera the right to authorize participating institutions to use User Content with their registered students and on-campus learners independent of the Services. Nothing in these Terms shall restrict other legal

> rights Coursera may have to User Content, for example under other licenses. We reserve the right to remove or modify User Content for any reason, including User Content that we believe violates these Terms.
>
> Feedback
>
> We welcome your suggestions, ideas, comments, and other feedback regarding the Services ("Feedback"). By submitting any Feedback, you grant us the right to use the Feedback without any restriction or any compensation to you. By accepting your Feedback, Coursera does not waive any rights to use similar or related Feedback previously known to Coursera, developed by its employees or contractors, or obtained from other sources. (Coursera, Terms of Use, revision of 7/11/2018)

So, basically the license states that Coursera can do whatever they want with everything learners produce on Coursera's platform without paying any royalties.

6.3.4 What Can Be Done with Coursera's Content?

From the beginning, Coursera's terms of service (later named terms of use) made it very clear that the license over Coursera's content and other services was highly restrictive:

> All content or other materials available on the Sites, including but not limited to code, images, text, layouts, arrangements, displays, illustrations, audio and video clips, HTML files and other content are the property of Coursera and/or its affiliates or licensors and are protected by copyright, patent and/or other proprietary intellectual property rights under the United States and foreign laws. In consideration for your agreement to the terms and conditions contained here, Coursera grants you a personal, non-exclusive, non-transferable license to access and use the Sites. You may download material from the Sites only for your own personal, non-commercial use. You may not otherwise copy, reproduce, retransmit, distribute, publish, commercially exploit or otherwise transfer any material, nor may you modify or create derivatives works of the material. The burden of determining that your use of any information, software or any other content on the Site is permissible rests with you. (Coursera Terms of Use, cited in Cheverie, 2013:1)

However, this was changed in 2015, when Coursera wrote a much more learner-friendly Terms of Use, reducing the legal jargon. From then on, the license reads:

> Our License to You
>
> Subject to these Terms and our policies (including the Acceptable Use Policy, Honor Code, and course-specific eligibility requirements and other terms), we grant you a limited, personal, non-exclusive, non-transferable, and revocable license to use our Services. You may download content from our Services only for your personal, non-commercial use, unless you obtain Coursera's written permission to otherwise use the content. You also agree that you will create, access, and/or use only one user account, and you will not share with any third party access to or access information for your account. Using our Services does not give you ownership of any intellectual property rights in our Services or the content you access. (Coursera, Terms of Use, revision of 7/11/2018)

So, this version does not explicitly mention that you are not permitted to modify or create derivative works (critical concepts in order for content to be truly open). But this is implicit by default. In other words, copyright law prohibits derivative works unless a written permission stipulates otherwise. This becomes clear when this paragraph is compared with the one pertaining to learner created content. The latter explicitly includes the permission to modify and distribute content to the benefit of the company, as discussed above. Incidentally, it is interesting that Coursera relaxed the explicit ban regarding derivative works but not the one related to commercial uses.

6.4 Profits and Exploitation

Where do Coursera's profits come from? There are two main sources that must be discussed here. First and foremost, the unpaid knowledge and work of academics that produce online courses. Second, the unpaid digital knowledge that "learners" as contribusers deliver to the platform.

6.4.1 Academics

There are two related but in some ways autonomous bases of exploitation of content producers. The first concerns the relation between *labor time* and online content. The second relates to the difference between *paying once* (whether related to labor time or not) and using the courses repeatedly.

Firstly, most of the academics who produce content for online courses do so as part of their teaching duties and do not expect any additional remuneration. They sell labor time, receive a wage in exchange for their hours of service, and they are indifferent to whether the product they deliver is the usual service (a face-to-face class that cannot be reproduced by employers) or an informational good (which can be reproduced and sold millions of times).

Secondly, whereas academics are paid a fixed amount of money (work for hire), the institutions (the MOOC and universities) arrange payments in accordance with revenues and the number of times the course is published as well.

The difference between what academics receive (a wage for performing other tasks, a one-off payment for delivering a course) and the revenues that the courses generate represent a solid source of profits.

Both sources of profits are rooted in the fact that academics tend not to receive royalties for their content. Indeed, a survey conducted by Hoyt and Oviatt (2013, p. 169) found that only 2.8% of universities paid royalties as a policy, and 5.7% paid them to "some colleges, schools or departments", whereas the rest did not pay any royalties at all. When royalties existed, they were between 5% and 10% of revenues, according to respondent administrators. In the same vein, Laura Leslie, referring to paying royalties to faculty members when the course is repeatedly used stated that: "Unfortunately this is not the common practice. Some institutions actually create corporate entities that hire professors to create courses so that there will be no debate that the work was produced within the scope of the employment" (Leslie, 2002, p. 122).

But do the teachers produce original content? The *Chronicle of Higher Education* conducted a survey, responded to by some 100 academics who

had prepared at least one course for a MOOC. It showed interesting results. 97% of the academics said they had prepared original videos. The median number of students enrolled on a MOOC was 33,000, with 1 (one) teaching assistant or tutor helping the teacher. Academics spent on average 100 hours on their MOOC before it even started (Kolowich, 2013).

The exploitative nature of this business model crucially depends on the fact that courses are mass reproduced, and more precisely, that large numbers of learners pay for them one way or another. Figures are scarce, but let's take the example of Johns Hopkins Data Science Specialization. In the period spanning from April 2014 to October 2014, 1.76 million enrolled, and 71,589 obtained the Signature Track verified certificates. According to Charlie Chung (2015), this resulted in some USD 3.5 million in revenues.

So why do academics engage in this relationship? Why they do accept relinquishing their copyrights so meekly? There are at least three reasons. On the one hand, they are not necessarily aware of their rights. On the other hand, some of them produce the contents for free in order to receive that scarce resource in informational capitalism: attention, as discussed in Chap. 1 and can be seen in the schema of flows and actors. Attention to their courses might generate increases in book sales, invitations to paid lectures, and so on. Finally, there is the ideological belief that remuneration is dependent on labor time—instead of the knowledge involved or the profits the product generates, as we shall discuss below.

6.4.2 Learners

Coursera has also developed an ingenious way of using "learners" skills to improve the learning process while at the same time cutting costs at least in two ways. Profits also are to some extent explained by "learners" grading other learners, this is, peer grading and by answering other learners' questions.

Massive courses are based on the replicability of informational goods. Delivering video lectures and software to thousands instead of dozens of student is not a difficult task. On the other hand, education implies some *services* that need to be produced on an individual basis—that is, marginal costs are higher than zero. Services are costly. Grading is an evident

case. In some cases, there is software that can correct and grade tasks. However, in many other cases that is not possible, as is usually the case in the social sciences, humanities, and so on. Coursera has developed an ingenious answer to this challenge, as Daphne Koller, the founder of Coursera explains:

> So we had to come up with a different solution. And the solution we ended up using is peer grading. (…) And so this is an effective strategy that can be used for grading at scale, and is also a useful learning strategy for the students, because they actually learn from the experience. So we now have the largest peer-grading pipeline ever devised, where tens of thousands of students are grading each other's work, and quite successfully, I have to say. (Koller, 2013, 11:02)

Another essential service in the education process is that of answering questions. That entails a lot of labor time from tutors or other academics. Consider a course on which thousands of learners are enrolled to get some idea of the hours potentially involved. But here again, Coursera managed to use communities and peer production to boost the learning process and, of course, its business.

> Students collaborated in these courses in a variety of different ways. First of all, there was a question and answer forum, where students would pose questions, and other students would answer those questions. And the really amazing thing is, because there were so many students, it means that even if a student posed a question at 3 o'clock in the morning, somewhere around the world, there would be somebody who was awake and working on the same problem. And so, in many of our courses, the median response time for a question on the question and answer forum was 22 minutes. Which is not a level of service I have ever offered to my Stanford students. (Koller, 2013, 12:24)

This touches on one of the central ideas of this book. Firms create communities and use the sense of belonging to the community and receiving informational goods for free in order to increase unwaged productive activities. In the case of learners grading other learners' exams, this effectively replaces TAs and other faculty staff.

These profit sources can be understood through the lens of different theoretical tools. Two of these, discussed in Chap. 1, are those of rent and exploitation. Here, following previous work on the topic (Zukerfeld, 2017b) we want to stress the exploitative nature of the strategy. More precisely, we find that the exploitation of academics and learners falls into two categories. Both are based on but distinguishable from the mainstream Marxist approach.

In the case of learners, they are exploited as they provide a *service*, the value of which is higher than what they receive. This is almost coterminous with the traditional Marxist notion of exploitation, with the exception that learners are not waged workers. They are not performing productive labor and therefore are not capitalistically exploited from a Marxian perspective. However, this fits perfectly under the notion of *exploitation through alienation* (Zukerfeld, 2017a) based on the unpaid appropriation of units of labor time within or without the labor relation. The commodity that arises from the productive process (grading and answering comments in our case) erodes with consumption, meaning that the identical repetition of the productive process requires the subject-exploited-through-alienation again—that is, new learners' labor is needed to grade new assignments.

Academics, in turn, are subject to *exploitation through reproduction*. This kind of exploitation is based on unpaid knowledge objectified as informational goods—course contents—and the direct ownership of that knowledge by the company—universities and Coursera in this case.

The knowledges (subjective or codified as information) do not erode with use, so the exploited subject (the academic who produced the content) they have been extracted from is not generally necessary for the repetition of the same productive process. Crucially, exploitation through reproduction is not measured adequately in units of time.

6.5 Role and Enactment of Openness Ideology

For the whole business model to work and especially for the capitalist exploitation to take place, ideology is needed. The ideological basis of this particular case can be summarized around the following concepts: vocab-

ulary, freedom, openness, community, peers and the association between value and labor time.

Vocabulary is the cornerstone of ideology. Naming is a way of framing and performing. So, companies such as Coursera create (or participate) in a whole semantic field around words like "learner", "instructor", "partner". The main function of these concepts is to dissolve identifications that could harm Coursera's business. This is particularly pertinent in relation to teachers, that is, content providers who are called instructors. Their position and their knowledge are somehow diminished by this semantic choice and, noticeably, their main function (providing content) is disregarded. If you don't want to call them professors or teachers, why not call them content producers, or better still, partners? Presumably, this is so because these words would lead to claims regarding royalties. The word "learner", on the other hand, appeals to a wider audience than students. It seems especially devised to attract people that do not see themselves as young, inexperienced and lacking knowledge, but rather as all life-long learners, suitable individuals for cognitive capitalism. In turn, universities are called partners. The word partner is usually used in cognitive capitalism when a company wants to present unequal relations as though the contracting parties had equal power. The extreme example is that of Uber, which calls its drivers partners in order to obscure a labor relation. In our case, the situation is not that severe, and the concept of partner is not unfair, but in some ways, it obscures the nature of the university's mission and the universities' lack of control over the productive process.

In the case of Coursera, the practices and ideological uses of freedom, openness, and communities have shifted over the course of time.

In its origins, Coursera aimed to offer free courses and, moreover, its commitment to free courses was a cornerstone of its public ideological discourse. As Daphne Koller, cofounder of Coursera, put it in a TED talk:

> So we formed Coursera, whose goal is to take the best courses from the best instructors at the best universities and provide it to everyone around the world for free. (Koller, 2013, 3:15)

However, as time went by, a significant change became noticeable. From 2016 onward, when you try to access courses, most of them have some option like the following (Fig. 6.2).

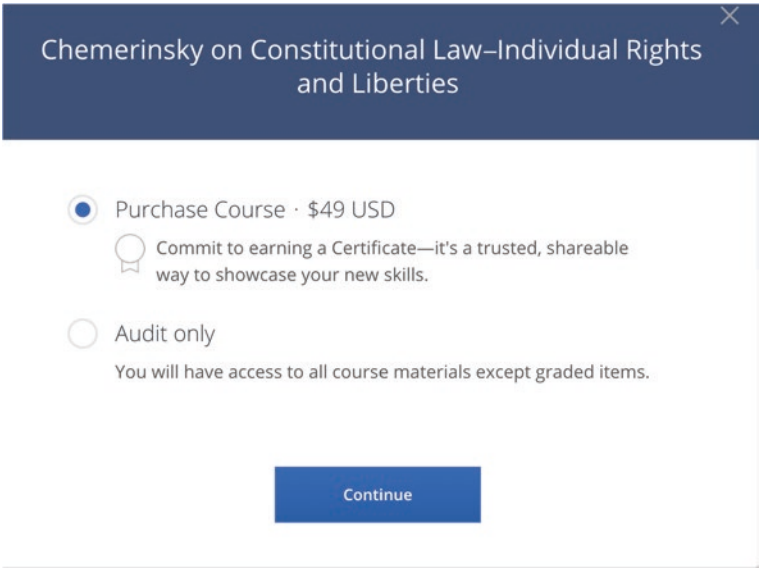

Fig. 6.2 Options to access a Coursera course. (Source: Coursera. Available at: https://www.coursera.org/learn/chemerinsky-individual-rights)

This means that by default courses are no longer free. And, notably, the second option is not called "free access", but "audit only". Certainly, if learners choose the second option, they can access course materials for free—but not exams and certifications. While the vast majority of courses are under this kind of intermediate framework, there are still completely free courses, and some that are entirely behind paywalls (Shah, 2018c).

