



decode



Data driven disruptive commons- based models



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DECODE

DEcentralised Citizens Owned Data Ecosystem

D2.4 Data driven disruptive commons-based models

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Introduction

This deliverable aims at characterizing alternative production models based on two schools of thought: the logic of the *knowledge commons*, and platform cooperatives. Building on the analysis undertaken in the D2.2, it will give particular attention to the forms of organisation of ‘work’. This will be linked to the other principles that make it possible to define a *commons-based* production model, alternative to that of capitalist platforms: governance rules; financing models; conception of technologies; legal models of ownership of the means of production (in particular the management of algorithms and data).

With this in mind, the report will be divided into two parts which, although closely linked, can be read independently by the hurried reader.

The first part, in line with our previous work (D2.2), will return to the labour organisation and profit models underlying capitalist platforms. After highlighting the systemic risks and negative externalities that the development of platform capitalism entails for society as a whole, it will be shown that not only is it possible, but also necessary to test alternative models based on the principles of the *commons*.

The second part will be thus devoted to the analysis of the alternatives to platform capitalism. Following Albert Hirschman, we will distinguish between the two main ways through which forms of resistance and alternative experimentations to the Internet oligopolies and gig economy emerge in the society: a) the way of voice and b) the way of exit, which can be combined.

- a) With *voice* we mean different forms of claims that range from class actions to new phenomena of unionism and mutualism as in the case of the workers engaged by *Uber*, *Deliveroo*, *Amazon*, etc. We will also analyse socially widespread practices aimed at circumventing the control of platforms.
- b) With *exit* we refer to productive experimentations aiming to build real alternatives (such as cooperative platforms, urban and *knowledge commons*, social networks

and search engines) which subvert, in whole or in part, the principles of the data-driven industry.

For pedagogical purposes, the latter (b) will be characterized in opposition to the three main ideal types of platform capitalism:

- i) The model of social network platforms based on *free digital labour*.
- ii) The model of the so-called *on-demand* economy.
- iii) The model of the e-commerce platforms of logistics and distribution.

We will also take into account the trend of platform capitalism to extend its logic to more and more economic sectors and, in the context of the so-called *Smart Cities*, to metropolitan governance.

The conclusion will be dedicated to reflect on an agenda to promote the sustainability of the *commons* and alternative platforms. In this perspective, particular emphasis will be placed on a strategic node: combining the development of neo-communalist experiences with a project of federation of the *commons* and cooperative platforms. This is the only way to allow a real leap in quality, permitting alternative models to get out of the niche logic in which they are often locked.

1. Platform capitalism and two-sided markets¹

The organisation of the big Internet oligopolies takes place essentially in the framework of what are called in Economic Theory 'two-sided markets': the platform (the operational heart of the firm) acts as a pivot and connects a public of suppliers and a public of demanders or users of a certain service.

This feature is closely associated with other fundamental economic laws – or, at least, regularities – ruling the functioning of capitalist platforms' political economy and data industries: the 'Metcalfe's law' on network economy, the 'pioneer's advantage law' and the 'winner takes all law'; the way in which the preponderance of capital, labour and immaterial raw materials introduces substantial differences between the operating logic of platform capitalism corporations and that of industrial capitalism.

We would also like to point out that the aim of this chapter is to go beyond a simple review of the literature, which often focuses on some of these aspects, isolating (or not seeing) the link between them. We have tried to remedy this gap. The synthetic presentation of these laws in an articulated and coherent whole, in order to account for the logic of the capitalism of the platforms, is an original contribution that, however partial and imperfect, we have tried to make to the platform capitalism theory.

Starting from this common base, platform capitalism varies in its profit, product, production organisation, and value extraction models. It is possible to identify three main dominant models.

- The model of capitalist platforms based on advertising, 'merchantable gratuitousness'² and the use of prosumers' gratuitous work as the main source of

¹ From paragraph 1. to paragraph 1.4 writing by Vercellone C. and Brancaccio F.

² The so-called 'merchantable gratuitousness' model (Farchy, 2011) is at the heart of the functioning of platform capitalism. It is only apparently an oxymoron. It refers to an economic relationship «in which gratuity paradoxically has no other purpose than to enable companies to increase their profits» (Farchy et al. 2015: 26).

value creation: this is the case of *Google* and *Facebook*, in which the subject of *free digital labour* occurs in its purest and most controversial form;

- The model of *on-demand* economy capitalist platforms, such as *Uber*, *Deliveroo*, *Foodora*, and, with some differences, *Airbnb*. Their main aim is to promote a direct and explicit market link between users and service providers by capturing the maximum added value through an investment in intangible assets and a direct employment of minimum wage labour force;
- The model of the so-called e-commerce platforms selling tangible and intangible goods. It combines direct-sales revenues, market intermediaries (commissions) and advertising revenues. This could be defined as a hybrid model and it finds its most complete expression in *Amazon*: indeed, the latter combines, as we shall see, the exploitation of economies of scale and quasi-traditional industrial organisation forms of wage labour on the one hand, and the exploitation of network economies and *free digital labour* on the other hand. Added to this is business development, such as the *Cloud* and data processing services, through which *Amazon* is trying to fill the most profitable niches of the evolving economy based on the Internet and *data industries*.

Already in industrial capitalism, this model has played a significant role in some companies' business models. A well-known example is that of *Gillette*, who in the sixties began distributing razors free of charge, betting on the resulting purchase of blades.

In contemporary capitalism, the 'merchantable gratuitousness' model has become increasingly important because of two factors:

- The digitisation of the economy has transformed the economic nature of different goods by freeing them from their material support, as is the case, for example, of books and records. In the sense of neoclassical theory, the sphere of so-called private goods (rival and excludable through price) has thus been reduced, to the advantage of the sphere of so-called collective, non-rivalrous goods, difficult to exclude by prices and often reproducible at a zero marginal cost;
- The information and Internet revolution is been producing a shift from a dominant profit model based on the production and sale of tangible goods to a network and intangible economy. The latter is no longer based on the principle of scarcity, but on the abundance of available information and the expansion of the number of users. It is no longer the content itself that allows companies to make profits: its value is depreciated by the abundance, non-competitiveness and opportunities that the Internet economy offers for the development of non-market exchanges and IPRs' circumvention.

What is important for most digital capitalist platforms is to develop their network economies by attracting the largest number of users through a free of charge offering. This is the first condition for developing, in different forms, associated lucrative activities (advertising, data extraction and exploitation, sale of associated services, etc.).

in this report, we will have several opportunities to discuss the key role that the 'merchantable gratuitousness' model plays within capitalist platforms and two-sided markets.

1.1 The economic laws of platform and data capitalism

In very general terms, a definition of 'digital platform' could be the following: it is a technical and commercial offer proposed in a virtual setting, controlled by a pivot operator who plays the role of conductor of the platform. The pivot operator aims to connect at least two categories of agents located on one of the two sides of the platform. Its ability to set up a business model that can be based on several variables (advertising, charges on commissions, premium offers, marketing of allied services, and of course the exploitation of the data produced by the Internet users consciously – their profiles, comments, other contents – or unconsciously – clicks, geo-location or cookies and spyware) depends on the effectiveness and extent of the network economy resulting from the abovementioned intermediation function.

On this basis, the rise of the two-sided market model and the platform economy relies on a very precise set of economic laws and / or main regularities that will be analysed.

Robert Metcalfe's law

The first law is Robert Metcalfe's law concerning network externalities. This law depends on a simple observation: the interest for a user to use a platform, as for an advertiser or another provider on a network, depends on the number of network users. Just think of a social network: its usefulness obviously increases as the number of its subscribers increases as well. This positive externality is called network effect. For capitalist platforms, the audience and use rate are undeniably the sinews of the war aimed at maximising their revenues. The pivot, i.e. the company located at the top of the platform will then try by all means to increase the number of users in order to increase the attractiveness of their platform in the eyes of non-users: this also explains the recurrent mediation in favour of forms of 'merchantable gratuitousness' in order to attract platform users and make them loyal to it. These latter are also the product offered for sale to advertisers or service providers located on the other side of the two-sided market.

To sum up, according to Metcalfe's law, the (market) value or the utility of a network is proportional to the number of its users squared. But beware, the devil is always in the detail: (individual or social) 'value' and 'utility' are actually two quite different concepts and, sometimes, they are even diametrically opposed. It is important to emphasise this point because, when analysing the Internet economy, when we talk about the value of a network, we often tend to mistake its 'use value' with its 'exchange value'. This mistake may lead observers to extrapolate, totally arbitrarily, the turnover and profits that a platform could achieve from the number of network users. This was the case during the boom of the New Economy before the Nasdaq crisis (Boyer 2002); it is still today for many Internet unicorns and, according to some observers, even some GAFAM suffering from excessive market capitalisation.

Be as it may, Metcalfe's law is corroborated by two other network effects related to the cooperation between Internet users.

* Network users are not a mere sum of individuals having private relationships, but they can also form groups, communities, in one word, collaborate to generate even more value or utility. Internet users' interactions provide an amount of contents and a data quality whose global value far exceeds the sum of the parts, including the algorithmic correlations that can be established thanks to it. Hence, let us stress it straightway, the attempts to estimate each user's individual contribution to the creation of the value appropriated by data industries are incongruous (Casilli 2016).

* Their cooperation, multiplied by the number of applications available (App Store, Google Play), also dramatically boosts the algorithms, which represent the intangible asset of the platforms. The combination of these two effects fuels a virtuous upward spiral: the more applications the platform offers, the more it attracts users; the more users there are, the more the platform attracts developers, improving the offer even more and attracting more and more consumers, and so on. For instance, this virtuous dynamic between users and app developers has played a fundamental role in the widespread of the *iOS* (Apple)/*Android* (Google) smartphone duopoly, despite the pioneer advantage that *Nokia* and *Blackberry* were able to gain at the beginning.

The Pioneer Advantage law and the Winner-Take-All law

These two laws are strongly expressed in the platform economy. Indeed, the latter is characterized by periods of competitive effervescence and, at the same time, by very strong structural tendencies to create a monopoly. The result is a competition dynamic structured in three stages at the beginning, even if this kind of process often stops at the first two for a long time, without succeeding in destabilising the monopoly status solidly acquired.