Overall, and remarkably, the word "free" is less and less visible on the Coursera website.

Indeed, it seems that the rhetoric of freedom was invoked in order to engage learners and, more importantly, teachers willing to cede their contents for free. This is not a trivial issue. The fact that courses—including exams and certificates—are given for free and promoted as such might be quite important for teachers. A narrative in which unpaid reproductions of their courses are used to offer free courses to otherwise excluded learners is quite a different story to one in which courses are treated as just another bunch of commodities. Some of the frustration sparked by this trend away from free access and toward placing content behind paywalls

can be seen in the following quotes from teachers who offered several courses on Coursera:

> I am not happy with the subscription model. I have been involved with Coursera and MOOC courses for over 4 years. (…) I got into offering my material for altruistic reasons. I am fine with offering Coursera learners an option to buy services. But, I see a trend toward where content providers, like myself, are losing control of our content. I can envision a time, not too far in the future, where I am going to be forced to put some of my material/content behind a paywall. (Whine Whiteman, on Quora, 2017)

> I don't like the subscription model and have been opposed to the evolution of the Coursera business model from "teach as many as possible and monetize from those who can pay" to "maximize revenue as much as possible, provide grants for those with need, and provide a second-class experience to non-paying students to encourage payment". The current model was arrived at in a series of steps that slowly pushed the most valuable bits of my content behind a paywall. Like others, I got into this to maximize how far my content is distributed—and if there was money to be made (and there was)—great. (Chuck Severance, in Quora, 2017)

However, once the teachers have handed over their courses, and a critical mass of attention from learners has been gained, monetization strategies might involve the company departing from its original discourse. More precisely, this is a common pattern for the profit from openness business model: for-profit companies start up their business waving the flag of free access, but sooner or later, they slowly but surely begin putting fences around their content. Once a good deal of attention and contents have been secured, the flag of free access is quietly lowered.

What about openness? The word open is present in the very concept of MOOCs. However, openness here has a completely different meaning to its appearance in FOSS, that is, free and open source software. Content is not open as it cannot be modified—as the license discussed above states, and no derivative works are authorized, for-profit or not. Indeed, open in Coursera and other MOOCs means that access is open to everyone. Thus, open here means something related to free access. But as the idea of free access is increasingly under siege in MOOCs, so is the notion of openness.

The notion of community is extremely important to Coursera's business. It's all about creating a sense of belonging, of collaborating with a collective endeavor. As Daphne Koller puts it:

> But this is not just about students sitting alone in their living room working through problems. Around each one of our courses, a community of students had formed, a global community of people around a shared intellectual endeavor. (Koller, 2013, 11:59)

Closely related to the idea of community is that of peers, which evokes p2p, horizontality, non-profit and so on. It is important to the aforementioned concept of "peer grading" which is a typical case in which an ideological use of unremunerated collaboration is a key part of the business model: the absence of these unremunerated activities from contribusers would imply paying TAs and other faculty staff.

Finally, in a previous study we established that teachers' expectations of remuneration are mainly associated with present or previous labor time (71%) instead of knowledge (6%) or number of times that the course is going to be published online (5%) (Zukerfeld, 2017b, p. 76). This overwhelming valuation by teachers of adequate compensation for the production of digital content being in direct relation to the time taken to prepare that content represents a significant ideological basis from which online education businesses are able to advance their exploitation through reproduction of those teachers. This is because universities and for-profit MOOCs are reliant on the fact that teachers are content so long as they are paid for their services, despite the fact that they are now producing replicable informational goods. If teachers receive a reasonable hourly payment, they will happily relinquish their copyrights. This ideological mindset is so widespread that might seem natural. However, for many producers of informational goods, it is quite clear that hourly payment is not good enough.

Moreover, teachers giving up their content might be missing the fact that sooner or later they could be dismissed.

> Today, with the creation of distance education, universities are realizing that the stakes involved with copyright ownership are higher than ever.

> Online courses create a "potential financial windfall" for the owner of the copyright. They allow universities the ability to offer the same course repeatedly without having to pay a professor to teach the course. Once the course is developed and fixed into a program, the need for a professor is significantly reduced. Such programs pose unique copyright law issues. (Leslie, 2002, p. 120).

Reducing remuneration to labor time is not only theoretically mistaken in this case, but might be a part of the dominant ideology of informational capitalism which, as such, functions to help grease the wheels of exploitation.

6.6 Conclusions

Some 90 million students around the world are enrolled on Massive Open Online Courses (MOOCs). Most of them are for-profit companies, of which Coursera is the biggest by any metric. Through partnerships with 150 universities, it offers 3000 courses and 250 specializations for 37 million "learners". Despite having only 280 employees, the company made USD 140 million in revenues in 2018 and has received USD 210 million in funding since 2012 (Shah, 2018b).

Coursera's business model depends critically on teachers giving away their class content. This is possible because of the specific wage relation and ideological beliefs of teachers in many universities: they are paid in relation to time units, and they are happy as long as the relation between working time and wages is reasonable. Coursera generally does not raise teachers' income at all, but neither does it augment teachers' working hours beyond their contracts with universities. Indeed, Coursera makes money not by increasing teachers' labor time, but rather by replicating their knowledge to attract "learners", some of whom are willing to pay for certificates.

Coursera bases its business model on several regulations. Firstly, a legal framework which through copyright law and specific contracts guarantees that teachers relinquish their content to universities and universities hand over that content to the company. Contracts stipulate

how to split revenues between Coursera and universities, but there is no provision regarding the teachers who produced the content. Secondly, the terms and conditions allow Coursera not only to use data from "learners", but also to put them to work grading other learners' exams without any specific monetary compensation.

This is closely related to the two main streams of exploitation that boost Coursera's profits: first and foremost, the unpaid content for online courses developed by academics. Second, the unpaid digital knowledge that "learners" as contribusers deliver to the platform.

Besides the usual actors and flows in profit from openness business models, three kinds of flows stand out in this case study. Advertising, in the traditional sense, is not relevant as a source of revenue: money comes from individual "learners", companies and universities willing to pay for certificates. Thus, in Coursera's business model, a very specific kind of attention plays a critical role. That is recognition. The platform offers courses arguably for free, but monetizes recognition in the form of certificates. This recognition stems from the universities behind the courses. Universities and teachers play the game to some extent because of the flows of attention that they receive from "learners". Finally, the most important data that users and contribusers ("learners") offer to the platform concerns learning paces and individualized skills that might be relevant for potential employers. Firms such as Coursera might bridge the gap between educational institutions and the labor market in the near future, and charge a toll for that.

Ideology plays a major role in enabling Coursera's business model. Calling students, "learners"; universities, "partners"; and above all, teachers, "instructors" establishes a semantic field that circumvents traditional labor relations. In turn, the concept of "community" is critical, as for instance it might help to engage learners in grading other students. Furthermore, the instrumental use of the concepts "free" and "open" deserves a mention. After some years of using "free" widely, the term has been slowly but surely put aside. This coincides with the trend toward changing the default option for accessing course content: from free access to payment, leaving "audit only" as an alternative option. The rhetoric of freedom once invoked to engage teachers in ceding their contents for free has been cast out. In turn, the word "open" stands out in the acronym

MOOC. However, content is not open, as it cannot be modified and derivative works are not authorized. "Open" actually refers here to "free access", which is not on the rise.

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7

Conclusions and Policies

To prosper in common(s) is better than the commons being exploited by the few. This simple proposition, so often slandered, is the departure point for this concluding policy chapter focused on the digital realm of cognitive capitalism.

Cognitive capitalism is highly dependent on profit from openness. Different forms of openness distribute the freedoms to act on what is open differently; however, companies often combine these forms of openness with enclosures somewhere in their business models in order to secure their profit. The openness therefore often takes on an ideological function in relation to the company's activities, portraying the hybrid as something open. This use of openness, including the right to private property and enclosures, in many ways connects to the traditional ideology of liberalism. These business models in turn have a direct effect both ideologically and in practice on commons-based productive activities that to various extents are open for the companies' freedoms to act.

In Chap. 2, we distinguished between four different kinds of digital platforms. We distinguished between highly and less centralized for-profit platform, and highly and less centralized non-profit platforms. In the case studies that followed we examined cognitive capitalism's use of

A. Lund, M. Zukerfeld, *Corporate Capitalism's Use of Openness*, Dynamics of Virtual Work, https://doi.org/10.1007/978-3-030-28219-6_7

for-profit platforms and the negative effects of this on the contribusers, produsers and even for commons-based peer producers. Now we have arrived at the time to challenge this for-profit perspective and take a non-profit view of these digital platforms and their productive models. In so doing we are challenging liberal ideology from the point of view of socialism's understanding of freedom as an effective power to act, an ideological position that logically and ideally is dependent on an effective openness that is not open for subsequent enclosures. Within this change of perspective we will prioritize horizontal ways of organizing production in more participatory and horizontal ways—as in the cases of cooperatives and commons-based peer production (CBPP)—that stress the importance of commoning together. This ideological position can in turn be tied to the ideological positions of republicanism. We propose policies in four related sectors of cognitive capitalism in order to operationalize and structure this shift of perspective. The policies relate to economy, technical infrastructure, legal regulation and alternative digital platforms. In this final chapter, we present a summary and a comparison of insights gained from the case studies, and thereafter proceed to outline and discuss our policies.

7.1 Summary of Insights from Case Studies

The Linux Distributor Red Hat makes a lot more profit than its competitor Canonical that produces Ubuntu. The company has been successful in selling its subscription packages to large corporate clients. Ideologically the company downplays the free software aspect and predominantly presents itself as open source, at the same time as it acquires the copyright to the whole and aggregated work of the distribution (which it releases under the GPL). This latter maneuver helps the company to legitimize the use of trademark law to control the distribution of its products. Red Hat's business uses four out of five possible exploitation models in relation to FOSS, and all these are hybrid models that enable different combinations of open and enclosed software. Ideologically, the company uses "open" to open-wash these hybrid business models, but it also adds an extra dimension to it by portraying free software as business-friendly and

giving open source a social flavor (that it does not really have within a capitalism that ultimately favors enclosures). The business of selling subscription packages related to RHEL is the first priority for the company, but this influences the character of the Fedora project that otherwise could have been commons-based and peer governed. The community is subsumed under a hierarchical business structure with a focus on customers, rather than on produsers, contribusers and users. And, it is not only the company's claim to the copyright of the aggregated whole of RHEL that legitimizes corporate control over the Fedora project programmers. Ideology also plays a crucial role in this. The creation of a morally good business-friendliness under a reliable brand not only legitimizes, but also downplays—if not conceals—the detrimental effect of this corporate influence on the Fedora community as a commons. The conflating of free software's and open source software's opposing logic de-politicizes free software, and in the end undermines the commons both ideologically and in practice.

Profit from openness comes in several forms in relation to the scholarly publisher Elsevier. The work of peer reviewers and researchers is most often unpaid and openly accessible for the company. The company also profits more directly from high APCs in relation to open access (OA) publishing, from not reimbursing unpublished articles that are allocated within Read & Publish agreements, and most likely also from double dipping in some form. It also profits from openness in an indirect and ideological way by using OA to mask the high profitability of the subscriptions to their many hybrid journals, hybrid journals that often come in bundles under non-disclosure agreements that lock-in and make university libraries subscribe to many titles they are not interested in having. This open washing—or use of the OA option in hybrid journals—corrupts the OA publishing model by naturalizing high APCs. Lately the company has started, within its new services directed toward the whole academic research cycle, to commodify even green OA's institutional repositories in a way that threatens to lock-in and make entire institutions dependent on the company. Elsevier, on the other hand, does not share the openness ideology stemming from the open source definition. They use "open" to open-wash their enclosed content and services, and have actively worked against forms of openness that challenge this enclosed business model.

Coursera's business model depends critically on teachers giving away their class content, and that is realized through taking full advantage of the discrepancy between time and knowledge as sources of income. Indeed, Coursera greatly benefits from the combination of a specific wage relation and the ideological beliefs of teachers. Universities pay them in relation to time units, but when Coursera takes control of the online course—without necessarily increasing teachers' working hours—it replicates knowledge with no additional remuneration. This knowledge is used to attract "learners", representing the main source of income for Coursera, though some companies and universities are also willing to pay for certificates.

Certificates objectivize a very specific kind of attention: recognition. Indeed, courses are to some extent free access, but recognition is monetized. This recognition stems largely from universities. Universities take a cut from Coursera's income, thus also participating in teachers' exploitation. The platform also secures learners' data regarding learning paces and individualized skills that might be useful for other firms.

Noticeably, relevant regulations (such as the works for hire doctrine that governs the relations between teachers and universities) and ideological beliefs (like the relation between working time and value) were already in place before the company started its business. Instead, for some years the company had an active role invoking the rhetoric of free access. But after a critical mass of learners and courses was reached, the business model got tightened up and the whole open/free discourse has been declining ever since.

Over the years, YouTube managed to put in place an impressive economic, legal and ideological schema that serves several goals. Perhaps the main one is that produsers and contribusers give up some of their copyrights without any necessary monetary compensation. At the same time, YouTube provides a system of economic incentives which those eager-to-earn-money produsers can apply for—that is, the YPP, though the threshold for entering it is becoming increasingly difficult to surpass. The Terms of Service, Community Guidelines and constantly tightening regulations on the YouTube Partner Program are crucial to legally frame this model.

To engage produsers, contribusers and users in helping the platform to be profitable, YouTube on the one hand successfully appeals to fantasies

of enrichment, despite 97% of "creators" not earning enough to surpass the poverty line, payments per view having decreased in comparison to 2015 and the ratio between videos and views decreasing. On the other hand, YT flags up concepts usually associated with non-commercial spheres: communities (that are in reality instrumental networks), creativity (which YT understands as creating and expanding audiences), freedom (which is ultimately limited by the algorithm), openness (videos and data are open for Google to use them freely, but not open for users), affects, happiness, playing, enjoyment (all of which help to engage unpaid or underpaid produsers).

In all of our case studies, we have seen profiting from openness in several forms, detrimental effects on voluntary producing and sharing communities and individuals, and various ideological uses of the concept "open".

Profit from openness always comes in hybrid forms, combined with various enclosures. It is therefore never just about openness. The companies' practices are ideological in a negative sense. In Red Hat's use of free and open source software in its Linux distribution, the hybrid business model is first based on a legal loophole and several legal exceptions in relation to technical issues that facilitate enclosures of the openness, together with strong rights-claims (enclosures) based on trademark law and copyright. In Elsevier's academic publishing the OA articles are prepaid in several ways by the research institutions or by the very researchers who write the articles. In both Coursera and YouTube, "open" does not mean that the original works can be distributed or that derivative works can be produced. The praise for openness is reduced to free access to some content inside the platforms. Moreover, the algorithms that govern Coursera and remarkably YouTube are not only enclosed, but completely secret.

However, profit from openness could also mean the deliberate exploitation of unpaid work or unpaid productive activities that are open for the companies' freedom to act. In Red Hat's case this means prospering from the unpaid, voluntary programmers with the Fedora project and CentOS community, as well as other relevant FOSS projects. Elsevier on the other hand prospers from researchers' and academic institutions' dependency on an inverted economy, based in turn on an academic and

peer based gift economy, in which the universities pay the researchers to produce articles in exchange for status and reputation, rather than for economic remuneration. This is to some extent similar to Coursera, which exploits teachers relinquishing rights to their online classes partially in order to gain attention. However, despite the fact that universities are also casting around for attention (as in the Elsevier model), they receive a share of Coursera's learners' fees as well (unlike Elsevier). Coursera also benefits from students' unpaid grading, which in turn resembles the case of the YouTube audience (especially its contribusers). More precisely, in the YT model, produsers of videos are the main exploited actors, but ad-consuming audiences (users and contribusers) might be exploited as well.

These profiting activities based on regulatory enclosures and unpaid work in our case studies have detrimental effects on the sharing and gift economies that operate within various forms of communities, be that the centralization and co-optation of the Fedora project or the academic peer community's payment for their own work. Also the competitiveness for scarce attention between teachers and "creators" on Coursera and YT respectively hinders the possibility of building bonds of solidarity and strengthening communities.

Monetization strategy is the variable that exhibits more diversity in our case studies. Models based on advertising, such as YT, are perhaps the most widely known. But hopefully we have demonstrated that the profit from openness model can also thrive through other monetization schemes: charging companies for free software and related services (Red Hat), charging authors/universities expecting to receive attention (Elsevier), charging users for recognition (certifications on Coursera).

Regulations might include but exceed GPL and CC licenses: all the companies use specific contracts (such as Enterprise Agreements between Red Hat and companies, Coursera/Elsevier and Universities—or associated consortiums—or Terms of service on YouTube and Coursera), trademarks (especially for Red Hat, but also in the other cases) and even other licenses (YT standard license or Elsevier user license). Indeed, regulations providing openness are always complemented by powerful enclosure mechanisms.

Ideologically, open washing is the most common trait exposed in our case studies. A market leader like Elsevier uses "open" mainly in this way to depict their subscription profits in a better light, and through this tries to improve the company's reputation, whereas Red Hat adds an ideological dimension of openness that invokes or claims a kind of moral and social business-friendliness that is used in the branding of the company. In Coursera's business model, openness functions as an ideological tool that contributes to raising teachers' willingness to give up their content for free. For YT, in turn, the rhetoric of freedom and openness disguises the commodification process and the enclosures and unfreedoms related to it (Table 7.1).

7.2 Policy Discussion Section

The regulation around the Internet is often portrayed as an ideal, with its soft governance rather than strong governance control, entailing a lot of self-regulation by experts and users. Research, in contrast, is increasingly showing that Western governments are not as absent as that image suggests, and that self-regulation in practice means corporate regulation of the Internet, that in turn threatens the freedom and public good of the net (Curran et al., 2016, p. 204). Therefore, new policies are needed instead of the old neoliberal ones.

Policies do not exist in a vacuum. They can be forced upon the state by the actions of social movements and the citizenry, meaning from below in the power pyramid, but it could also—and most often are—forced upon public authorities by the lobbying and threats of powerful large companies. Added to this, political parties within the state are important in themselves and can initiate policy changes in a top-down way. The success of all policies depends on how the power struggles between civil society, capital and the state play out. In this chapter the general aim is to develop a strategy that creates reinforcing feedback loops between non-profit actors and the state in order to counter-act the neoliberal onslaught on public institutions.[1]

[1] It is possible to distinguish between *market-conforming regulation* and *market-negating regulation* (Lapavitsas, 2010). Curran et al. complement this with a *state-negating regulation* in order to pro-

Table 7.1 Distinctive features of each case study

	Free software (Red Hat)	Open access publishing (Elsevier)	Open access video (YouTube)	MOOCs (Coursera)
Actors	Fedora programmers, Red Hat in-house programmers, client companies.	University faculty, university library staff, academic researchers, students and researchers as users. Company wage laborers.	Audiovisual content produsers, networks, advertisers, audience.	Teachers, Universities, "Learners".
Monetization	Selling software, contact with developer community, support, consulting on optimization and configuration.	APCs for Gold OA, subscriptions, services related to the academic research cycle.	Advertising.	Certification, specializations.
Profits and exploitation[a]	Unpaid Fedora developers.	Unpaid academics that have to pay for being published open access.	Unpaid video content, attention and data.	Unpaid reproduction of online classes, and students' data.
Regulation	GPL, Trademark law, Contracts between Red Hat and companies.	Creative Commons, licenses, Elsevier user license.	YouTube standard license, Creative commons.	Contracts between Coursera and universities, copyright "works for hire".
Ideology	Making Free Software business friendly.	Open washing.	"Creators" enrichment, "community", freedom.	Value of classes dependent on labor time.

Source: Authors' elaboration

[a]This category of profit and exploitation only mentions the source of profits that is clearly linked to the profit from openness business model. It does not take into account the waged work involved

From a top-down perspective, the policies that guide the state's actions in cognitive capitalism should first of all take into account that even if the state cannot by itself take on a continuously re-emerging neoliberalism led by the openness industry head-on, it could play a crucial part in both building a strong alliance with civil society and strengthening that civil society, in order to do so. The state needs the support of civil society and social movements, and vice versa.

Therefore, we recommend on a general level that the state focuses its support on strengthening cooperative actors and commons-based actors, as well as initiating and financing public platform projects, in order to strengthen an independent and thriving public sector. This support should be governed by the principle of "arm's length distance". This policy of supporting, but not influencing has dominated Swedish and European cultural policy for decades.[2] It means that the "government or the politicians should not interfere with the cultural or artistic activities as such" (Frenander, 2007, p. 41). This does not imply that the policy aims are all general and abstract in nature. In Sweden, the cultural policy of 1974 stated as one of its aims: "to counteract the negative effects of commercialism within the cultural sector" (Frenander, 2007, p. 41). This political framing could of course also be used for less progressive goals, like for example far-right parties' contemporary struggles to end support for "multiculturalism" with new cultural policies (Lindsköld, 2015).

In turn, the traditional top-down way of thinking about policies will be complemented by more bottom-up strategies in the following proposals. We will both suggest ways to use state power to strengthen public and especially commons-based or cooperative productive activities, but we will also outline approaches for popular and autonomous empowering strategies. Our general standpoint regarding policies is that they should support the freedoms, rights and the powers to *act* in common or as a society, rather than the openness of an informational resource or the unimpeded rights to act on such a resource for companies in search of

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tect digital spaces from state surveillance and control (Curran et al., 2016, p. 206), but they also conclude that "the idea that one can use the power of the state to enhance public provision, as opposed to government control, is hardly new" (Curran et al., 2016, p. 207).

[2] The principle goes back to André Malraux, French Minister of Culture for the Popular Front in the 1930s.

ever increasing profits. Thus, policies should, in different ways, empower the commoners and the commons.

We will, based on our case studies, suggest some new policies, even if we are well aware that our case studies cover only a limited area of the field in question.

7.2.1 Policy 1: Economic Policies

What kind of economic policy is needed to reclaim the commons from their seizure by profit from openness platforms?

There are at least four public policy debates that must be tackled: taxes, fees, ownership of data, and universal basic income.

7.2.1.1 Taxes

One of the problems we have identified in relation to the profit from openness business model is that of exploitation. Platforms benefit from unremunerated software, content, data and attention delivered by produsers, contribusers and users. So, policies that return to these actors some of the money the companies make on them seem quite important. There are two basic ways of tackling this: taxes and fees.

Taxes are an option through which the state, as the collective representative of the citizens, collects money and then redistributes it to foster the production and dissemination of informational public goods. Taxing profit from openness platforms obliges us to discuss several issues. What should the rate of that tax be? To whom specifically should the tax income be allocated by the state? Moreover, what specific activities should be taxed and why?

Curran et al. (2016) advance an interesting and very broad proposal.

> If we are agreed that the development of an open internet environment is a policy priority for the twenty-first century, then why should we not press for a mechanism by which those who are benefiting from the demand for information and communication make a full contribution to building and supporting such an environment? A 1 per cent tax on the operating profits

> of US companies dealing with computer software and hardware, internet services and retailing, entertainment and telecommunications in the Fortune 500 list alone would raise over one billion dollars annually. Let us call this a Cerf Tax in honour of Vint Cerf, the architect of the protocols that made the internet possible in the first place, but there could be many international variations. (Curran et al., 2016)

For Curran and his colleagues, this 1% on profits tax should be levied on the largest companies dealing with "software and hardware, internet services and retailing, entertainment and telecommunications". The rationale for that tax seems to be that they are "benefiting from the demand for information and communication". While we find the idea of taxing big informational companies quite fair, we believe this proposal lacks a theoretical underpinning. There is no theory of exploitation, of how companies are profiting from users, contribusers and produsers, and therefore, the tax seems to be rooted in a social-democratic spirit: these companies should pay because they are big, and benefit from the *demand* for their goods and services, according to the authors. We think instead that they should pay because they are prospering through asymmetrical exchanges with produsers, contribusers and users, as we have tried to show in this book.[3]

Indeed, here we deal with companies that base their business mainly on unremunerated flows of content, data and attention. Certainly, this does not mean that companies related to informational businesses (such as Microsoft, Intel, Level 3) should not be taxed. However, taxes must be tailored according to the specific ways with which companies are profiting from social production.