At the beginning, the pioneer's competitive advantage is all the greater since, later, network markets are difficult to be penetrated, inasmuch as the suppliers and the demanders already fully benefit from the concentration of the network economies enabled by the platform. A pioneering platform on a market, thanks to a technical innovation or, more often, a commercial intuition, is thus in pole position in order to attract customers, and to increase its attractiveness and fame. In this framework, a number of different network effects combined together contribute to building entry barriers, preventing potential competitors from coming through. This progression leads to the second stage, concretizing the Winner-Take-All law thanks to the establishment of a monopoly status said 'fringe'¹³, because it can let a multitude of small businesses or cooperatives subsist in niche markets. Acquiring these monopoly statuses, and then protecting and reinforcing them, ends up in mobilising, in financial terms, all the energies in the firm for innovation efforts, often through predatory merger-acquisition policies, among which IPRs and abuse of dominant position are some of the key levers.

But a status similarly acquired can still be vulnerable sometimes (stage 3). The slightest variation in market share and number of users can drag a platform into an upward or downward spiral. In this sense, one emblematic case in the mobile telephony is *BlackBerry*, whose market share collapsed when customers (and app developers) turned to *iOS* and *Android* solutions. This kind of dynamics, along with the uncertainties weighing on the market evaluation concerning the value of

¹³ A fringe monopoly is a particular type of monopoly that leaves a large number of small companies that form an atomized fringe comparable to a market of pure and perfect competition. For a more detailed definition of this concept, see Benhamou: 2003.

intangible asset, helps explain the strong instability and cyclical look of the platform economy.

In particular, during a very first phase, which is temporary at the beginning, the Winner-Take-All law implies for the pioneering company an inevitable imperative: using all means possible to speed up internal and external growth, because this is the key to hopefully being able to dominate its market and impose its rules in the future.

However, this type of strategy involves both the well-known *Dumping* (consisting in selling products at a price below the normal price or offering them free in order to have more users and potential profitable customers) and financing massive investments in order to buy potential competitors and increase its market power. This inevitably results in being often forced to face a debt and significant deficits for several accounting periods. *Amazon* has, for example, experienced deficits for several years before being able to make profits. This is also the case for *Uber* which, to support its strong growth, had to multiply the fundraising and the share issues. The result is that *Uber* as a very high value [about 70 billion dollars – editor's note], which, however, for many observers is completely disproportionate if compared to its turnover and profits that it can hopefully accumulate in the future. Despite being aware of this non-standard situation, the upward spiral cannot stop. Indeed, the sums invested push financial markets operators betting on *Uber* to keep believing in it; and indeed if they do not support it anymore, the prices will collapse and the investors will lose everything: all in all, we are in a typical '*Too Big To Fall*' situation, since a very indebted one generally keeps its creditors hostage, and they entirely depend on its good health.

Capitalist platforms in their initial growth strategy, based on indebtedness and lacking any profit, can, thus, take advantage of a financial asset which, in terrible contrast to the cooperative models, makes it possible to limit them in market niches. We will come back to it. For now, let us just notice that one of the inevitable effects of the development logic of platform capitalism is the creation of speculative bubbles which can burst at the least violent or unexpected event, giving rise to panic and an opposite downward spiral.

In platform economy and data industries these factors intensify the tendency to produce economic rhythms which are very unstable and characterised by the cycle described by the great theorist of the financial economy Hyman P. Minsky: boom, market euphoria, over-indebtedness, panic and crisis

A profit model lacking investment and employment

The fourth law or rather regularity of platform capitalism concerns an organisation model of the productive activity almost opposite to the classic one operating in the conglomerates of the industrial capitalism. In the latter, the main tangible assets (e.g. machine tools, buildings, and so on) and raw materials, which were tangible as well, (e.g. coal, oil, steel), were as essential as the employment of a stable wage labour force, located both in factories and corporate offices.

In platform economy, there is an almost inverted model based on three main pillars.

1) The main asset is intangible and it is represented, such as in the case of *PageRank* for *Google*, and *EdgeRank* for *Facebook* (at the beginning), by a main algorithm or pivot, articulated with other ones. In platform economy, an essential part of the firm's competitive capacity is determined by its ability to calculate and process the continuous (structured and unstructured) information flow produced across the networks.

2) In platform economy the main raw material is intangible and represented by *Big Data*, used for different and, also, combined purposes, such as: organising their activity by coordinating the action of a multitude of economic agents; directly making the extracted and processed data the main product for sale in the form of advertising; selling it or buying it in the increasingly thriving *Big Data* market. For this we often consider *Big Data* as the new lifeblood of contemporary economy, even though this comparison might be questionable in many aspects.

3) Apart from *Amazon*, of course, a third common pillar of the platform productive model is a very poor use of paid employment, for two main reasons:

- First of all, because the production of data essentially relies on Internet users' and Net surfers' 'gratuitous work' according to the logic of *digital labour*, which will be

later discussed in detail. Also, only a limited number of *Big Data* specialists (data scientists) and programmers are involved in the development of the algorithms and in the processing of this raw material.

- Secondly, because the *on-demand* platform economy most often resorts to workers who are at least formally independent and who own their production equipment, which significantly reduces the volume of wage labour but also the investments made by platform pivots such as *Uber* or *Airbnb*.

One last regularity, typical of a large number of platforms, including search engines and social networks, is the way in which the Internet and the intangible nature of their activities lend them a real transnational dimension, beyond any kind of regulation and the territorial sovereignty of States as we know them.

On this basis, GAFAM companies such as *Google* and *Facebook*, but also *Apple*, are able to implement aggressive optim⁴isation and/or tax evasion policies which account for a considerable part of their profits and are very difficult to thwart (especially because of the lack of a permanent establishment, within the meaning of the old taxation system resulting from industrial capitalism).

To sum up, the economic laws and regularities on which platform and the data industry economy depend can be rooted in production and profit models showing many original aspects, and whose four main actual examples are going to be immediately analysed: the ones of *Google*, *Facebook*, *Uber* and the ‘uberisation’ of the economy and *Amazon*.

1.2. The ‘merchantable gratuitousness’ models of *Google* and *Facebook*: advertising and unpaid digital labour

Google and *Facebook* profit models show analogies with conventional media models, such as TV, connecting advertisers and platform users.

⁴ On this point see the detailed Collin Colin 2013 research report, also available in English: https://www.hldataprotection.com/files/2013/06/Taxation_Digital_Economy.pdf

Two-sided market models are actually nothing new in human history: conventional media dating back to the industrial era, such as radio and television, had already adopted, since the 1970s, a financing model largely based on the sale of advertising space to companies targeting the public of these media. So, in the late 1970s already, theoretician of the economy of communications Dallas Smythe argued that the time spent watching in front of the media, such as the television, could be considered as a working time (*audience labour*), meaning that if there were no audience no company would pay for advertising (Smythe 1977; 1981).

This analogy is often emphasised by some theoreticians of the attention economy (Citton 2014) by mentioning the famous statement by Patrick Le Lay, former chairman of the board of France's largest commercial net 'TF1', according to which the trade of TF1's main task was to sell 'available brain time'. The analogies between the two-sided TV model and the platform one, however, give way to a key difference: in our opinion, if in the case of radio and TV the audience can be thought of as a product and the spectator is passive and is not a worker, what is today happening with *digital labour* on online platforms is different. This is also proved by the fact that in conventional television the advertising costs were determined by an essentially quantitative measurement of the audience, which, furthermore, remained barely known in qualitative terms.

Differently from what used to happen in the old television model, the Internet users are not only a product, because they are also especially active players in the platform: they are data and content *prosumers*. This last aspect, as highlighted by Abiteboul and Peugeot (2017), is crucial in the operational model of two-sided markets on the new social media and in the development of data-industry platforms, where the consumer's side is given almost completely for free and the user provides, in exchange, not money but their attention (Citton 2014; Lanham 2006) and, most of all, information whose value can be increased by the platform on the other side.

This change was possible because of the way in which Internet communication technologies enabled to turn upside down four main aspects, which, according to Canadian researcher Marshall McLuhan (McLuhan 1964), characterised the conventional 'mass media', namely:

- The unilateral ‘one-to-many’ communication is potentially substituted by a multilateral ‘all-to-all’ logic.
- The logic according to which the public was not able to interact by using the message medium, always being an audience, is substituted by an increased interactivity, making it very difficult to close social media such as *Facebook* and *Google*, in the economic models of club goods or artificially scarce goods, as it is the case for pay television or social networks targeting a specific audience, such as highly specialised meeting sites. This is why a model not based on content sale and the ‘merchantable gratuitousness’ logic are accepted by the most important Web 2.0 platforms, as an almost unavoidable datum.
- The homogeneous universe of indistinguishable information, displayed according to predefined sequences, like the ones of television, is replaced by a multiplication of the points emitting information (through the sites or social network pages), following more flexible and multiple temporalities.

The hierarchical world of conventional media reproducing the Fordist and punitive society traditional dichotomy between intellectual work and manual labour, leader and performer, has been overthrown thanks to the development of a collective intelligence and the need for greater autonomy of the individuals.

After a first development phase of the Internet, where these potentialities followed a *bottom-up* and non-market logic, the rapid expansion of capitalist platforms and two-sided markets was grafted on these quantitative and qualitative changes. They have understood the potentiality of more and more interactive audiences, which enables, beyond the simple logic of the audience, a more precise profiling for advertising effectiveness. This dynamic led to the massification of the Web according to a self-perpetuating logic nurtured by the exploding number of data that can be produced and recorded thanks to a growing number of Internet and mobile users (3.3 billion people operating on the Web);

- Ever increasing powerful algorithms have enabled a tremendous growth of calculation and data analysis skills, to such an extent that a new Moore's law concerning *Big Data* processing skills is being discussed, turns not only into the chance of much more accurate audience profiling and customised advertising, but

also into the ability to perform economic market trends predictive analyses, surveys and political market monitoring, as well as the anticipation of epidemics, and so on.

As a result, the two main global platforms, *Google* and *Facebook*, accounted for approximately 46.6 percent of the digital advertising market in 2017, with a turnover exceeding \$ 105 billion, distributed as follows: \$ 72.69 billion for *Google* and \$ 33.76 billion for *Facebook*.

The common feature of their profit model is the combination of huge network economies and the massive use of the so-called *free digital labour*, apparently proving right the celebrated and controversial saying: "if you are not paying for it, you are the product", if not a worker unaware of their key role in producing data and contents to be exploited.

We will come back to this controversial point in more detail, after analysing *Google* and *Facebook* models' main features and showing how they enable an empirical validation of the economic laws of platform capitalism.