An approach based on relating taxes to exploitation and a critical theoretical framework can be found in Fuchs' works:

> An advertising tax can be seen as a kind of tax on the exploitation of audience and digital labour. It is comparable to social security payments that companies pay to the state for their regular employees. (Fuchs, 2015, p. 2)

[3] Additionally, naming this tax—targeted at companies such as Google—after Vinton Cerf is to some extent polemical, not because of his undisputed and amazing contributions to the development of the Internet, but because of his role as a Google employee.

Fuchs's focus on targeting advertisers is perfectly consistent with his theoretical approach: as companies make money out of the unremunerated attention of the users (which, following Dallas Smythe, Fuchs terms *audience labor*), targeting advertising seems a perfect tool with which to recuperate some of the surplus value they extracted from ad-consuming users.

Although we concur with this way of reasoning and most of the theoretical foundations behind it, we find that taxing advertisement is not enough. From the focus of this book, that is, the profit from openness business model, if Curran et al.'s approach is too wide, Fuchs' is too narrow. Why is that? For at least two reasons. Firstly, focusing on the value that companies receive in terms of flows of attention tends to downplay the role played by unremunerated data and, more importantly, content. In all of our case studies it is quite clear that unremunerated content, that is, the exploitation of produsers, is crucial: free software, academic papers, online courses and audiovisual content are key to understanding how profitable enterprises make money. Secondly, while it is true that most profit from openness business models were and still are based on advertising, many of them are increasingly finding other sources of revenues, as Coursera, Red Hat and Elsevier have managed to do.[4]

Therefore, we think that it is necessary to explore the possibility of introducing a tax that applies to content, data and attention captured by for-profit companies, based on the rationale that they are benefitting from the unpaid contributions of these flows.

How to allocate the income generated by these taxes? That is a question that we cannot address here. However, a general principle would be to allocate the collected tax to not-for-profit platforms like those discussed in Policy 4 (co-ops, commons-based and state-funded platforms). Despite the fact that the state collects these taxes, legislation should be

[4] It should be noted that content from produsers is exploited in many different ways. Often these ways include chains of interdependence like in the vertically integrated uses of FOSS, by for example IBM intermediated by Red Hat in chains going back to the Fedora community, and to many other previously unpaid produsers' programming activities around the Linux kernel. The exploitation could of course also be more direct as in the case of Facebook that is directly exploiting produsers of various forms of content on their own platform. A tax in this field not only focuses on the exploitation of living labor or unpaid *activities* in the case of Facebook, but also on the exploitation of historically unpaid living labor in IBM and Red Hat's case.

passed establishing that the income must be directed specifically to a fund that distributes the resources between not-for-profit platforms.

7.2.1.2 Fees

While taxes imply that the money goes through the state and hopefully eventually reaches the commoners, fees could be implemented as an alternative or complement that directly reaches the organizations of produsers, contribusers and users. Fees could be established by specific laws and licenses if content, software, data and attention are used by for-profit actors such as profit from openness based companies. In this case, micropayment schemes could be implemented, and a collective actor must be identified in each case.

In this regard, it is important to differentiate this commons-oriented proposal from a traditional copyright ownership based approach. In the latter, fees would be transferred to individual owners. This would only distribute riches between profit from openness companies and individuals, but without changing the logic of capitalistic accumulation. Recalling the problems of the profit from openness business model that we discussed in the introduction to this book, exploitation would be ameliorated, but alienation would be undiminished. Of course, produsers would be better off if YouTube, Coursera or Elsevier paid them fees for making substantial money on their original contents. But this remains within the narrow scope of liberal philosophy. If fees were to be implemented, would it not be interesting to channel them to produser cooperatives or peer-to-peer platforms? The more produsers opt for collective forms of production requiring fees from for-profit uses, the more incentives there would be join co-ops and peer-governed platforms. The challenge is to get the process started. Here perhaps specific laws could create incentives for produsers to amalgamate themselves into collective organizations.

7.2.1.3 Data

Content and software are protected under copyright law. However, data, in most cases, is in a different situation. In many countries, it is not clear

who is the legitimate owner of data according to the law. Profit from openness platforms benefit from this situation. Of course, from our perspective companies should not get the data for free and without real consent (see below). However, there are different and even opposite options with which to counter the current state of things.

On the one hand, some people believe that laws must be enacted which turn personal data into personal property. This is what authors such as Jaron Lanier have been advocating for.

> In a world of digital dignity, each individual would be the commercial owner of any data that can be measured from that person's state or behavior. (…)
>
> In the event that something a person says or does contributes even minutely to a database that allows, say, a machine language translation algorithm, or a market prediction algorithm, to perform a task, then a nanopayment proportional both to the degree of contribution and the resultant value, will be due to the person.
>
> These nanopayments will add up, and lead to a new social contract in which people are motivated to contribute to an information economy in ever more substantial ways. This is an idea that takes capitalism more seriously than it has been taken before. (Lanier, 2013, p. 20)

This interesting perspective follows the neoclassical reasoning held by economists such as Coase (1960) and Demsetz (1970): economic efficiency is achieved by assigning clear and powerful property rights.[5] In this case, that means creating a new category of property rights to deal with data. Thus, besides the legal and technical difficulties that such a proposal would face, we have other more pressing concerns.[6]

Indeed, while this perspective combats the profit from openness business model, it does not do so from a standpoint that is aimed at growing the commons. It is all about privatizing and commodifying, instead of enlarging the public sphere. In contrast, we are in favor of

[5] A minor comment on intellectual property justifications: Individual ownership of data can also be justified from the Hegelian theory of personality, but not from a Lockean theory of labor (Hughes, 1988).

[6] Different apps for managing personal data and intending to give consent and/or sell it have been developed. See for instance Yansen's (2019) work on Wibson.

de-commodifying, as growing the commons means reducing the market place as much as possible.

Interestingly, the problem with individual propertization of data is more related to individualistic subjectification than monetary transactions. It implies stimulating the individual entrepreneur instead of the commoner. Monetary payments are not oriented toward expanding the commons, but at accumulating money on a personal level.

Ownership of data would imply more instrumental rationality, more anxiety, more conscious calculation, and less solidarity; in other words, more alienation (Morozov, 2015; Stallman, 2018). Therefore, bearing in mind the problems identified in the introduction, this option would counter-act exploitation but only at the cost of increasing alienation.

On the other hand, there is the idea that data simply should not be commodified. So, it is not about companies paying, but more about keeping data outside the market. This is Morozov's proposal:

> …the only way to curb that power is to take the data completely out of the market realm, so that no company can own them. (…) With enough data you could start planning beyond the horizon of the individual consumer—at the level of communities, neighbourhoods, cities. That's the only way to prevent centralization. Unless we change the legal status of data, we're not going to get very far. (…) I'm not saying that the system should be run by the state. But you would have at least to pass some sort of legislation to change the status of data, and you would need the state to enforce it. Certainly, the less the state is involved otherwise, the better. The radical left notion of the commons probably has something to contribute here. There are ways you can spell out a structure for this data storage, data ownership, data sharing, that will not just default to a centrally planned and run repository. When it's owned by citizens, it doesn't necessarily have to be run by the state. (Morozov, 2015, pp. 64–5)[7]

Morozov focuses on both placing data outside the realm of commodities and at the same time, limiting the centralized control and management of data by the national state. This could be understood as an

[7] Curran et al. contend that data mining of big data should be used for "non-profit coordination of healthcare, transport, and public services", and therefore support Morozov's call for socializing the data centers, and criticize the use of datasets as a commodity to attract advertising (Curran et al., 2016, p. 207).

expression of republicanism. The commons arise as the key notion, as they evoke this idea of a non-state public sphere. Of course, it could be difficult to enforce this proposal, but we agree with Morozov that it is the best option from a commoning-based approach.

7.2.1.4 Universal Basic Income

The economic policies discussed up to this point have been very specific. However, there is yet another policy which has a much broader scope but we cannot avoid mentioning. It is that of a Universal Basic Income (UBI). As it concerns a very well-known debate with a long history, we will not dig into the details, but only connect it to our topic.

Indeed, since most of our proposals are related to alternatives to the profit from openness business model, we need to figure out alternatives that avoid the exploitation and alienation of produsers, contribusers, users and waged workers. In Sect. 7.2.4 we will propose institutional arrangements that configure such alternative platforms. However, if users, contribusers and especially produsers are not going to be exploited, where will the money they deserve for their contributions come from? Of course, some if not most of these activities are carried out voluntarily. Thus, they are indirectly subsidized by other waged activities and take place in leisure time. Nonetheless, as these productive activities create valuable resources (in not-for-profit contexts) that are enjoyed ideally by very large and not strictly defined groups, the State (or other supranational institution) should subsidize these activities to some extent.

So, the argument for a UBI here is related to the idea of a *general intellect* advanced by Marx and developed by Autonomists and Cognitive Capitalism theoreticians (Hardt, 2000; Lucarelli & Fumagalli, 2008; Moullier-Boutang, 2011: chapter 7; Virno, 2004). The reasoning usually runs along these lines: if the whole of society is creating value or use value (in the form of knowledge, affects) *outside* labor time, the State (as the representative of the social collective) must subsidize this unwaged but critical value or use value production that is appropriated by society at large.

In our case, we support a very specific argument derived from this general framework: granting a basic income would allow people to

produce content for online platforms in a different way: lowering the pressure for monetization and then hopefully reducing the willingness to commodify these activities. Moreover, a well-tailored UBI would help to grow the digital commons, that is, not-for-profit platforms. Indeed, for-profit platforms would be taxed and then the extra participation fostered by the UBI would mean no additional revenues. On the contrary, this scheme of UBI would imply a boost for not-for-profit platforms that might be critical for them to surpass the threshold of attention needed to benefit from network externalities.

7.2.2 Policy 2: Technical Policies

To foster a commons-based Internet, there are some technical issues which must be addressed. Here we deal with infrastructure, hardware and algorithmic levels.

7.2.2.1 Internet

How are the continental backbones, intercontinental fiber optics cables and Internet Service Providers related to growing the commons-based sphere of informational goods? We need to support not-for-profit produsers and contribusers (co-ops, state-managed and commons-based peer production) by leveling the field. States need to pass laws that increase the speed of commoners' information packages at the expense of the private for-profit companies' packages.[8] Take the example of a co-op platform that hosts high quality videos. In the absence of state intervention, it is very difficult to compete with Netflix and YouTube, as they

[8] This is of course against so-called Net Neutrality. Neutrality, in a capitalist environment, is usually an ideological concept used to conceal the interests of those allegedly neutral actors. This is no exception and the net neutrality debate disguises the confrontation between capitalist services and content providers (such as Google or Netflix) and ISPs and owners of the infrastructure. While the latter demand price discrimination in order to charge more to huge companies, the former demand that every package is treated without discrimination, to equal their activities with those of an end user. Our position here is in favor of a radical neutrality, one in which the playing field is truly leveled.

have gigantic Content Delivery Networks that make their content available faster than that of their not-for-profit, or SME, counterparts.

This lead us to the issue of cloud computing. The development of cloud services is shifting the ownership of a large part of the control, and to some extent the ownership, of the means of production that were obtained by the popularized distribution of PCs around the turn of the millennium.[9] Profit from openness platforms host and store their content, data, and algorithms in huge servers that are obviously not open to everyone. Moreover, these cloud servers are not distributed across the world in an equitable way. They are concentrated in some countries that are favorable to these companies in economic and legal terms. However, policies establishing that data centers, clouds servers and so on must be located within the national territory that companies are operating in might be important. That is for at least two reasons: local storage of content would imply less dependence on highly concentrated intercontinental Internet cables, and all content, software and data in those servers would more likely be subject to local law.

In turn, it is also necessary to level the playing field regarding users and contribusers: states should enforce public access to the Internet as a basic human right. This is especially important in the global south where large groups of people are excluded from fast and cheap broadband access.

7.2.2.2 Hardware and Algorithms

What kind of hardware is needed for a commons-based peer production to flourish?

First and foremost, produsers, contribusers and users *need hardware*. For most people this is not a problem at all. Hardware has been becoming cheaper year after year for the last five decades. However, for many excluded populations around the world gaining access to well-functioning,

[9] The streaming service form of digital platforms like Netflix or Spotify has today substituted the P2P-file sharing of media content from platforms like The Pirate Bay. This strengthens a new form one-directional communication, or rather a relation in which a dominant party streams content in exchange for users' attention (to advertisements) or for a fee, but also in exchange for the users' data.

updated hardware is not easy. Despite several shortcomings, one-to-one programs (such as One Laptop Per Child (OLPC) and Conectar Igualdad that delivered one computer to every school student) made huge progress. Thus, states and international organizations should make every effort to grant children access to their own hardware.

Secondly, hardware for a commons-based peer production ecosystem should be under copyleft licenses. This advocacy for openness in hardware has two sides. One concerns security and control issues that arise from the fact that enclosed hardware functions as a black box. Instead, the principles governing each piece of hardware must be available to avoid back doors, not allow data collections and so on. On the other hand, enclosed hardware "slows down innovation cycles, as sometimes companies owning patents do not invest in further developing them into commercial applications, delaying derivative innovations that would rise from its implementation" and also "thrown away instead of being repaired, especially in countries where manufacturing companies do not offer appropriate customer support" (Maia Chagas, 2018, p. 1). A commons-based, sustainable ecosystem of platforms would be enhanced by having mandatory open hardware everywhere.

Of course, as hardware has non-negligible marginal costs, openness does not equal gratis access. Open (source) hardware is that "whose design has been released to the public in such a way that anyone can make, modify, distribute, and use those things" (Open Source Hardware Definition 1.0). Indeed, open hardware refers mainly to the *design* and related software. Notwithstanding, the title to most of open hardware is shared under copyleft licenses. Open hardware (such as Arduino, Rep Rap) enhances the potentiality of enlarging the public sphere and the freedom of produsers, contribusers and users.

Platforms that are based on the profit from openness business model praise openness. However, they silently combine openness and enclosures, transparency and opaqueness. On the one hand, they are open regarding produsers works; on the other, nobody knows how the platform's algorithms work. How are some results prioritized over others on Google? How does it come about that some YouTube videos are recommended instead of others by the algorithm? How are Uber drivers ranked?

Here we stand for a non-liberal, more radical approach to openness. We demand a certain degree of disclosure regarding algorithms. This demand operates on two levels. The obvious one refers to the case studies we have discussed, and platforms alike. That is, opening up the way platforms rank, prioritize and so on. But we also think that transparency and openness in the biggest search engines' algorithms (i.e. Google) are extremely important for a commons-based Internet, because the main limitation of non-capitalist platforms (co-ops, state owned and commons-based p2p, see below) lies in getting enough attention. As discussed in Chap. 2 through concepts such as Metcalfe's Law or network externalities, it is very difficult for small platforms to take off from scratch. And in this regard, search engines are crucial. If search engines prioritize well-established capitalist platforms, it is very unlikely that smaller, non-market-oriented alternatives will surpass the threshold of attention needed to flourish. Picture the same example mentioned above: a small co-op platform which delivers high quality audiovisual content under copyleft and not-for-profit licenses. Would the Google search algorithm treat it on equal footing to its own platform, YouTube? It seems very unlikely. In any case, we need open algorithms to verify that search engines are not sidelining non-capitalist alternatives—or incidentally, other companies.

This kind of demand for openness and transparency in platform algorithms is not new, even if it is not propagated within the Open Data Movement (Lund, 2017b). In an article published in 2000—but written as early as 1997—Introna and Nissenbaum made a strong case and concluded that:

> As a first step we would demand full and truthful disclosure of the underlying rules (or algorithms) governing indexing, searching, and prioritizing, stated in a way that is meaningful to the majority of Web users. (Introna & Nissenbaum, 2000, p. 34)

In turn, the French Digital Council submitted a report in 2014 recommending that platforms guarantee transparency. "It recommends that the various ranking and editing mechanisms are presented in full transparency, especially mechanisms that are concealing or favouring contents and information" (Georgieva, 2014, p. 64). Georgieva concluded that:

> …search engines should be legally required to integrate in their general terms and conditions clear explanations on their indexing and ranking policies that should be visible on every search result page. For instance, they have to state that some results could be suppressed for public interest reasons, hate speech, protection of personal data or that some results will be favoured in the search ranking because the search engine has agreed to do so with other commercial entities. (Georgieva, 2014, p. 63)

As Georgieva puts it, we would demand clear guidelines regarding the presentation of the criteria used for search engines' indexing, prioritization and ranking, but we also see the need to develop policies that regulate which criteria can be applied in the algorithms. It seems relevant to us to investigate viable ways to develop regulation that positively discriminates in favor of non-profit platforms.

7.2.3 Policy 3: Legal Policies

The profit from openness business model is built on open licenses and contracts, in which companies are not obliged to pay the produsers of content and software. How can we deal with this from a commons-oriented and anti-capitalist perspective? Our strategy is two-fold and based on the findings of our case studies. Firstly, we will discuss the merits and flaws that some frequent open and free licenses present. Secondly, we will introduce a family of licenses that, building on the previous copyleft licenses, may help to build a thriving commons sphere.

7.2.3.1 Merits and Limitations of Main Open Licenses

By 2019, when this book was written, a lot of ink had already been devoted to copyleft and other licenses which offer alternatives to the enclosures that privative copyright builds around informational goods. These approaches leave us with some interesting options regarding legal regulations and progressive policies that counter-act openness ideology's detrimental effects on the digital economy and the public sphere. Our general standpoint regarding policies related to licenses is that they should

support a focus on the freedoms, rights and powers to *act* in common or as society rather than on the openness of an informational resource, thus empowering the commoners and the commons in an overall way.

From an anti-capitalist and commons-oriented perspective, we can sum up some features that we would like to keep and some others that we would like to change in these licenses (Table 7.2).

From a pro-commoners perspective, all of this may be summed up into some variables.

1. *For-profit uses*: The main issue with GPL and open software licenses regards the lack of distinction between for-profit and not-for-profit uses.[10] We think that to grow the commons we need licenses that reject for-profit uses. That is precisely why Kleiner's PPL is extremely important. However, despite PPL allowing uses by workers' organizations and co-ops, commercial uses by foundations which represent produsers, contribusers and users are not considered. Moreover, rejecting all uses by for-profit companies has the downside of losing worthwhile resources that might be crucial for growing the commons. Reciprocal licenses tried to fix this by stating that for-profit uses might be compensated by contributions to the commons or fees. However, there are some shortcomings even in this extremely valuable proposal. Firstly, it is a one size fits all proposal. Different communities and different informational goods might want to tailor their licenses in different ways. Some commoners might not want to allow any uses of their goods by for-profit companies, while some others might want these

[10] The architect behind the GPL, Richard Stallman, understands openness as being less important than rights and freedoms to *act* in common and in solidarity. Users should collectively control the program and what they can do with it: "Free software is software that respects users' freedom and community" (Stallman, 2018, pp. 77–8). Actually GPL not only grants, but also *requires* that the freedoms or rights to access, reproduce, adapt and distribute the software (all being activities) are present in all derivative works (Stallman, n.d.). But, although GPL pits political liberalism's favor of freedom of speech against economic liberalism's need for private property enclosures, Stallman still moves very much within a liberal tradition that is critical of oligopoly capitalism, but not of smaller firms and enterprises (Stallman, 2018, p. 84). Even if Stallman stresses the building of commons and the fostering of solidarity, he stops short of developing a clear critique of capitalism's anti-social logic. Competition between capitals will, regardless of the form capitalism takes, lead to capital concentration and centralization, in which smaller capitals are out-competed and co-opted by larger ones (Bottomore & Harris, 1991; Marx, 1867).

Table 7.2 Licenses: non-privative licenses, by merits and limitations

License	Merits	Limitations
Open Software	None	No viral character
GPL	Viral character Derivative works allowed.	For-profit and not-for-profit uses not distinguished. One size fits all
Creative Commons	Family of licenses Produsers can choose the most suitable licenses.	No harnessing of for-profit uses. Commercial uses are allowed or prohibited, with no further distinction. Viral character is not mandatory.
PPL[a]	Against for-profit uses.	No harnessing of for-profit uses from produsers, contribusers and users. Non-exclusive. One size fits all.
Reciprocal[b]	Harnessing of commercial uses to enlarge the commons.	Difficulties regarding limits of sharing and individual measures of contributions

Source: Authors' elaboration

[a]The development of the Peer Production License (PPL) marked a starting point for anti-capitalist licenses that was followed by subsequent critiques and attempts to expand on it (Kleiner, 2007, 2010; Meretz, 2008; Said Vieira & De Filippi, 2014; Toner, 2007). As opposed to many other suggestions, PPL is legally formalized in a license text. It gives all the rights to use (reproduce, produce adaptations and distribute original and derivative works) a licensed resource non-commercially under the license. Rights to commercial uses are only given to certain legal entities such as: worker-owned companies and worker co-ops that redistribute all profit to the employee-owner workers or co-op members. Instead, "privately owned and managed" companies that "seeks to generate profit from the labor of employees paid by salary or other wages" cannot do this (Magyar & Kleiner, 2018). Although PPL is called a *copyfarleft* as opposite to a copyleft license, in the end it also has this virtual character

[b]Activist Maia Dereva, connected to the P2P Foundation, claims that licenses either can govern the commons as open licenses that make the "commons available to all", or as reciprocal ones that make use of "commons under conditions of sharing and remuneration rules, within a community of users" (Dereva, Niaros, & Bauwens, 2018). We think this distinction is useful, but also contend that the copyleft license's viral character has a reciprocal feature. Ideally, future derivative uses are a gift of openness to the commons: opening up and expanding the code into new areas, connecting it to new people that have to behave in a commoning way in relation to it. The idea of reciprocal

(*continued*)

Table 7.2 (continued)

licenses has been elaborated as a political strategy by Michel Bauwens and Vasilis Kostakis. They focus on the political strategy that co-ops and commoners could use in combination with the PPL. In this they refer to a "copyfair license", that actually is not, as yet, a formalized license (Bauwens & Kostakis, 2014, 2015; Kostakis & Bauwens, 2014; P2P Foundation, 2018). Their main idea is to give guidance to co-ops and commoners regarding their relation to companies. They stress that companies that do not contribute actively to the projects behind the licensed content or software, would have to pay for their use (Bauwens & Kostakis, 2015; P2P Foundation, 2018). Other reciprocal licenses propose that the option of making active *contributions* (related to the production) could be added to monetary *fees* as a negotiating strategy (Dereva et al., 2018). This alternative is proposed by Said Vieira and De Filipi. They want commoners' activities and contributions to be measured and to introduce a peer currency, but also mention a model of Open Value Accounting where the commoners rate each other's contributions. This currency or open value system should be used to assess the remuneration for all the commoners. The ad hoc license for for-profit companies (that have not contributed actively) uses the fee option. The license is assumed to be an adaptation of the Creative Commons Non-Commercial Copyleft license that includes a reciprocity clause that could be added to the PPL (Said Vieira & De Filippi, 2014). In order to understand how to differentiate between these two the question of the commons' boundaries needs to be discussed (see policy 4). The license is also said to be in line with the gift economy, but the reciprocity principle that is put forward has more of a barter logic to it. The gift economy is a looser regime in which the return gift does not have to be the exact equivalent to the original gift (Sahlins, 2004), and is therefore also a much more social regime.

companies to substantially contribute to the commons but without paying any fees.[11]

2. *Openness and derivative works*: Some widely used Creative Commons licenses (those with the ND clause, frequent in academic journals) do not allow derivative works, while most of the other licenses do. We think that derivative uses are extremely important because knowledge must flow as freely as possible within the social body, as it is produced collectively.

[11] Moreover, although we support the idea of a reciprocal clause in general, we think that the suggested elaborations on a measurement system in relation to a reciprocal clause miss the point with a commons-based gift economy, and introduce a form of instrumental reason that is alien to such a gift economy (Said Vieira & De Filippi, 2014).