1.2.1 The Google case: the platform of platforms or integrated global

Google is unquestionably the world leader in the apparently invincible field of search engines, as well as online advertising markets. It currently captures about 80 percent of the Web search and its revenues amounted to \$ 89.5 billion in 2016. This turnover is almost entirely composed by advertising revenues amounting to 67.39 billion in 2016. How can we explain such a fast success, which has given *Google* a monopoly position in less than 20 years?

The network effect and Winner-Take-all laws were crucial. But, in order to achieve this result, *Google* has had to overthrow the old search engines (*Lycos*, *Yahoo!*, *Altavista*) which, at that time, shared Web searches in a very unstable situation of oligopolistic competition. It managed to do this by radically innovating the design of the pivot algorithm of its search engine, the well-known *PageRank*. Breaking the conventional logic of the audience (number of words corresponding to the search), its page classification method was inspired by the logic of quotation belonging to

the academic world from which the founders, Sergey Brin and Larry Page, Stanford University graduates, came from. Instead of using (like *Lycos*, *Altavista*, *Yahoo!*) a ranking method based on lexical chains showing the sites having the keyword in the greatest amount, *PageRank* is aimed at detecting the quality of information on the basis of the links to other pages, according to the academic method of quoting. To understand this classification method, we have to remember that the Internet architecture is made up of a web of texts quoting each other via hypertext links. On these bases, *PageRank* classifies at the top of its page the sites that have benefited the most hypertext links from other sites whose importance is also determined by the same principle (Cardon 2015). *PageRank* was developed in the mid-1990s by Larry Page and Sergey Brin (Vise and Malseed 2006), as part of a research partly funded by the National Science Foundation. So, in the patent which was quickly filed it is specified that the government has certain rights on this invention.

The first patent (*Method for Node Ranking in a Linked Database*) was indeed filed in January 1997 and registered on 9th January 1998. It is owned by Stanford University, which licensed the technology to *Google* in 1998 (amended in 2000 and 2003), two months after it was founded. It was an exclusive licence until 2011, the exclusivity ending on a date from which other companies could have obtained licenses of use. The patent also had to become public in 2017. But, of course, in 2007 *Google* had already taken precautions and filed a new *PageRank* patent including a number of changes and improvements. In any case, even though it was not the only criterion, the *PageRank* algorithm allowed *Google* to obtain homogenous results, which were more relevant and qualitatively better than the ones produced by the other search engines at that time. Let us also remark the fact that, at the beginning, the calling in to question of the other search engines' market power was slower than the technical upheaval and growth in the number of queries and users could have allowed. This is also due to the academic philosophy of pure and uncontaminated knowledge which initially inspired the founders of *Google*. At the beginning, they would always refuse, for the sake of their post-illuminist dream (Ippolita 2012) of a global encyclopaedia containing all the knowledge in the world, to sell advertising space. This could probably have been possible if there had been a financing method more integrated into the public sector and the academic and associative organisations.

Nevertheless, in October 2000, they suddenly adopted an advertising-focused profit model with the launch of *Google AdWords*, a self-service advertising service characterised by a cost-per-click model based on the auction sale. The price paid to *Google* by advertisers, here, does not depend on the actual purchase of the advertised product or service, but on the clicks on the advertisements displayed — that is, the mere ‘attention’ users pay to them (by chance, mistake or because actually interested). This turned a modest start-up into one of the most valuable and powerful digital giants in the world by market value. To create, expand and strengthen network economies in order to achieve a monopolistic position, *Google* has embarked on a frantic race for internal and external growth. To increase the attractiveness and, therefore, the size of the network, it was necessary to multiply the two-sided market services and interfaces. To do this *Google* has created an Internet portal including all kinds of features, such as: emails, applications, maps, images, and storage for products, but also a purely academic feature like *Google Scholar*. In this process, *Google* has also had another great insight about technology and market changes, opposite of what had happened for *Microsoft* with the Web. It quickly realised that most computers would be quickly installed on mobile devices, and that the Internet would move from the realm of the PC to the one of smartphones and tablets. Let us notice that the success of this strategy, whose pivot is *Android*, as *PageRank* had been for the search engine, was based on a very ambiguous and controversial policy as far as intellectual property and (non-owner) Open Source were concerned.

It resulted in the final standardisation of *Google* which, like other companies such as *Microsoft* and *IBM*, cleverly combines ownership logic and the predation on free software technical resources and knowledge. In this way, on the one hand, *Google* developed the *Android* project (after buying in 2005 a homonymous Open Source start-up)⁵ on the basis of *Linux*, because of a *fork*, as to say an internal split in the *GNU-Linux* project⁶.

⁵ In February 2005 *Google* acquired the start-up *Android Inc.*: it was able to take advantage of a fork of *Linux* and *Open Source* resources.

⁶ *Android* has been profitable for *Google* since October 5, 2010 and its senior vice president believes that *Android* will have created more than \$ 1 billion in revenue by the end of 2010. According to Millennial Media, *Android* generates more advertising revenue than *iOS* since October 2010.

At the same time, Sergei Brin encouraged the community of *free software* developers, promising them bonuses if they had contributed to the *Android Developer Challenge*.

On the other hand, by breaking if not the *Copyleft* law, at least the nature of the *free software*, he grafted parts of proprietary programs on *Android-Linux*⁷, to the point that in the synthetic description of Wikipedia.it the mention is: Licensed Topology, *free software* with owner counterparts. This combination of proprietary and *free software* logic aimed at capturing the products and the power of the invention, as well as protecting themselves from competitors, went on in 2011, after purchasing *Motorola Mobility*. This strategy was primarily driven by the acquisition of *Motorola's* large patent portfolio at a time when *Google* strongly needed to strengthen its intellectual property against *Apple's* offensive legal strategy. It was completed by the purchase of approximately 2.000 IBM patents. Let us remind that we were, at that time, witnessing the 'thermonuclear war' moved by *Apple* against *Android* for intellectual property violation, and against *Samsung* - a battle that, despite *Apple's* defeat,⁸ is still open. Anyway, using this strategy, *Google* entered the market of mobile communications, as successfully as we know: most major smartphone factories have progressively adopted *Android* as a pre-installed operating system on their devices. As far as smartphone operating system sales worldwide are concerned, *Google's Android* has been leading the global market since 2011, with an 80 percent market share in 2015. *Apple's iOS* is instead in second place, with only 15 percent. The same is for the major Internet browsers: in this *Apple vs. Google* war, which replaced the old one between *Microsoft* and *Apple*, *Google Chrome* was at the top of the list

⁷ When he launched Honeycomb (version 3.0 and 3.1 of *Android*), *Google* caused controversy because they decided not to release the source code, not keeping the promise of the operating system open source. Then they changed to version 4, keeping parts of the software partially closed however.

⁸ A real patent war whose most important episodes are:

- In 2008, *Apple* had to recognise the authorship of the *iPod* to Kane Kramer who had conceived since 1979 a digital music player of which he had filed the patent.
- After a complaint filed by *Samsung* in August 2011, the United States International Trade Commission (USITC) has found that some *iPhone*, *iPad* and *iPod* models violated the patents of the South Korean group. The USITC then banned their importation to the United States from Asia, where they are manufactured. In other words, it prevented the Californian group from selling its products in the US market. In January 2012, *Apple* began a lawsuit against *Android* for patent infringement 263 ('programming interface of a real-time application').

with about 51 percent at the end of 2015, while its main competitor *Safari* followed it with 14.5 percent, followed by *Bing* and *Firefox* (around 6.8 percent).⁹

Finally, in 2015, *Google* was reorganised as the largest subsidiary company of a larger financial or holding company, named *Alphabet Inc.*

They were gradually switching to a conglomerate, a large multi-divisional corporation aimed at using its 'transversality' as a weapon in order to conquer a hegemonic position in several High-Tech fields.

In this reorganisation, the projects that were not part of *Google's* core business were assigned to separate companies. These projects, referred to as 'other bets', encompass a wide range of activities, including the most strategic project concerning *Big Data* management, the urban planning of Smart Cities, intelligent building technology, autonomous cars and artificial intelligence. But, at the moment, the core business and profit model of *Google* still relies on advertising.

Google's impressive and constant supremacy is indeed ensured by advertising revenues, depending on two factors:

- The huge size of *Google* network, including its search engine and *YouTube*, where advertising effectiveness is even more remarkable;
- But also, as in the case of *Android*, *Google's* ability to always keep a pioneering approach and attentively monitoring the situation, also by making a large use of technological innovations, which are often external (*free software* or start-up).

So, the *Google's* success is largely due to the exploitation of *free software*, like *Linux*, *Python* and *MySQL* for data management. It was also estimated that between its founding and October 2015, *Google* acquired about 184 companies, spending at least \$ 28 billion.

Most of *Google's* best-known products come, indeed, from the purchase of services and products originally developed and provided by other companies, and then

⁹Atlasocio.com, *Les navigateurs internet les plus utilisés à travers le monde*, 10/02/17. URL: <https://atlasocio.com/revue/technologies/2017/les-navigateurs-internet-les-plus-utilises-a-travers-le-monde.php>

merged into *Google's* already existing product lines or identically used after simply renaming them.

However, this large variety of services enables *Alphabet* to benefit from a more and more growing user base, whose preferences, searches and data can be followed more and more efficiently in order to provide them with targeted and suitable ads. *Google* would be able to track users on nearly 80 percent of the World Wide Web sites, thanks to the ever-growing number of third-party domains, the best-known of which is probably *YouTube*, created in 2005 and bought by *Google* in 2006. In 2015 *YouTube* counted about 1.5 billion monthly active users with a turnover \$ 4 billion (vs. 74.5 billion for *Google*).

Almost all of *YouTube's* content is produced by its users, using collective intelligence: personal content, online courses, movie trailers posted by studio channels, clips by recording industry channels or by freelance musicians. However, unlike search engines, *YouTube's* content complexity leads *Google* to pay part of its advertising revenues to few contributors with a complex set of conditions that would amount to just under \$ 1 per 1.000 views (Dworcak et al. 2017).

Finally, *Google*, and the economic-technological-financial ecosystem built around *Alphabet* as well, probably represents the most valuable embodiment of the two-sided markets based on 'merchantable gratuitousness' and online advertising sales, according to a model largely relying on two unpaid forms of labour:

- The first, a form of labour which is often and unjustly forgotten, is linked to a large number of technologies being captured from *free software*. It is enough to consider, from this point of view, what the price for a *Linux* licence would have been if the latter had been protected by a patent or at least subject to a *Copyfair* licence involving a financial compensation for the commercial use of *free software*;
- The second, which will be discussed in the conclusion of this chapter, is based on the use of *digital labour* provided by the users of the platforms and its several functionalities.