3. *Viral character*: Open software and most CC licenses do not oblige the derivative works to have a similar license as the original work. Indeed, capitalist companies might take advantage of this feature, by enclosing the derivative work. We think that an ecosystem of commons is more likely to grow if this viral character is mandatory through "share alike" clauses.
4. *Exclusiveness*: PPL, GPL and other licenses offer a non-exclusive character, which means that dual licensing is allowed.[12] This implies that the copyright owner may license their work as many times as they want and, for instance, after licensing under a PPL, the very same work could be licensed under a privative license or any other capitalist-friendly license.[13]

7.2.3.2 Commoners License Family

Our main contribution to improve this situation consists of building on the PPL license, but to revise it in order to deal with some of its limitations. Indeed, what interests us is its attempt at effectively leveling the playing field on the content level between actors in an unjust capitalist society dominated by strong for-profit actors, and thus supporting weaker non-profit actors. Freedom should be understood in effective terms, a

[12] A license, from whichever party, is non-exclusive as long as it does not actively state the transfer of exclusive rights (Dodd, Lichter, & Reichman, 2019). Instead, content that is licensed by the copyright owner to someone in an exclusive manner, is effectively giving away the ownership of that content to the other party. After that is done, the original copyright holder has no control over the economic rights and cannot re-license the content in any way. That is what happens when you sign a traditional contract with a traditional book publisher, but also when you sign a contract with many Open Access Journals (OAJs). In the latter case, the choice of specific libre license (with specific CC license) is important. On the other hand, if the license is used together with a non-exclusive right, the receiving party cannot control either the copyright or the use of the entity that has been licensed to them. This also means that the original copyright holder, a lone programmer or the many commons-based peer-to-peer producers (if all are consenting) of the project, could re-license the content or software as they wish. This re-licensing would constitute a dual- or multi-licensing of software or cultural works, which forms one of the major loopholes connected to the GPL license.

[13] Dual licensing creates a substantial loophole in relation to the standard GPL license, not only in relation to software but also in relation to cultural goods. Individual, institutional (companies and co-ops) and CBPP license holders can decide to issue a new proprietary license for the same work. In relation to companies based on CBPP-developed projects, this is often achieved by a CLA (Contributor License Agreement).

conception that goes against openness ideology's claim that a resource's openness is equally good for all actors and uses. In line with this we would both like to theoretically contribute to strengthening the PPL's perspective, and to a strategic expansion of it also to the software sector.

We would like to propose that co-ops, CBPPs and state-funded platforms should use a kind of PPL that we call Commoners License (CL) as the basis for a new kind of license family, where the distinction between non-profit and for-profit actors together with copyleft are core units that are complemented by various voluntary options that can be added to the core.

To do so, we advance the following guidelines for a group of six licenses. A general aim for our suggestions is to use the same logic as Creative Commons, by formulating a narrower but fundamental base for the licenses that prioritizes support for the commons, co-ops and state-funded platforms.[14] Therefore, there are some mandatory characteristics and some further options. The mandatory core of the Commoners License Family may be summed up as follows:

1. *Open Access*: Everyone can access the works and reproduce them.
2. *Derivative works*: Everybody can modify the works and distribute modified versions.
3. *Viral character*: Derivative works have a similar license to the one used by the original work.

This mandatory core leaves us with something similar to the original PPL as the baseline. However, two revisions to the PPL text are needed to turn it into a Commoners License:

1. Non-commercial foundations and state agencies need to be added to "worker-owned business[es] or worker-owned collective[s]" (Magyar & Kleiner, 2018).

[14] We agree with Stallman's critique that Creative Commons only offers the copyleft alternative as one of many different options (Stallman, 2018, p. 79). Instead we would like to propose that co-ops, CBPPs and state-funded platforms use the PPL as the base for a new kind of license family, where the distinction between non-profit and for-profit actors along with copyleft are core units that are complemented by various voluntary options that can be added to the core.

2. Revisions like this would also require some altering of the license's statement that "all financial gain, surplus, profits and benefits produced by the business or collective are distributed among the worker-owners" (Magyar & Kleiner, 2018). It should not be prohibited for non-commercial foundations, independent state agencies (as defined below) and co-ops to reinvest all revenue or a major part of it in the development of their projects.

Related to this core are several voluntary options. The first is related to the question of whether for-profit uses are going to be accepted or not? If the answer is no, the original PPL-logic works perfectly well. If the answer is yes, two voluntary options follow: should the for-profit company pay fees (F) or make substantial intellectual contributions (C)?

The second variable concerns the addition of an exclusive or anti-dual licensing (AD) clause. We will first expand on these options before we present the different licenses.

These options can be summarized around two questions that the original copyright holders must answer to get a license suited to their needs.

1. First and foremost: "Do you allow commercial uses of your works"?

No. This means that no company or individual can use licensed works or its derivative works for profit, with the exception of commercial uses by co-ops, CBPPs or state agencies that distribute the revenues within their project and members.

Yes, if fees are paid (F). This option allows the commercial use of licensed works by for-profit companies only if a fee is paid to the organization (foundation, co-op or state agency that controls the platform which agglomerates the commoners, see Policy 4).

Yes, if substantial contributions are made (C). For-profit companies must submit non-monetary but considerable contributions to the commons if they want to profit from the licensed works.[15]

[15] But, what is a *substantial contribution*? It is hard to tell. From the literature (Bauwens & Kostakis, 2014, 2015; Kostakis & Bauwens, 2014; P2P Foundation, 2018; Said Vieira & De Filippi, 2014) it is very unclear how large a for-profit company's active contribution to a co-op or commons-based project will have to be in order to be valid as such, thus rendering it possible for it to exploit the

2. Is this an exclusive license?

No. This option allows dual or multiple-licensing, and particularly, a second license which is not a commoners' family license, but a more capitalist inclined license.

Yes (AD). In this case, the license is exclusive. Commoners assure that their contributions are not going to be subject to capitalist appropriation under different terms than those discussed in this license.

This results in six basic licenses:

1. *CL*
   Non-profit uses are free under a copyleft logic. Commercial uses are only allowed if they are undertaken by co-ops, commons-based peer production collectives or state governed agencies—see policy 4. Dual licensing is allowed.
2. *CL AD*
   Non-profit uses are free under a copyleft logic. Commercial uses are only allowed if they are undertaken by co-ops, commons-based non-commercial foundations or state governed agencies—see policy 4. Dual licensing is *not* allowed.
3. *CL F*
   The option of for-profit uses is allowed under the PPL copyleft logic, dependent on a *monetary fee* paid by the for-profit actor to the producing non-profit community (co-op, commons-based non-commercial foundation or state governed agency). Dual licensing is allowed.
4. *CL F-AD*
   For-profit uses are allowed under the PPL copyleft logic, dependent on a *monetary fee* paid by the for-profit actor to the producing non-profit community (co-op, commons-based non-commercial foundation or state governed agency). Dual licensing is *not* allowed.

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co-op's or CBPP's work. Also, there seems to be no difference between the contributions by a for-profit company and the contribution of a co-op member, or a "true" commoner.

5. *CL C*

   For-profit uses are allowed under the PPL copyleft logic, dependent on a non-monetary, substantial and ongoing intellectual or material contribution made by the for-profit actor to the non-profit producing community (i.e. co-op, a commons-based non-commercial foundation, or another kind of non-profit collective association). Dual licensing is allowed.

6. *CL C-AD*

   For-profit uses are allowed under the PPL copyleft logic, dependent on a non-monetary substantial and ongoing intellectual or material contribution made by the for-profit actor to the non-profit producing community (i.e. co-op, a commons-based non-commercial foundation or any other kind of non-profit collective association). Dual licensing is *not* allowed.

Why a new license family? It could be argued that there are already plenty of alternative licenses and that introducing new ones would bring chaos and forks to the commoners. Wouldn't it be better to concentrate resources and knowledge around the already existing licenses instead?

Firstly, the existing licenses have their limitations, as we discussed above. If the arguments we provided are solid, complementary licenses—or changes to the existing ones—are worth discussing.

Secondly, introducing new licenses is less a legal maneuver than a political one. We need to discuss how capitalism takes advantage of open licenses, and how to reverse that by using capitalist profit-seeking to help the commons sphere to grow. So, it is more about encouraging scholars' and commoners' conversation about the relation between capitalism and commons than just a legal proposal.

Thirdly, there are specific concrete domains where these licenses might prove extremely important in the foreseeable future. Take for instance some AI breakthrough software. If a researcher funded by a public agency develops a leap-frog innovation, it might be important for this state agency to have the proper license in place.

Certainly, legal policies that stem from our investigation are not limited to licensing. At least two additional points concerning laws rather than contracts must be made.

1. Copyright law must be changed. Although it seems a very difficult task to achieve in the foreseeable future, it would be strange not to notice that actual copyright laws around the world tend to conspire against expanding the commons. For instance, as mentioned in the introduction, copyright law automatically puts every work that is fixed in a tangible medium under private ownership. For a commons-based sphere to grow, it would be a great step if copyrights needed to be registered before any rights are granted. Of course, this is not enough. Ideally, we would need a copyright law that, at the same time, both protects the knowledge and labor of workers, produsers, contribusers and users from unpaid capitalist appropriations and also helps to build a commons sphere and even practices of commoning. Indeed, since licenses are framed by copyright law, there are substantial limits that cannot be transgressed if the law is not changed.
2. The profit from openness business model should be regulated through copyright law or other sui generis legislation in order to prevent one-click consent to terms and conditions, that is, to accepting licenses that are detrimental to the commons and prejudicial for individual produsers, consumers and users. This is what Stallman calls "manufacturing consent".[16]

7.2.4 Policy 4: Non-profit Alternatives

The policies we propose are about taking the capitalism out of cognitive capitalism, gradually, by supporting and providing guidance to actors and platform projects that form part of a transition to a commons-based society.

The policies we propose are about how to strengthen digital non-profit alternatives in relation to for-profit actors and companies' production of

[16] "But, beyond that, governments should pass laws saying that agreements of that nature are invalid—that they have no legal force in this jurisdiction, no matter where they were signed. This applies to non-negotiated contracts, where the terms are just imposed: 'If you want this, agree to the contract'—there's no chance to negotiate, and that's the great abuse. It's different when the parties actually talk about what terms they want; there may be no need to restrict those" (Stallman, 2018, p. 86).

digital use values only because they carry exchange values. These non-profit alternatives find themselves in a contradictory landscape as they aspire to be broader alternatives to a one-dimensional capitalism, but also want to survive in capitalism, both on a project level and on a personal level for all the commoners involved. The relations between the new digital landscape and strategies for a gradual, yet fundamental transformation of society, has been amply discussed in the last decade (De Angelis, 2017; Fuchs, 2014; Kostakis & Bauwens, 2014; Lund, 2017c; Rigi, 2012, 2013; Söderberg, 2008).

In this fourth and concluding section on policies, we therefore focus on three specific social institutions and their platform management in relation to the capitalist economy: co-ops, commons-based peer production (CBPP) and state agency-funded platforms.[17] However, this requires that they manage their relations with the capitalist economy in a strategic way, and at the same time maintain a strategic alliance with the state.[18]

[17] How such alternatives could grow stronger in order to harness the value of the network effects is a crucial question. To successfully address this problem will involve cooperation and strategic alliances between co-ops, CBPPs and state agency-funded platforms. In the end there will have to be cooperation around collective or federated solutions, like in networks of both state-funded distributed institutional repositories of peer-reviewed scholarly articles (based on the OAI-PMH protocol) with a common search interface, *and* in networks of non-profit academic journals that Fuchs and Sandoval propose as an alternative to the Gold OA business model (Fuchs & Sandoval, 2013). But, in order to be successful, we cannot rely only on the state. The state under capitalism, characterized by citizens' rights that potentially give the "subaltern classes control over legislative and executive powers" at the same time as the constitution backs the interests of private property (Jessop, 2018), needs support from trade unions, social movements and non-profit organizations, in order to have an increasingly progressive function. The partner state (Bauwens, Kostakis, & Pazaitis, 2019; Kostakis & Bauwens, 2014) will need to have someone to partner up with. Therefore, there is a need to incite and facilitate bottom-up, commons-based or cooperative projects that are increasingly networked and federated amongst themselves, and in relation to the state. Helping each other in federated networks could eventually lead to effective ways of harnessing network effects in non-profit forms. Very much like Wikipedia with all its language-versions is already experiencing.