1.2.2. The Facebook case: the network of social networks

Born in 2004 and listed on the stock market in 2012, *Facebook*, with just over 10,000 employees, was ranked in the first half of 2018 as the fifth largest company having the greatest market capitalisation. However, the scandal of *Cambridge Analytica* made its shares fall by 15 percent. This mini-crash, which at the end of July worsened by another 14 percent, was accompanied by two other bad pieces of news: the number of users had stopped growing and, apparently, it even began to decline. Certainly, among the multitude of social networks that have invaded the cyberspace since 2003, such as *LinkedIn*, *Myspace*, *Second Life*, *Flickr*, *YouTube*, *Twitter*, it is still the undisputed world leader.

Its turnover was \$ 27.64 billion in 2016, with a profit of \$ 10.4 billion, being more than a third of the turnover.¹⁰

Advertising revenues, also in this case, represent almost the total amount of its turnover and come more and more from mobile devices rather than from computers.

No wonder advertisers are attracted to *Facebook*, which is second only to *Google*. *Facebook*, indeed, represents, due to its generalist and sociability-focused character, the *network of social networks* and the space where it is possible to follow and potentially rule the population's behaviour.

Significant is, in these terms, a demonstrative action carried on in Berlin during which Facebook IDs were distributed, but also Mark Zuckerberg's more and more explicit political ambitions.

Facebook's profit model, like *Google*'s, is an illustration of a two-sided market based on *digital labour*. This model consists in providing essentially free services on one of the two sides, namely the users' one. In the case of *Facebook*, these services are the tools of a virtual sociability managed by algorithmic machines channelling – giving at the same time the impression of reconciling them – the anthropological need for

¹⁰ NB. As a reminder, *Google*'s 2015 annual revenue was \$ 74.5 billion, with annual earnings of \$ 23.4 billion.

sharing and the one for measuring individual performance and reputation that derives from the postmodern and neoliberal ideology.

In this way, data and contents are extracted in order to provide with raw material its main activity on the other side of the platform: selling online advertising space to the companies. The main competitive advantage of *Facebook*, as a social network, derives, as we have already said, from its generalist nature, which enables it to play the role of ‘conductor’ of a more and more cybernetic sociability.

While the main function of *Google*’s algorithms consists in profiling its user by following their search as closely as possible, *Facebook* and its algorithms, more insidiously perhaps, enter the private life of each individual, encouraging them to make it public, following and directing their sociability, their tastes, preferences, opinions, determining and measuring their reputation.

This results in the ability to target advertising using a set of specific criteria that cannot be ensured by audience-based or specialised media. With this in mind, *Facebook* can have brands talk to friends, being as informal as friends normally are, while covering with gifts the best-known bloggers and offering editorial formats in which brands are hiding behind attractive and customised content (Cardon 2015; Ippolita 2007).

As specified by *Facebook* in its 2015 Annual Report, already cited in the previous CNRS report:

“We derive almost all of our gross profit by selling advertising space to marketing specialists. Our ads enable marketing specialists to reach people thanks to a variety of factors such as age, gender, location, interests and behaviours. [Plus,] Marketing specialists buy advertisements that can appear in several places, including *Facebook*, *Instagram*, and third-party apps and websites” (p.5).

It could not be any clearer. We are in a situation where the users, while thinking of acting freely and expressing their personality, actually work for the network for free and help create the product (the advertising target) to be sold.

The race for the Metcalfe’s law and Winner-Take-all law

As in the case of *Google*, the creation and sustainability of this advertising-based profit model involves a constant strengthening of network economies: the attractiveness of *Facebook* and the efficiency of its algorithms both depend on them.

Mutatis mutandis, even if a bit weaker in actual innovation, the mechanisms used by *Facebook* to gain this dominant position in the advertising market on social networks are almost the same as those of *Google*. They first and foremost relied on open external growth and innovation in order to capture through financial levers ideas and innovations created elsewhere.

In just over a decade, *Facebook* has acquired 65 companies (including patents and talents) for a total amount of more than \$ 23 billion in investment, in order to gain a quasi-monopolistic position by taking over knowledge and devices created externally. More specifically, these mergers and acquisitions can be divided in three main segments, each one playing a complementary role in a strategy aimed at gaining a dominant position in a two-sided market (focused on advertising and *digital labour*).

- 1) The first segment includes all the acquisitions aiming to improve *Facebook* site functionalities such as *Friend Feed*, *Likes*, and *Newsroom*, *Facebook's* trademarks since 2009.
- 2) The second segment, like *Google*, includes the acquisitions needed to enter the smartphone industry and increase its hold over social networks.

And it is in this field that we can find the company's most expensive investments, such as for instance in 2012 with the acquisition of *Instagram* (a social photo-sharing network still operating using its own name, although some of its functionalities have been integrated into *Facebook*) was purchased for \$ 1 billion.

The story of this acquisition, like the one of *WhatsApp*, is very interesting not only for its exorbitant cost, but also for its effects on social network governance, which each time resulted in a regression as far as data management and respect for privacy were concerned.

In particular, the acquisition of *Instagram* by *Facebook* has resulted in a change in the terms and conditions of use of the application, a change that would have given the application's producer the right to commercially exploit users' photographs and cross user data between the two companies. But when the new conditions of use appeared on 18th December 18 2012, a large number of users protested, some even deleting their accounts.

Instagram spokespersons then said that their decision was misunderstood and cancelled. Nevertheless, *Instagram* lost 4 million users between 19th and 26th December 2012, figures denied by *Facebook* (source: *Wikipedia*), and other services experienced the same decline during the end-of-year period. But nothing could stop business interests, which had to knee in front to *Facebook*'s ones.

In September 2015, *Instagram* announced the advertising reopening to all advertisers: the main goal was to diversify Mark Zuckerberg's social media revenue sources and to turn *Instagram* into a powerful social media advertising actor, playing almost the same role as *Youtube* for *Google*. The story is more or less the same for the 2014 acquisition of *WhatsApp*, estimated at \$ 19 billion, of which \$ 15 billion in *Facebook* shares, or about \$ 350 million per employee, or \$ 40 per user.

Let us notice, once again, the mix-up in financial terms between use value and exchange value, social utility and economic value, running the risk of inevitably overestimating the profits of *Facebook* and the ones affiliated to it. The risk linked to stock market overcapitalisation, which is clearly disproportionate according to all real economy indicators, are obvious (turnover and profits, number of employees, and so on). This is even truer since « *the value of online advertising itself regularly declines* » (Smyrnaios 2017: 116).

As far as governance is concerned, it is worth remembering that also in this case *WhatsApp* had publicly stated that its partnership with *Facebook* would not change its privacy policy.

However, two years later, on 25th August 2016, it was *WhatsApp*'s turn to announce the change in its terms of service, as to achieve two main objectives: a) improving user profiling relating to *Facebook Ads*; b) enabling companies to send direct messages to users of the messaging service.

3) The third segment, finally, concerns directly the implementation of Facebook's advertising techniques. For this purpose, in 2013 the company absorbed and redesigned *Atlas Solutions*' performance measurement platform, formerly owned by Microsoft, for broadcasting and advertising campaigns.

To sum up, this analysis of the Facebook model apparently confirms once again the economic laws of two-sided platform capitalism as well as the importance of the two pillars of its productive model: the close link between the advertising market and the exploitation of network economies mainly linked to users' free labour, which leads us to the controversy on *digital labour*.

1.2.3. The controversy about free digital labour and prosumers' work

Google and Facebook's productive and profit models bring out, in its clearest form, the main feature characterising the political economy of Internet and data industries: the role of the so-called *free digital labour* and more generally the consumer's or prosumer's work.

This new form of labour, thanks to Web 2.0 and the rapid expansion of platform capitalism, has enabled Internet oligopolies to expand the boundaries of firms, by integrating the collaboration of its users or consumers, or, as they are more and more often called, *prosumers* (this term being the contraction of the word 'professional' or 'producer' and the word 'consumer').

This is what, in the economic and sociological literature, is analysed through the category of *free digital labour*. This concept (Terranova 2000; Pasquinelli 2008; Fuchs 2012; Scholz 2012; Broca 2015; Casilli 2015; 2016)¹¹ is referred to the work, apparently both gratuitous and self-governing, performed, often unknowingly, by a multitude of

¹¹ The genealogy of this concept is rooted in the work of the Frankfurt School (Adorno, Horkheimer) about criticism of the cultural industry and, as already mentioned, the political economy of the Dallas Walker's audience (1977). This author wanted to complete Adorno's criticism of the standardisation effects of the cultural industry, emphasising another main point: the big media made disappear the border between workers and consumers, because the audience was sold to the advertisers. This approach is undoubtedly a forerunner to the economics of attention and theories of *digital labour*. However, as we pointed out, at the time, the relevance of this argument is undoubtedly somewhat forced, because the public remained in an essentially passive position, having no possibility to interact.

individuals on the Internet for the benefit of big Internet oligopolies and data industries. These one, but also more and more platforms stemming from the so-called traditional economy, have managed to create ecosystems in which users participate in producing information (*Big Data*) and content, which are then valued by the companies by advertising or selling other services. In this model, everything apparently happens as if the pivot of the platform had succeeded in imposing on users a kind of implicit exchange and tacit contract, formulated as follows: "if it's free, it's because you are actually both the products and the workers", and the workers, thanks to their collective activity, apparently free and playful, enable me to manufacture and sell it as such (by providing me data and contents, as well as, thanks to network economies, the market size needed to attract advertisers). Conclusion: insofar as this value is not redistributed to Internet users,¹² it can even be considered as an exploited work, both in the sense of the classical theory of the job's market value (Fuchs 2014) and in the one of the neoclassical theory of distribution, since the salary (which is actually absent) is by definition lower than its marginal productivity.

This view has raised many controversies among digital economy specialists (Conseil National du Numérique 2016), both for its theoretical basis and for its implications in terms of social justice and regulation of the Internet economy. To the idea that *digital labour* could be considered in all respects not only as a job, but also as a productive work creating value, are opposed several objections that we are now going to discuss, also showing some of their limits.

1) A number of objections to the pertinence of the *digital labour* concept might be formulated in the following way: it is the intangible asset of the algorithm which, through an automated process, creates the intrinsic value. *Digital labour*, even admitting that it existed, would be in any case only a subaltern entity: it would be restricted to the position of simple producer of raw materials and would only have an auxiliary function in the automatic system of the algorithmic mega-machine.

¹² If not in extremely small proportions, for example for some video deposited on YouTube or some pages Facebook enjoying a particularly important reputation.

Broca (2017) well summarised all these arguments: « *The ‘work’ we are talking about (digital labour) only consists in producing ‘raw material’ (data) for a process, whose basic procedures are performed by algorithms programmed by other workers. The user provides data to Google using his search engine; the algorithms of the Mountain View multinational company are responsible for sorting, organising and enhancing them in the online advertising market* » (Broca 2017: 8). And in support of his thesis, Broca refers to Dominique Cardon, according to whom it is data transformation « *by a mechanism of aggregation, calculation, comparison, filter, classification or recommendation that gives them meaning (for Internet users) and value (for the platforms)* » (Cardon, in Cardon and Casilli 2015: 55). Finally, Broca goes on, « *the role of the surfer sometimes seems to have become that of a mere auxiliary of the algorithms; it is certainly vital, nevertheless their function is rather subaltern in the process of producing value* » (*Ibidem*).

This first round of criticisms about the thesis of *digital labour* are affected by three main mistakes, even if we analyse it through the approach to the theories of the value of work to which Broca apparently claims to adhere.

The first mistake consists in considering the intangible asset as incorporated in the algorithms, as an autonomous source of value creation that could almost do without the activity of *digital labour* by Internet users. Tangible assets cannot, as such, create new value, both on the basis of the classical labour theory of value and of national accounting conventions, according to which the ‘net added value’ is equal to the price of the product, after subtracting intermediate expenditure and the depreciation of tangible asset, which are also formed by software and algorithms. All in all, algorithms, like any other machine programmed to execute a set of instructions, just represent the old-fashioned and crystallised work, no matter if within an intangible technical device. Like a machine tool, they are only a *condition of production* simplifying human labour and not an autonomous factor of *value creation*. They would be useless and would remain a futile resource without Internet users’ collective work providing raw materials and the one performed by algorithm programmers leading to the finished good.

The second mistake consists in arguing that the function of raw material producer would turn, in any case, *digital labour* into a subaltern entity in the chain of value creation of the platforms.

This statement can only leave us more doubtful in an age when we compare *Big Data* to the new fuel for information capitalism. This almost sounds like a pure absurdity, if one thinks of the crucial results that exploitation and the discovery of new raw materials has had throughout the history of capitalism: it would be like saying that coal would have had a secondary function at the age of the First Industrial Revolution in England, or that oil was only a subaltern element in the civilisation of the automobile and Fordist growth.

Finally, a third theoretical and historical mistake consists in lessening the role of *digital labour* in platform capitalism value creation, using as an excuse the fact that it would be a mere auxiliary of the algorithmic machine (programmed by computer engineers and the data scientists). The fact the Taylorist work performed by mass workers in the Fordist assembly line was also seen, by most sociologists or economists, as a mere auxiliary or annex to machines appears to be forgotten. However, no one would have dared to deny that it was precisely there, in that mechanical and repetitive auxiliary activity that the heart of the value creation process the Fordist age was located.

2) A second round of critical objections to the pertinence of the concept of *digital labour* concerns its incompatibility with the anthropological basis of the so-called work. In other words, *digital labour* theoreticians would present as work some activities that common sense does not consider as such, this concept being separated from the modern philosophical definition of work as a conscious and voluntary activity (Broca 2017). This statement according to which *digital labour* is not a real work knowingly directed by the worker towards a certain goal is lacking of three essential points (and it also misunderstands the Hegelian legacy of the definition of labour).

First of all, common sense, even less than the subjective consciousness of the concept of work, does not make the latter real, of course: it is rather the work as an act, as a part of social relationships and institutions, which can make it more or less

visible and known. There are plenty of historical examples of activities fully meeting the criteria of an anthropological definition of work, and to which, however, neither common sense nor the consciousness of its actors acknowledge this status.

Thus, in the era characterised by modernity, colonisation, and the discovery of work as the essence of humankind, there is no doubt this concept was foreign to the culture of the ‘New World’s hunters-gatherers communities. Being intertwined with other social activities, their work could not be separated as a single act. Consequently, these communities would not have even been able to understand that their productive and reproductive activities could be qualified as work in the Western sense of the term. And, indeed, nobody would tell them, in order to be able to decree that their common lands corresponded to a *res nullius* of which settlers could freely take possession.

Likewise, as a wide feminist literature has shown, the free but essential women’s reproductive work has been made invisible both to society and to their own awareness for a long time and, often, even today (Federici 2004; 2011). Last but not least, many wealth creating activities are not recognised as real work still today, neither by common sense, nor by national accounts, for the simple fact that they do not correspond to the standards of the wage relation and GDP measurement. This is for example the case of *free software commons* or volunteers in the third sector economy.

This lack of awareness is not, in any case, a peculiarity of *digital labour*. This problem of identification and recognition as far as work is concerned is all the greater as capitalist modernity and market logic’s development have contributed to progressively causing a major mix-up. We are talking about the assimilation of the concept of work, in its anthropological meaning, and the concept of *labour-employment*, which in turn expresses a subaltern activity whose execution mode and purposes are externally dictated (Gorz 1988; 2007).

In a long tradition of philosophical and economic thought dating back to the Aristotelian distinction between use value and exchange value, and which will be fully developed by the critical theories of alienation (Vercellone 2014), the ‘production process’ in the capitalist enterprise can be seen as two-faced: as a matter of fact, it is

the contradictory unity of the *labour process* (or real work) and of the *valorisation of capital* (abstract work). Taking into account this two-folded aspect is crucial to understand the nature and sense of *digital labour*.

The first face, the *labour process*, actually corresponds to the way in which men, reproducing their existence conditions, cooperate and use their intelligence and (tangible and intangible) tools to meet their needs and express their subjectivity. It is a universal condition of human work which is accepted in all types of society, and it corresponds to the anthropological definition of work.

So, as far as *labour process* is concerned, *digital labour* unquestionably presents itself, in most cases, as a conscious and freewill activity aimed at producing useful things (use values) and at expressing individuals' subjectivity and creativity. This is probably the case when, for example, we do an action as simple as searching something on *Google* to find out how to make a meal or about the history of a city, to create a bibliography on an academic subject, or send a message in order to organise an event on *Facebook*.

On the other hand, the second face, the process of *valorisation*, is the way in which the company reorganises the *labour process* and subordinates it to its organisational goal: making profit by producing and selling goods. Now, these two faces of the capitalist production process can be dissociated and they do not necessarily appear simultaneously, a far as the actors may know. This dissociation can be illustrated by two extreme and opposite examples.

The first example is the one of the assembly line salary employee, so well played by Charlie Chaplin in his *Modern Times*. In his activity, he could only perceive the one side of the *valorisation process*, that is to say, the side concerning an abstract, mechanical, repetitive work enslaved to an external goal, taking away any kind of interest from his real work, as well as any possibility of expressing his inventiveness and subjectivity. Working, thus, for the assembly line worker is nothing but as a way to make a living, and his 'freedom' only began outside working hours. The awareness of work's anthropological perspective was almost deleted.

It is interesting to notice the way in which this concept of work, assimilated to a subaltern and alienated labour, has become a pillar of the neoclassical theory of the

labour market which considers work as a mere *disutility* in opposition to *leisure* (represented by consumption and the so-called spare time).

The second example is perfectly embodied by the Internet *prosumer* who, instead, gets the impression of accomplishing only an activity for himself/herself, this activity appearing self-determined and almost always related to his/her free time. The result is paradoxical. On the one hand, the *prosumer* does not consider his/her activity as a real job, since it does not apply to the dominant social norm of paid and subordinate *labour-employment*. On the other hand, he/she feels it as an act whose goal and the result he/she does master, according to the anthropological definition of work. From this point of view, what is lacking in *digital labour* is above all the awareness about the way in which prosumers' work is also part of a valorisation process ruled by an external will towards a hidden goal: the production of goods and the valorisation of capital.

This cognitive discordance is all the stronger as the operational mode of large social networks, like *Google* and *Facebook*, despite the huge power concentrated in them, is very different from that of the Leviathan, giving the orders of the *disciplinary society* described by Michel Foucault. It is more similar to the description that Gilles Deleuze gave about the rise of a *society of control*, that is to say, an invisible technical environment enabling everywhere everyone of us to have a direction, apparently without any constraints, as Cardon recalls (2015).

One could even say that we are in front of a kind of realisation of any manager's or company director's utopia: to have workers having the impression of being working only for themselves, while achieving a hetero-determined goal by imprisoning themselves in freewill slavery (Gorz 1997). This impression of doing nothing but a freewill activity, with no relation with domination and exploitation, is also strengthened by the way in which prosumers apparently benefit at no cost from a wide range of computer tools and services offered by the platform. This element is, indeed, the main argument of another criticism about the thesis of *digital labour* often made by managers or platform communication services.

3) A third round of objections to the pertinence of the concept of *digital labour* actually relies on the existence of a natural compensation which would do more

than compensating for the user data exploitation carried on by platforms. This would wipe out the nature of unpaid invisible work attribute to *digital labour*.

This apparently unstoppable objection, if closely examined, shows a major weakness. If one thinks from the point of view of the *valorisation process* planned by merchantable-gratuitousness-centred platforms, the argument of the remuneration or natural compensation is presented under a very different light. Indeed, infrastructural and informational tools provided by platforms play a role almost comparable to the one played by the means of production provided by any conventional business to its employees, so that the latter can carry out the tasks under their supervision. However, nobody would think for a moment of being able to say that in a factory, for example, the use of machine tools or other production tools owned by the company could constitute the fair compensation offered to the employees for free.

This remark is all the truer if one thinks of the fact that an account on *Facebook*, *Google+* or *Twitter*, is not owned by the user: it is only a space made available by the platforms with his/her consent to give them the data he/she produces, in order to improve the algorithms and to profile the users on the basis of their behaviours, traces, and so on. The user runs the risk of being banned from the network at any time and being denied access to their page or account. Moreover, always by contract, in a platform like *Facebook* the user has to dispose the co-ownership of the data and contents that he/she has produced,¹³ in the form of a free and almost exclusive licence (even if the contract says the opposite). Users' free access to *Facebook's* or *Google's* means of production is thus subject to the right the company has to take over the fruit of their activity. Despite the absence of remuneration, we are here in front of an essential common feature to *digital labour* and to the canonical definition of the wage contract, the one of the worker renouncing the ownership of the product of their work.