[18] The state's support to platform projects should in turn, in our view, be characterized by the arm's length principle that we discussed initially in this chapter. It should be directed toward prioritizing platform projects using one of the licenses in the Commoners' License Family. Using one of the Commoners' licenses safeguards, builds, and also has the potential to level the digital playing field in potentially expanding and flexible ways, popularizing the effective power to act that would expand social practices of doing in common, *commoning*, in-between and also beyond the state and the market (De Angelis, 2017). Strengthening society's commons will in turn strengthen the state's power to challenge (an effective right to act) neoliberalism.

These three kinds of platforms (co-ops, CBPP and state funded) for *commoning* share at least three main guidelines—based on Scholz (2016, p. 14).[19]

- Copying the "technological heart" of profit from openness platforms, such as YouTube, Elsevier or Coursera.
- Regulating productive processes under ownership systems different from those used by capitalist platforms. This applies not only to means of production (e.g. software on the platform), but also to products, that is, licensing under a commoners license as discussed in policy 3.
- Embracing non-capitalist values: democratic governance, solidarity, and a different understanding of the notion of efficiency, one in which profits are not the main driver of social activity.

Scholz also lists some principles for his platform cooperativism that might apply to the three types of platforms we are proposing: the need for co-determined work, rejection of excessive workplace surveillance, the establishment of decentralized reputation and identity systems to protect the members from arbitrary behavior and the right to log off (Scholz, 2016, p. 18).

But, what happens if these initiatives fail? After all, it is far from being clear that these platforms for commoning would endure for long. Failure is, indeed, a possibility. But is that not also the case for Silicon Valley start-ups? Failure is celebrated as part of the innovator's path in capitalist myths. Certainly, the roads toward a post-capitalist society are paved with failures. However, in the case of platforms for commoning, even if the projects are gone, their digital resources survive. Thus, the intellectual outcomes of co-op, CBPP or state-funded platforms—if licensed under a commoners' license—would still be openly available for not-for-profit actors to effectively act upon.

[19] Scholz enumerates three parts or principles of his proposal for Platform Cooperativism. Here we rearranged these principles to better reflect our perspective. Despite Scholz using the term "co-ops", his examples, typologies and principles refer to a wider set of organizations than just cooperatives.

7.2.4.1 Co-ops

A cooperative or co-op is usually understood as a business owned by its workers, users or a combination of both, and where the decision-making process is conducted in a fairly democratic way. Co-ops are thus legal bodies and well-structured organizations doing business in the capitalist market, but they are also influenced by other motivations and can try to maintain alternative political aims. Indeed, co-ops can be a way to escape bad working conditions, get more autonomy for an individual co-op member and develop space for more motivations in relation to your work other than just to earn a living. A co-op member could be more playfully or politically motivated, and more focused on some productive activity or handicraft that is self-fulfilling for her. Although the goal of co-ops is not making profits, some of them indeed make money (e.g. Mondragón makes a couple of hundred million euros each year in profits).[20]

Of course, here we are interested not in co-ops in general, but in a particular set of co-ops that could contribute to building an ecosystem of digital commons and fighting back against cognitive capitalism. Trebor Scholz (2016) coined and developed the term "platform co-op" to describe this kind of organization.[21] A simple definition can be found on Wikipedia:

[20] The Marxist critique of cooperatives is straightforward: either they survive by competing on the market, but then they tend to become capitalistic in character in the process, or they stick to their alternative visions, but then tend to fail in the competition on the market and dissolve sooner or later (Sandoval, 2016, pp. 98, 100–1). Sandoval (2016) points out that contemporary business discourse and older liberal discourse actually exceed this critique by advocating co-ops as a strategy to increase productivity and innovation within capitalism. And, in order to be political in the grander scheme of things they have to establish political goals on a societal level for the business (Sandoval, 2016, pp. 98, 100–1). "Radical politics are not inherent in the co-operative structure" (Sandoval, 2016, p. 102).

[21] Scholz's concept of platform co-ops exceeds our focus here in two respects. On the one hand, he describes co-ops as platforms which we would classify as CBPP (as "Produser-owned Platforms") or state funded ("City-Owned Platform Cooperatives"). On the other hand, Scholz is engaged not only in finding alternatives to profit from openness business models but also and mainly to other kinds of platforms, such as Uber, Airbnb, Task Rabbit and so on (see Scholz, 2016). Certainly, we welcome this broad perspective, as we do think that it contributes to building a thriving sphere of digital commons.

> A platform cooperative, or platform co-op, is a cooperatively owned, democratically governed business that establishes a computing platform, and uses a website, mobile app or a protocol to facilitate the sale of goods and services. (Wikipedia contributors, 2019c)

Although co-ops are usually divided between workers' and users' co-ops, in platform co-ops the landscape is more complex.[22] Indeed, it is not only workers and users, but also produsers and contribusers who are critically involved. This poses interesting challenges regarding how to determine membership and distribute income and obligations that exceed the aims and scope of this book.

Now, platform co-ops are very different and most of them are not devised to replace profit from openness companies. Indeed, the main division among platform co-ops is between those that provide services, such as cab rides and home rentals and those that provide informational goods—software, music, videos and so on.[23] The former are much more prominent, including examples such as Fairbnb, Fairmondo, Green Taxi Cooperative, Loconomics, Up & Go. In turn, platform co-ops providing informational goods could be divided between those using a profit from enclosures model and those using the profit from openness model. While the former indeed exist in cases such as Stocksy United and Resonate, there are no well-known examples of the latter.[24]

What does this mean? Platform co-ops must be fostered in order to build an ecosystem of alternatives to capitalist business. However, it must be kept in mind that up to this point, they are much more suited to competing with service platforms (Airbnb, Uber) and informational goods provision through a profit from enclosures model (Spotify) than

[22] It is also important to mention that even if in this study we reserve the term co-op for workers' co-ops, consumer-driven co-ops have been around for more than 100 years. A consumer co-op is not the same thing as a user or produser cooperative as it is built around commercial activity, but the historic consumer co-ops with their more fluctuating memberships connect political ideas put forward within guild socialism's and anarcho-syndicalism's ideas about establishing federations of producer and consumer co-ops that synchronize their activities on a societal level (Lund, 2001; Wikipedia contributors, 2018). Future policies could discover further insights about how to scale up the produser-cooperative idea in progressive and democratic ways from these traditions.

[23] More precisely, the former provide subtractable goods and services while the latter offer non-subtractable goods. Regarding these concepts, see the section on commons in Chap. 1.

[24] To be sure, there are worker co-ops providing free software (such as Gcoop in Argentina), but they are not *platform* co-ops.

specifically disrupting profit from openness business models (YouTube, Red Hat etc.). This is not just coincidence: co-ops are easily built on simpler business models, that is, where people are paying cash in exchange for services and goods and where the output is excludable and not freely accessible for all.

It must be emphasized that here we are particularly interested in co-ops that create commons. So, it is not only about the deal between workers or produsers and the platform, but also about the regulation of the *outcome*: informational goods shared under commoners licenses, as discussed in policy 3. So, it is not only about platform co-ops but is specifically about commoning platforms.

Certainly, there are other commoning platform alternatives that deal specifically with profit from openness platforms: CBPP (such as Wikipedia) and state-funded platforms.

Nonetheless, co-ops run by produsers, contribusers and users are not that far away. Some MOOCs where teachers and tutors create co-ops, video platforms that are still based on ads but share their income in a fair way, free software platforms paying cooperative programmers (who adapt Linux to specific demands) and cooperative academic publishers are conceivable and even feasible alternatives.

This leads us to point out our main difference with the extremely inspiring and valuable theoretical insights and political activity carried out by Scholz. Scholz's rationale for resorting to platform cooperativism (that exceeds co-ops strictly speaking and embraces also what here is termed as CBPP and state-funded platforms) stems from the low wages, lack of social security and other labor conditions associated with for-profit platforms, that is, some excesses of this particular form of capitalism. We consider co-ops to be organizational forms that could be part of an alternative to capitalist social relations instead. In the last instance, we are not only against the sharing economy or even neoliberalism. We are also in favor of building alternatives to get rid of capitalism itself at some point.

7.2.4.2 Commons-Based Peer Production (CBPP)

According to Yochai Benkler (2006), CBPP is a non-proprietary, decentralized and collaborative way of producing use values, by sharing

resources and outputs. Its organizational form may be defined along three dimensions:

1. Decentralized conception and execution.
2. Diverse motivations, including a range of non-monetary motivations, are central.
3. Organization (governance and management) is to a certain degree separated from property and contract.
    3.1. Inputs and outputs mostly governed as open commons or common property regimes
    3.2. Organizational governance and managerial resource and task definition and allocation utilize combinations of participatory, meritocratic (do-ocracy) and charismatic, rather than proprietary or contractual models (Benkler, 2014, p. 2).

However, something extremely important is missing here. Although according to Benkler's perspective CBPP is opposed to firms' ownership of resources, it is not contrary to companies making profits and failing to share them with produsers. Indeed, Benkler is concerned with the decentralized organizational form, the open ownership of resources and the non-monetary motivations of the produsers, but not with revenues and profits, that is, in all probability including profit from openness under CBPP. As long as companies share their outputs under open licenses (as those profiting from free and open source software do), profiting from openness is not a problem or even a topic worthy of discussion. In contrast, we certainly believe that CBPP should also be defined by the not-for-profit character of the productive process.

Moreover, Benkler's definition stresses the individual more than the social identity and social formation that authors such as De Angelis have emphasized (De Angelis, 2017). CBPP often take stigmergic forms, an indirect form of communication based on actions leaving traces that are acted upon by another commoner (one edit in Wikipedia leading to another one), and have also been described as a "[t]ransparent heterarchy" (Bauwens et al., 2019, p. 12) in relation to how the "bundle of rights" perspective (see Chap. 2) is handled, with heterogeneously

distributed hierarchies in relation to specific freedoms to act within the CBPP.[25]

This non-proprietary mode of production's relationship to the capitalist economy is often mediated by a non-commercial foundation that works as the interface between the CBPP and capitalism (Lund, 2017c; Lund & Venäläinen, 2016). A CBPP can only be generalizable and sustainable if it can finance wages, grants to local subsidiaries, infrastructure and technological and biophysical resources that are interlinked with the symbolic production. In the case of Wikipedia (the most prominent example of CBPP), this is predominantly done by the Wikimedia Foundation (WMF) collecting voluntary donations:

> WMF's expenses are financed almost exclusively by donations from individuals, commercial firms, non-profits and national states and with some minor income streams from the sales of updates and feeds to search engines. The donation base of WMF is relatively wide and has been growing: in the financial year of 2013–14, 2.5 million people donated an average of $15. As only two in a thousand persons donated over $1000, it can be seen that the bulk of financing of Wikimedia Foundation comes from the very heterogeneous masses. (Lund & Venäläinen, 2016, p. 84)

Regarding the collection and distribution of payments coming from for-profit uses, CBPP might follow Wikipedia's example as well. The Wikipedia community has a "bright line principle" to not pay anyone for directly editing articles. This has to do with the specific neutrality principle of this encyclopedia project (Lund & Venäläinen, 2016). In this case the revenues from fees could actually do harm to the use value of the CBPP. This suggests a policy of no distribution of revenue from fees to the commoners as individuals, to the projects within the project, or to the non-commercial foundation itself. This position is strengthened by the fact that Wikipedia as a project is financed by many small donations. This

[25] Bauwens et al. explain heterarchy as follows: "In CBPP some contributors may be paid/employed but all (in collaboration with groups and individuals that are not) produce commons. Hence, the work is not directed by corporate hierarchies, but through the mutual coordination mechanisms of the productive community. CBPP is based on open and transparent systems, in which everyone can see the signals of the work of others, and can, therefore, adapt to the needs of the system as a whole" (Bauwens et al., 2019, p. 12).

model could be harmed by increasing corporate funding. Why contribute with donations if the project is not managed in voluntary and unpaid ways? (Lund, 2017c).

On the other hand, free software projects have closer connections to the corporate sector than Wikipedia, since software builds means of production that can play a crucial role for capitalist actors. At the same time free software projects perhaps depend less on small popular donations (as the use value is often not as popularly valued as for example Wikipedia), and could also in this regard depend more on fees from for-profit uses.

7.2.4.3 Independent State Agencies' Platforms

While state bodies tend to be to some extent controlled by political parties that consciously or not favor capitalist interests, the state is always a battlefield where competing interests and affects produce a variegated, complex and undetermined set of outcomes. Thus, concrete policies express the status of class struggle and the degree of autonomy that a state exhibits under specific circumstances (Oszlak & O'Donnell, 1995).