All in all, the apparently autonomous and playful activities carried out in the framework of *digital labour* are actually subject to contractual standards and specific protocols leading the behaviours towards the profitability objectives of the

¹³ Which will be not deleted, even if the user closes their account.

company and make *digital labour* similar to a subaltern form of work (Fuchs 2014). According to Casilli, *digital labour* would fulfil, in particular, three conditions that are also specific to any wage labour in the market sector: « *to create value (taken over by the owners of large technological companies); to supervise participation (by setting obligations and contractual constraints to the contribution and cooperation contained in the general terms and conditions), to measure (by means of indicators of popularity, reputation, status, etc.)* » (Cardon and Casilli 2015: 13).

To conclude, it is important to notice how three recent evolutions in the debate concerning the productive models and the rules of platform capitalism and data industries seem to plead the recognition of the importance of the thesis of *digital labour*.

The first one is focused on the multiplication of empirical researches which made it possible to highlight the similarity between the activities gratuitously carried out by Social Web users and the tasks performed by the workers paid per-piece on the *gig economy* micro-job platforms (Lehdonvirta and Mezier 2013; Casilli 2015; Ciccarelli 2018). In this framework, a special attention has been paid to the marketplace platform *Amazon Mechanical Turk (MTurk)*, which today has a half million workers worldwide. Many of the tasks performed by *Mechanical Turk* workers correspond to the so-called *Human intelligence tasks* designed to help and train algorithmic machines in functions that they are not yet able to perform autonomously or more efficiently than human intelligence. The analysis of this micro-job platform thus showed two major interesting facts:

The algorithm, as we have already said, is not an autonomous source of value creation that could do without any labour. « *The activity that today fuels digital work is not only carried out by an artificial intelligence, but by legions of men and women in front of personal computers all over the world ... The algorithm flourishes thanks to the value produced by a workforce* » (Ciccarelli 2018: 24).

Most of the paid tasks on *MTurk* are very similar to those free-from-work-stress digital behaviours of *free digital labour*: « *writing short comments, clicking, looking at photos or videos* » (Casilli 2015: 13). Indeed, Casilli goes on, « *at the beginning, ‘turkers’ do not get the impression they are working. But all their clicks and*

behaviours are algorithmically recomposed in order to produce specific services: structured databases, corpora of contents, and so on » (*Ibidem*). In short, the umpteenth prophecy of the end of work, which the algorithmic automation would be responsible for, hides the reality of an extended work penetrating all the meanders of social life, though through new unpaid or precarious and underpaid forms, which destroy the regulation norms and the social cohesion of the wage labour society inherited from Fordism.

The second evolution of the debate on *digital labour* and data industries is driven by the reflection on the thorny issue of a tax reform adapted to the new situation of the digital economy, a tax reform able to provide an indicator for the value created and, therefore, the taxable base in a given territory. The stakes are all the greater because it is estimated that in the European Union the big Internet oligopolies pay a ridiculous tax on company profits, between 0.36 percent and 0.82 percent for *Google* and between 0.03 percent and 0.1 percent for *Facebook*.

For example, in France, the Colin and Collin's (2013) report, focusing on the problem of big Internet oligopolies' taxation (such as *Google* and *Facebook*), highlights two narrowly intertwined problems: the one concerning their practices of optimisation and tax avoidance, favoured by the global nature of their activity and the lack of fiscal uniformity; the other regarding the objective difficulty in identifying a criterion aimed at identifying precisely both indicator and place of creation of the added value, a problem based on the separation between the places of data production and consumption and the other activities organised by the platforms.

To help find a solution to these dilemmas, the Colin-Collin report recommends redefining the notion of permanent establishment, which is no longer to be defined on the basis of the location of the registered offices of a company but on that of the place where the value is created. How to do so? By redefining the definition of permanent establishment, which is to be considered as an activity carried out through the regular monitoring and exploitation of data produced by Internet users in the territory of a given State.

However, as Casilli (2015: 40) correctly points out: « *Recognising the stability of these companies' establishment on the basis of the data produced by their users means*

recognising their digital labour. The need to impose it does not depend on a company being established in a certain country, but it relies on the fact that there are millions of citizens performing ‘invisible and gratuitous work’ for this company ».

The third evolution extends the debate to matters of fiscal sovereignty and state revenue by considering the more general issue of a more equitable distribution of added value between wages and profits. How to redistribute some of the profits that GAFAM and other platforms are now taking advantage of, thanks to the exploitation of data and the use of a huge amount of gratuitous work?

Several suggestions have made to answer this question.

A first round of suggestions is based on the idea of paying individual remuneration to users, either in the form of a salary (Ross 2012), or through a system of micro-royalties in exchange for the right to use data or other content, such as in the case of patents or copyrights (Lanier 2014). Thus, the key to solving the problem would be in the oligopolies' desire to remunerate the value of the data generated by users according to an individual estimation of the value of data and user productivity, following the *MTurk* micro-jobs' logic.

These approaches cause two main problems. On the one hand, the payment of micro-royalties for any content, message, online activity means accepting the possibility to commercialise personal data, even the most intimate ones, with the risk of a real drift toward the “privatisation of *privacy*”. On the other hand, in both Andrew Ross's and Lanier's suggestions, the *digital labour* remuneration relies on an individual basis that not only leads to underestimate the amount of remuneration (by reducing it to micro-payments of few cents or dollars), but to deny the intrinsically collective dimension of value and wealth created by Internet users through their interactions in a network economy.

In this perspective, Casilli is completely right when he highlights how, in spite of their general personal nature, the data and results derived from them by algorithmic treatment, « *are not the responsibility of private property, but the product of a common, of a community. Therefore, the remuneration should try to give back to the commons what has been extracted from the commons*

The real issue, therefore, is about bringing back the value extracted from a community to the very community that made it emerge and understanding how, beyond a mere matter of distributive justice, this wealth should be used. In this way, the problem of *digital labour* joins the wider reflection on the suggestion of a basic universal income, thought as a primary income and as an essential instrument for the sustainability of an alternative model based on the *common*, subject which we will discuss in more detail in the conclusion of this report.

To conclude, it should be noticed that despite the relevance of the concept of *digital labour*, we have been wary about those views tending to make every moment of our lives a reality completely subject and 'valorised' by platform capitalism. In particular, (on this point Cardon is absolutely right) we must not forget the extent of resistant and counter-conduct behaviour to instruments of social control that individuals adopt on the Internet, undermining this project (Cardon 2015: 103) and creating alternatives.

1.3. The model of the 'uberisation' of the economy and on-demand platforms: back to digital putting-out systems?

The development of sharing and *on-demand* platforms has been dazzling since the 2010s, also thanks to the new possibilities offered by the development of mobile applications. Despite strong growth, they still remain, as for example in France, a quite marginal economic reality, excluding accommodation and, especially, mobility. The volume of business of the hundreds of employment platforms is estimated at € 7 billion per year in France.

But before looking at a more precise description of *on-demand* platforms, often also called labour platforms, it is useful to recall the socio-historical conditions that, at the beginning, gave rise to the growth of the much larger archipelago of the so-called sharing economy.

The combination of increasing individual autonomy and the power of the Internet has made it possible to progressively widen the function logic of social networks to

new forms for coordinating production and exchanges within the framework of the so-called *peer-to-peer* economy. These new “multitudinal” potentialities may, however, give rise to very different economic models that can be summarised through two polar forms of organisation, still coexisting and competing in the sharing economy.

The first one, because of its historical appearance, follows non-profit logic. The exchange is non-market-based or is, in any case, led by a purpose which is the satisfaction of the needs of collectivities following the C-M-C (Commodity-Money-Commodity) circle, where the currency is just a facilitator for exchanges. This first model has its ancestor in the LETS (*Local Exchange Trade System*) and is based on a community that brings together a set of human tangible and intangible resources, with the aim of increasing its members' use values and welfare, avoiding personal enrichment and the profitability of a company (Bove 2017). The solidarity and no-profit model of LETS systems¹⁴, which sometimes have been turned into digital platforms, has represented in almost every segment of the *peer-to-peer* economy the origin of the first sharing economy networks, involving exchange of goods and services, the sharing of skills, mutual aid, carpooling, apartment exchange, and so on. It is now a minority because it has not been able to fight the competition with the *sharing economy* and *on-demand* capitalist platforms.

The second form is based on a profit-oriented logic, according to the M-C-M' (Money-Commodity-Money) cycle, where $M' > M$, because M' contains a surplus compared to M . Its rise, at the beginning, mostly relied on the ability to recover and impose itself with a role of market intermediary in the organisation of activities that had previously developed in the non-commercial fields and *peer-to-peer* networks. All in all, in this case too, catching the power of invention and the cooperation forms based on the *common* was the starting point of *on-demand* platform capitalism. On this basis, later on, these platforms also succeeded in destabilising the former

¹⁴ Developed mainly during the 1990s, there are still about 50 “SEL” in Ile de France, 500 or more in the rest of France, for example: <http://www.intersel-idf.org/2-Adresses-des-SEL/6-Permanences/Permanence-du-SEL-de-Paris>

monopolies in the private commercial economy, particularly in the mobility, delivery and accommodation sectors.

In this context, their current growth potential is undoubtedly considerable, notably for their ability to destabilise old monopolies and reorganise them on the basis of new principles of *intermediation* and profit. In this respect, we emphasise the term new '*intermediation*' because platforms are often considered as the product of a *disintermediation* of the supply of certain services, given that the opposite is true: either they introduce intermediation where it did not exist (as in *peer-to-peer* services) or they replace former direct operators in the market or old forms of intermediation with new forms of digital intermediation. In this strategy, as we are going to see, they can take advantage of three essential competitive advantages compared to other firms operating in the same sector: the reduction in transaction costs, labour costs and investment costs related to fixed assets.

A reminder of this logic-historical sequence is extremely important to understand the historical specificity of the organisational mode of *on-demand* platforms, as well as their strengths and their weaknesses, and also the conditions of a renewed alternative based on the return of the *commons* and the platform cooperativism.

The terms of this alternative can be summarised in terms of organizational theory as follows: while the *common* constitutes the attempt to constitute a mode of production alternative to both the hierarchy and the market in the coordination forms, the *on-demand* platform capitalism would like to carry out a similar but at, the same time, opposite operation, as it aims to merge and internalise these two mechanisms, the hierarchy and the market, into one and only mechanism for capturing the value and organisation of work.

General characteristics of the *sharing economy* or *on-demand economy* capitalist platforms

The main objective of the *sharing* or *on-demand* economy platforms is to favour a direct and explicit market connection between users and service providers by

capturing the maximum added value thanks to the combination of three narrowly intertwined devices structuring their profit model and organisation of work:

- The levy on each commission transaction, possibly associated with fixed tariffs, which indeed in working comes to establish the remuneration of the work and the division between earnings and profits of the platforms.
- If also in *on-demand* platforms the users' gratuitous work of the *free digital labour* plays in several respects an important role, the gist of the creation of value relies on 'contributors' who are formally independent and remunerated per piece work (called *self-entrepreneurs* or *auto-entrepreneurs*). This makes it possible to bypass the guarantees linked to the classic status of paid work. The platform can, thus, pass to the workers a large part of the risks (sickness, work accident) and wage costs (such as social security contributions) related to their productive activity, without forgetting the drastic reduction of the fixed costs linked to the ownership of the means generally made available in a traditional enterprise by the employer.
- The third is, finally, a minimum investment in tangible assets, which is also mainly made by independent providers. In *on-demand* platforms, such as *Google* and *Facebook*, the main fixed asset is intangible and it is constituted by a central or pivot algorithm that is private and closed. It is on the impersonal power of algorithms that the ability to process the torrent of data depends, a torrent of data that, also for *on-demand* platforms, represents the main raw material they use for different purposes: matching supply and demand and coordinating the activity; fixing rates; evaluating and ordering *auto-entrepreneurs'* work, making transactions more reliable, or, to a lesser extent than on other platforms, selling data on the thriving *Big Data* market.

All these characteristics make it possible to understand why *on-demand* platforms can be considered as a form of disintegration of the firm's borders and a way of scrambling of the traditional separations typical of the economic theory established, from Coase (1937) on, between enterprise and market and the alternative between

doing and *having done*, i.e. centralising the activity inside the firm or subcontracting it on the market.¹⁵

At the same time, there is a real mix-up between profit, linked to a function of production organisation, and income, corresponding to a levy on value, possible through non-directly productive monopoly procedures. How?

On the one hand, because online platforms, thanks to their algorithms, somehow internalise within the company market functions such as supply-and-demand matching and, often, price fixing (Casilli 2016). In other words, the company integrates the market, making it a lucrative business source of intermediation and monopoly incomes.

On the other hand, platforms manage to have a hierarchical role in ordering and controlling work -which is similar to what happens in the traditional company, even if they are based on a formally independent work.

This ability to capture a growing share of added value is all the stronger as platforms tend to combine a dual monopoly position, because of the 'uberisation' of the economy: (a) a monopoly based on service consumers' demand, realised by centralising, for example on the platform, the mobility supply, like on *Uber*, or the apartment, as on *Airbnb* in order to be able to face a multitude of demanders; (b) but also a monopoly based on the supply, realised by centralising demand control against a multitude of potential service providers who, like the consumers, have an interest in using the most popular application offering the most potential customers.

This situation gives the platforms a very important market power. They can all the more engender competition between service providers, they contain a huge amount of information and almost exactly know from what level of remuneration they will agree to work or not. With the right algorithms and, most of all, without a collective organisation of providers, they can use this information to minimise the remuneration of workers and maximise the profit of the platforms.

¹⁵ Since Ronald Coase (1937) the origin of the firm has found its explanation in transaction costs related to the market, among which the most important are contracts and their compliance (quantity and quality of benefits, prices, etc.). Firms firm, by internalising the production and being able to directly control the activity of its employees, would by hierarchy eliminate these transaction costs and the uncertainty on the compliance of the contracts. By the way, these gains had to be weighed against the costs of direct coordination responsibility and employee monitoring in the production process.

Moreover, these market functions of intermediation and internalisation within the platform can be associated to the practice of the classical functions of the company hierarchy, such as: work organisation and the direct algorithmic control in real time; schedules and remuneration conditions, work evaluation, by imposing on self-employed workers a subordinate situation quite similar to that of the wage labour. Unlike *Airbnb*, this status of subordination becomes all the more evident in the so-called online job platforms like *Uber*, *Deliveroo* and *Foodora*, where the algorithm not only fixes the commissions but also the prices, actually determining, as it has been said, the split of added value between wages and profit.

The algorithm also significantly determines time slots, tasks execution times, drivers' and the deliverymen's ratings, and, if certain conditions are not respected, the service provider only risks being deleted from the platform – a deletion which is basically a disguised form of dismissal at no cost to the company.

Finally, it can be said that in many ways the digital modernity of the platforms renews those extreme exploitation forms belonging to the old *putting-out system* or *domestic system* (also called the *workshop system*) model which, at the beginning of industrial capitalism, had opposed capitalist merchants and artisans working at home (Vercellone 2007; Acquier 2017). This new model probably eliminates some of the limits leading to give up this productive model in favour of the factory, because it gives the platforms the possibility to exercise a precise and real time algorithmic control of the independent artisans' activity and the productivity.

However, it also exacerbates the stress linked to the social regression in workers' rights: today, as at the beginning of the 19th century in England, they could find one of its forms of expression in the renewal of the cooperative movement and a new platform Owenism.

1.4 The hybrid model of Amazon: labour and Big Data in the 'monstrous e-commerce'

The *Amazon* model belongs to the category of e-commerce platforms born before the Nasdaq crisis. It can be considered a hybrid model because it has been

combining tangible and intangible economies of scale and network economies since it was founded in 1994. In addition to this, it was grafted an increasingly aggressive diversification strategy related to its historical core business: online book sale. It aims not only to consolidate its leading position in e-commerce, but to complement its market power by expanding in two complementary strategic fields:

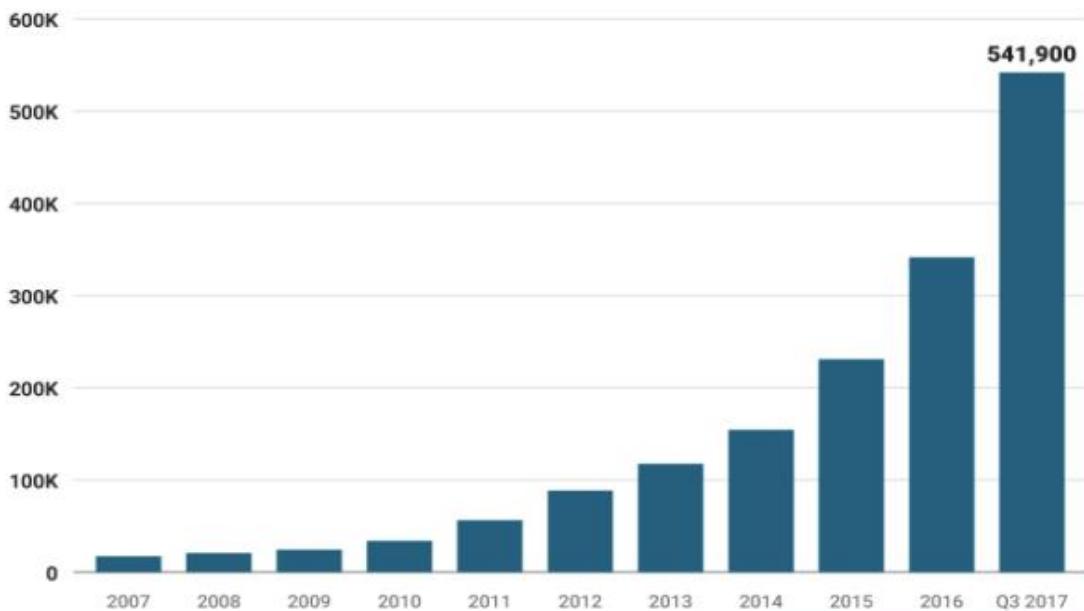
- Traditional city distribution by acquiring the *Whole Foods* organic supermarket chain;
- Penetration of the Cloud and Cloud Computing services.

The power of this interpenetration between tangible and intangible economy is evident from a quick analysis of the main indicators concerning both the nature of the activities, the importance of fixed assets and the number of employees working at *Amazon*.

It is estimated that *Amazon's* logistics activities are based on a surface area of approximately 140 km², almost the equivalent of the Paris and Lyon areas combined (Lévéque 2018). This surface is occupied by a multitude of warehouses and distribution centres spread around the world and sending something like 1.6 million parcels, shipped each day. All this obviously requires the mobilisation of a large volume of workforce. *Amazon* had more than five hundred thousand employees in 2017, thanks to the strong job growth occurred between 2015 and 2017, as a result of the expansion of its sales and the acquisition of *Whole Foods* (see Graph 1.1).

AMAZON'S WORKFORCE GROWS AT AN UNPRECEDENTED RATE

Number of Amazon.com employees worldwide (at the end of the respective year/quarter)



SOURCE: Amazon.com; *Excludes contractors and temporary personnel

statista | BUSINESS INSIDER

Mike Nudelman/Business Insider

Graph 1.1 : Amazon's Workforce Growth at an unprecedented rate

Source : Business Insider¹⁶

Although 500,000 jobs are four times less than its competitor *Walmart*, the main U.S. supermarket chain, we have here one of *Amazon's* most specific features, features to be considered specific if compared to other platforms characterised by a striking gap between turnover and a very small number of employees.

Despite the massive employment and the magnitude of the tangible economy, *Amazon's* profit model largely relies on iron laws imposing themselves on all the actors of platform capitalism: increasing and making network economies profitable at all costs by using the pioneer and *Winner-Take-all* laws.

This explains *Amazon's* choice to adopt a growth policy through which the realisation of short-term profits is deliberately sacrificed to the advantage of a strategy aimed at gaining an enduring monopoly position. This has resulted in a

¹⁶ Cakebread C. (2017), *Amazon is now the size of a small country*, Business Insider, 27/10/17. URL: <http://www.businessinsider.fr/us/amazons-workforce-grew-at-an-unprecedented-rate-in-2017-charts-2017-10>

significant gap between, on the one hand the evolution of market capitalisation and turnover and, on the other, the evolution of profits (see Graph 1.2).

In this regard, the analysis of main financial indicators is also very clear.

Introduced on the stock market in 1997, *Amazon* has been able to reach ten years later, in the second half of 2017, \$ 824.790 billion in market capitalisation, the highest in the world, behind *Apple*, *Alphabet*, *Microsoft* and *Facebook*.