In this context, we are interested in organizations located in the intersecting zone between the state (sometimes within it) and the public. Despite finding several institutions and organizations in this gray area, we will focus on platforms run by independent state agencies.[26]

What kind of agencies are we referring to? Here, we are thinking of agencies with the following characteristics: (i) they are headed by a multi-member body whose members serve fixed terms which has the autonomy to direct the policies of the agency within the scope of its

[26] There are also other alternatives. The main one refers to institutional arrangements in which the state funds organizations placed outside it. For instance, Public Benefit Organization (PBO) or Public Good Organization is a narrower form of non-profit organization. PBOs provide specific services that often exclude partisan or political and lobbying organizations (Bolleyer, 2018). Such organizations could be publicly funded by the state, under the principle of arm's length distance, to develop digital platforms of various sorts. Yet another kind of state-centered platform for commoning might refer to experiments with participatory budgeting. They constitute a direct-democracy approach to budgeting that could strengthen an inclusive and more horizontal governance, but could also be captured by interest groups in an unequal society (Shah, 2007, p. 1). Such projects could use digital platforms in new experimental ways through regional and neighborhood committees.

broad aims; (ii) the staff is at least partially protected from arbitrary removal from political power; (iii) the budget is predictable, relatively stable or growing and as independent of the vicissitudes of politics as possible.

Though independent agencies can be traced back to the sixteenth century, their modern history began with the New Deal institutions. However, in cognitive capitalism state bodies are part of the greater transition from a service-provider state, via privatizations, to a regulatory state characterized by the establishment of specialized regulatory agencies.[27]

The independent state agencies' origin in neoliberalism has to be kept in mind when discussing policies related to digital platforms, but it does not disqualify them from being taken into consideration in relation to the policies being proposed here. Turning this set-up upside down, such agencies could be reformed and be used to develop and maintain platform projects, even if their relations to civil society and capital interests vary greatly.

Two kinds of examples arise from platforms run by public universities and scientific research institutions, both of which act as independent agencies—in the way we describe them—in many countries.

Firstly, in terms of academic publishing, publicly funded open access journals (OA) are particularly interesting in their potential to build digital commons.[28] They are usually independent enough not only from the state, but also from universities' chain of command. Certainly, in this example and others, the borders between independent agencies, state-funded NGOs and CBPP might be blurry. For instance, academic researchers acting as peers (in peer-review processes) remind us of a CBPP

[27] This development takes its influences from the USA, the doctrine of New Public Management, and the central banks' independence in Europe, and the independent agencies are located in specific fields (like water, telecom and electricity) where they are thought to enhance the efficiency and quality of services to the citizens. As an example, the state in Latin America has changed its character since the 1990s because of these autonomous regulatory agencies (Bouckaert & Peters, 2004, p. 89; Levi-Faur & Jordana, 2006, pp. 335–6, 340).

[28] Like in many examples, the borders between independent agencies, state-funded NGOs and CBPP are blurred. For instance, academic researchers acting as peers (in peer-review processes) remind us of a CBPP feature. However, in many cases these unremunerated activities are part of the duties that are measured and taken into account by the institution which pays the wages of teachers taking on the duties of peer reviewers.

feature. However, in some cases these unremunerated activities are part of the duties that are taken into account by the institution which pays the wages of teachers serving as peer reviewers.

Moreover, contemporary OA publishing could easily be reformed in interesting ways. The existing institutional repositories (green OA) can already now be connected in larger networks (based on the OAI-PMH protocol) with a common search interface. The biggest hurdle for this transition are the embargo periods for parallel publishing, but networks of institutional repositories could actively be complemented with networks of the non-profit academic journals that Fuchs and Sandoval propose as an alternative to the Gold OA business model, calling it Diamond OA (Fuchs & Sandoval, 2013).

Secondly, not-for-profit MOOC platforms that are built around informational goods as commons already exist and can be further expanded. For instance, EdX is a huge not-for-profit MOOC provider. However, it is not state funded—it is dependent on the business of universities such as Harvard and MIT; it charges for certifications and most of the content and software is not under commoners' licenses or anything similar. So, we advocate for platforms that deliver courses produced by public universities, under commoners' licenses and to reduce, if not cut in totality, the cost of certificates. This is important because if these platforms are not created, and commoners' licenses are not mandatory for all online courses produced by public universities, there is the peril that these publicly funded courses will end up boosting the profits of private corporations.

In both examples, journals and MOOCs, the public platforms may be scaled up by sharing software, protocols, technical know-how, courses and, at the same time, establishing a productive exchange with the capitalistic sphere through commoners' licenses.

It is important to stress that state-funded platforms, such as those run by independent agencies but also others (see footnote 17) have a huge potential for overcoming one of the main issues that platforms for commoning have to deal with: surpassing a minimum threshold of attention in order to benefit from network effects. While attracting users, contribusers and produsers might be quite difficult for co-ops and CBPP, the state can use a wide range of norms to steer users toward these platforms.

Of course, this is also dependent on the degree of confidence that citizens have in the specific state agencies (regarding privacy, control etc.).

7.2.4.4 Platforms for Commoning: Comparison and General Issues

Certainly, co-ops, CBPP and state-funded platforms are quite different, but they also have so much in common that it might be difficult to grasp their specificities. In Table 7.3, we have tried to simplify their traits in order to sum up the differences.

Membership is a delicate issue. Producer co-ops or worker co-ops may delineate clear boundaries regarding who is a member or not. State agency platforms may have a clear sense of whom they are paying wages to. But a CBPP project is basically built on more horizontally and loosely organized produsers and contribusers, with an added legal body in the form

Table 7.3 Platforms for commoning

			State funded	
Variable	Co-ops	CBPP	Independent agencies	Public benefit organizations
Main source of income	Selling services	Donations	State budget	State budget
Organizational body	Co-op	Non-profit organization	State agency	Public benefit organization or other non-profit organization
Main actors	Worker-owners, but also produsers, contribusers and users	Produsers, contribusers, users	Waged public sector workers, produsers, contribusers and users	Volunteer workers
Membership	Clearly defined by the members of the co-op	Very loosely defined	Clearly defined by state norms	Loosely defined

Source: Authors' elaboration

of the non-commercial foundation. Indeed, questions regarding who is member of a CBPP could here be quite problematic. What kind of contribution (a specific sort, or a specific amount?) makes you a commoner? The same "boundary-problem" of course applies to co-ops or state agencies that collaborate with voluntary produsers and contribusers.[29]

In any case, the crucial question regards the definition, quantitative size, qualitative nature and length of time, of a *significant contribution*. For instance, these contributions might be as different as informational goods (such as software or audiovisual content), infrastructure (i.e. servers), and services (broadband connection, cloud storage, task solving). This question exceeds our aims and scope but needs to be addressed in further research, as to the best of our knowledge it has not been tackled yet.

Regarding the *collection and distribution* of fees and other forms of income, it would seem that co-ops, CBPP and state-funded platforms are quite different. However, we think that the same principle should apply to all of them: money must be collected and managed by the institution's legal body (NGO, non-commercial foundation, co-op, state agency) as opposed to distributed to individual produsers, contribusers and users that would reward some type of barter logic as opposed to the commons-oriented focus we want to stress.

This in turn highlights the importance of the democratic governance of the institutions and particularly the CBPP's non-commercial foundation. The meritocratic tradition of benevolent dictators for life in relation to CBPP projects (Wikipedia contributors, 2019a), would have to be politically challenged in this regard.

The incomes and contributions from for-profit uses by companies have been understood as important for financing the living expenses of the commoners or co-op members in capitalist society (Dereva et al., 2018; Kostakis & Bauwens, 2014; Lund, 2017a, 2017c). How this wealth should be distributed within the commons has therefore as of yet mainly been addressed with a focus on the individual members or participants in a community. We argue that this question could be better

[29] Another version of the same problem regards the monitoring of how co-op members, wage laborers and produsers follow the regulations of for-profit uses, in case they are allowed.

addressed from a collective perspective with a focus on the needs of both the project and the individuals involved.

The collective perspective is important even if CBPP projects have often proven to be more resilient as a project, than successful in alleviating the precarious situation of the peer producers in relation to autonomous reproduction of themselves as peer producers within the projects (Kostakis & Bauwens, 2014; Lund, 2017c).[30]

Scholz has put forward that decent pay and income security is one defining aspect of an alternative platform co-op (Scholz, 2016, pp. 14–18). This seems important for us when it comes to co-op and state-agency members or wage laborers, but it is less clear what this would mean in relation to for example a large CBPP project with many produsers and contribusers involved, or in relation to produsers and contribusers active on a co-op's and state agency's platform? Still, the question is useful to bear in mind when we discuss policies for the redistribution of the wealth from fees within these alternative institutions. A commons-based society must take its commons aspect seriously, in order not to become capitalist in character. That is the reason why UBI is so important as a policy to support the sphere of digital commons and the practice of commoning.

[30] Our policies regarding the alternative platforms' monetary relations to the capitalist economy differ from other ways of financing alternative platforms. Spanish *Goteo* is here an instructive example to discuss. Goteo is a crowdfunding platform that works as a middle man, helping what they call commons-based projects to collect monetary gifts, or facilitating distributed voluntary contributions (microtasks, services or infrastructure-related) to them (Goteo, 2019c). "It is a tool for generating resources 'drop by drop' for a community of communities consisting of over 65,000 people, with a funding success rate over 70%" (Goteo, 2019a). This support is much needed for alternative platforms, but there are several crucial differences between the policies we propose and Goteo's perspective.

First, Goteo fully accepts the unconditional possibility of "individual rewards" as long as the actions contribute to "generate a collective return through fomenting the commons" (Goteo, 2019c). This puts the focus on prosperous individuals rather than collectives. *Second*, this collective return refers to projects that are transferable and reusable not only under free licenses (like in free software), but also under open licenses (like open source software) (Goteo, 2019b). The project therefore to some extent supports the openness ideology that we critique and direct our policy suggestions against. *Third*, Goteo does not regulate for-profit uses of the commons' resources by for-profit actors. Our proposed alternative co-ops, CBPPs and state agencies that use the Commoners' License Family, could form the base for a new intermediary that gives a helping hand in building robust and collectively governed commons that prosper from the regulated collection and distribution of fees from for-profit uses of their resources that do not permit the enclosure of derivative works.

In the particular case that works are licensed under a CL which allows for-profit uses of the commons, the collection and measurement of contributions are quite problematic, especially when the commons are built on produsers' voluntary contributions, as in CBPP.[31] Although we support the ideas of reciprocity in general, we think that suggested elaborations of a peer-measurement system (with either a virtual peer currency or an open peer-rating process) within CBPP projects (Said Vieira & De Filippi, 2014), miss the point of a commons-based gift economy fostering solidarity. The suggested schemes turn the voluntary gifts of contributions within a CBPP into barter transactions between individuals, and introduce a form of instrumental reason that is alien to the collective gift economy of a CBPP. Commoning should, in relation to many of the CBPP's activities, be based on what Marshall Sahlins called a *generalized reciprocity*, with more vagueness in how to reciprocate a gift than the meticulously balanced and thus more impersonal reciprocity (Sahlins, 2004, pp. 193–4) characterized by barter logic. This barter logic should be held at arm's length from the inner workings of a CBPP.

Of course, it will therefore be much easier for a co-op or a state agency to redistribute some of the income from fees from for-profit uses to its members (co-ops) or to its wage laborers (the state agency), than for a CBPP project that involves citizens as produsers and contribusers of various sorts.

Understanding these various alternative platform projects and policies as a metaphorical ecological system will hopefully provide a useful framework for envisioning more coordinated actions in order to strengthen the sphere of digital commons and the practice of commoning. In sum, the overall aim of these four policies is to contribute to the establishment of gift economies built on freedoms to act, that in turn foster solidarity and community in society, transcending the profit from openness business model and even capitalism itself.

[31] In projects that already depend on voluntary contributions of productive activities, a significant contribution from an outsider does not have to be distinguished from commoners' contributions, if no profits are made and kept privately by the two. The outsider just becomes an insider. But, on the other hand, all commoners that are making substantial contributions, also get the commercial right to use the commons for for-profit uses.

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[1] Note: Page numbers followed by 'n' refer to notes.

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