Its turnover (see Graph 1.2) also grows impressively, literally leaping after the 2008 crisis, when it reaches for the first time, in 2011, \$ 50 billion. Then, between 2011 and 2017, over six years, the amount of incomes becomes almost quadruple, reaching nearly \$ 200 billion in annual receipts.

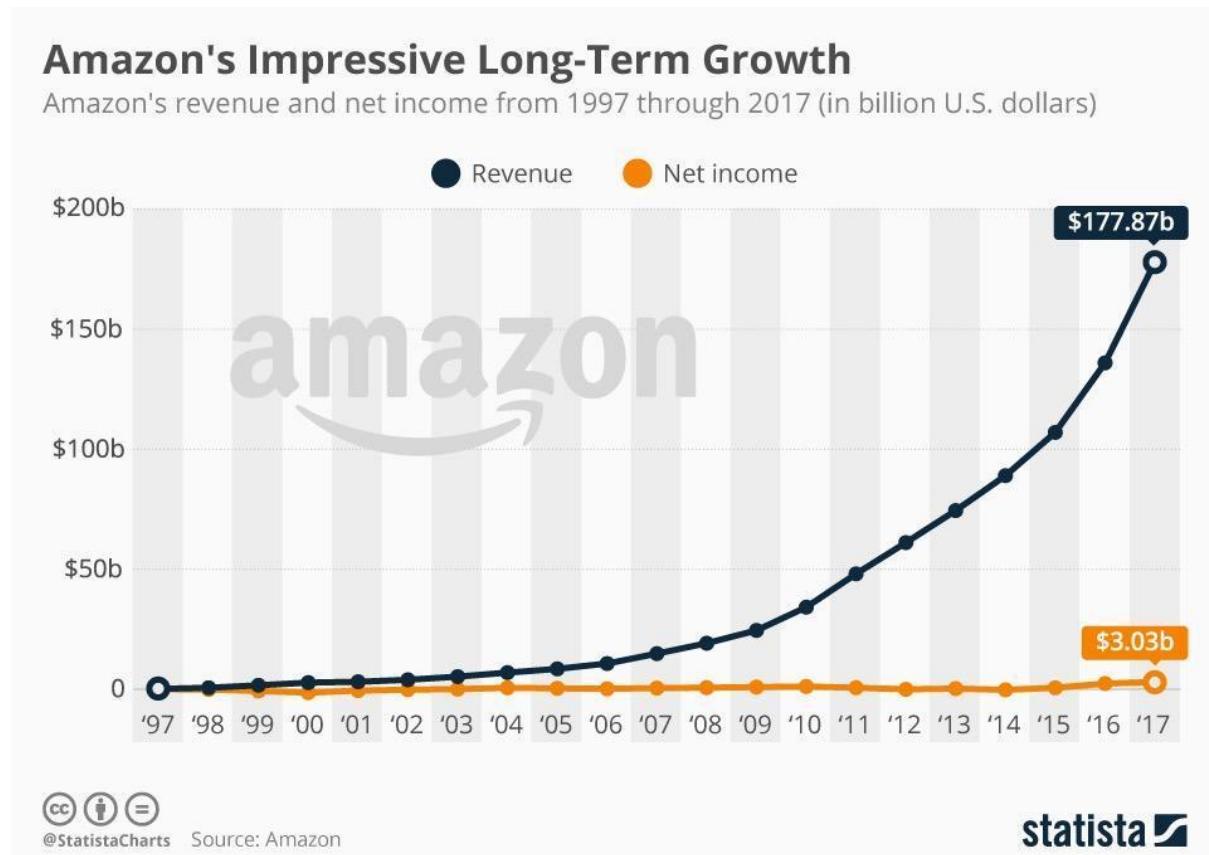
But the profits did not show up. It was only around 2004-2005 that *Amazon* started to make very small profits, but they then stagnated and they were sometimes even negative, so that magazine *Atlantico Business'* authors, in an interview in 2016 with Professor of Economics Nicolas Colin (University of Dauphine), were doubtful about this company that “apparently defies business laws. The company shows almost no profit, or even negative profits. But not only does its stock market price go up - even when other technology values collapse - but its growth also seems exponential, and the company keeps on taking over new markets”¹⁷.

After not paying attention to criticisms for years, according to some observers, Bezos' will to sacrifice short-term profits in the name of a long-term success appears to finally give some fruits (Lévêque 2018).

During 2016 and 2017, net income was constantly positive and went from \$ 2.37 billion in 2016 to \$ 3.03 billion in 2017 (see Graph 1.2). This is the biggest annual profit ever recorded by *Amazon* in its history. However, this profit is still tiny if compared to the company's revenues, which amount to nearly \$ 200 billion, and it is almost

¹⁷Atlantico (2016), *Le graphique qui explique le business model magique d'Amazon (et le gros risque qui pourrait poindre)*, 26/03/16. URL: <http://www.atlantico.fr/decryptage/graphique-qui-explique-business-model-magique-amazon-et-gros-risque-qui-pourrait-poindre-2639600.html#Vky5RF6W6dVXUqvxx.99> ; Atlantico (2016), *Enfin des profits record pour Amazon : Jeff Bezos vient-il de démontrer qu'il avait réussi son pari de réinventer le capitalisme?*, 01/01/16. URL: <http://www.atlantico.fr/decryptage/enfin-profits-record-pour-amazon-jeff-bezos-vient-demontrer-qu-avait-reussi-pari-reinventer-capitalisme-christophe-benavent-2518514.html#ZWIAA0C0Uw6jU8wh.99>

insignificant if compared to the huge profits earned by other GAFAM members, *Apple*, *Facebook*, *Google* and *Microsoft*.



Graph 1.2 : Amazon's Impressive Long-Term Growth
Source : Statista¹⁸

Focusing on short-term growth: Amazon's e-commerce strategy in the Cloud

How to explain, then, the fact that financial markets still find Amazon trustworthy? One of the reasons is that its huge market capitalisation makes it 'too big to fall', even more than *Uber*. But a deeper reason lies in the belief that Bezos' strategy, based on focusing on short-term profit, will finally prove successful. In other words, the monstrous *Amazon* will succeed in demolishing its competitors by gaining a stable and uncontrolled monopoly position, like *Google*.

¹⁸ URL: <https://www.statista.com/chart/4298/amazons-long-term-growth/>

Let us remind of *Amazon* model's origin and evolution, as to better illustrate this argument and the reasons why markets believed it would win this bet.

At the beginning, in 1994, e-commerce was still embryonic: the business model had still to be pictured. At the time, several *start-ups* of the *New Economy* had bet on the sale of intangible contents. The number of clicks on a start-up site or platform was enough to expect as many market opportunities. This was not the case, especially for companies offering intangible content or services that were on the way to become fee-charging (Boyer 2002). Many of these start-ups will dramatically fail during the Nasdaq crisis and the success of the two-sided 'merchantable gratuitousness' model, based on free services and advertising revenue, will start from this precise observation.

Amazon founder and CEO Bezos's luck, or intelligence, consisted in early understanding this vulnerable aspect of digital economy and in organising its company around two priorities.

- The first one was to choose, at the beginning, to focus its activity on the sale of tangible contents or products. The best products, at the time, were represented by books, still difficult to be digitally reproduced at zero marginal cost¹⁹. Initially, *Amazon* presents itself as an online bookstore, even though its activity would later be diversified and, in some fields, moves away from its original core business.
- The second priority was, of course, to design a digital platform capable of creating powerful network economies (for both users and sellers) by suggesting, quoting Jeff Bezos, "millions of titles - something purely inconceivable in the physical world". At a technological level, the 'weapons' picked up during this project were the celebrated and controversial *1-Click Patent* (registered in 1997) and a system of algorithms collaboratively running the customer-and-seller interface, enabling to follow Internet users' traces, to encourage them to buy by a recommendation system, while activating their collective intelligence for tasks such as book rating. During this process, Jeff Bezos was completely aware of the *Pioneer* and *Winner-Take-All laws*.

¹⁹ This is no longer the case, but at the same time the development of Digital Rights Management (DRM) techniques have found the '*parade*' in designing devices in order to drastically limit the possibility of making copies of digital works. Proof of this is that now *Amazon* itself almost always offers, in a Kindle DRM format, a low-cost alternative to the purchase of the book, dissociated from its classic material support typical of the 'Gutenberg galaxy'.

As Bezos' biographer tells us (Brandt 2012), he understood that it was necessary to be the first and the most powerful, which meant relentlessly investing, not worrying about profits, and indeed *Amazon* was in permanent deficit.

To do this, Bezos led the company's development forcefully, by multiplying the fundraising in order to make a huge investment effort in logistics and the acquisition of other companies. And, to mention another remarkable fact, for a long time, *Amazon* did not pay dividends to its investors, contrary to what is prescribed by the dominant doctrine of value creation for the shareholder, emerged in the 1980s and 1990s, in defiance to the managerial capitalism of the Fordist era.

In 2000, the Internet crisis caused a stop to this policy of taking over markets. After a few months during which nobody could tell what would be of the start-up, Jeff Bezos came back, claiming he would make the profitability of his company sure - while keeping investing, but at a slower pace (Brandt 2012). But, rather quickly, the growth strategy of the company aimed at gaining a monopoly position and at making the network economy and *Winner-Take-all law* come true, restarts with a redoubled effort: between 2003 and 2018 there were almost forty acquisitions and also the investment in the creation of new platforms like *Mechanical Turk*, the micro-job market launched by *Amazon* in late 2005 (see the section on *digital labour*) and *Amazon Web Services* (AWS), created in 2006, dedicated to cloud computing services for companies, which since 2015 represents 7 percent of *Amazon*'s revenue and the company's leading source of profit.

Amazon's Competitive Advantages: Lower Prices and Costs in Economies of Scale and the Long Tail Effect

In this growth process, *Amazon* links a strictly digital economy logic to a more classic industrial-oriented logic based on work standardisation and the exploitation of economies of scale strengthened by the long tail effect.

A key advantage of the *Amazon* model is the ability to combine network economies typical of platforms with powerful economies of scale (reducing fixed costs being spread over the growing volume of the activity).

Economies of scale are, in turn, multiplied by the possibility of benefiting from the so-called ‘long tail effect’, that is to say the ability to exploit the reduction of costs (and therefore prices) related to the sale of a wide range of products. In other words, the *Amazon* model relies not only on highly demanded goods, but also on goods produced in small series to fit niche markets. This possibility comes both from a centralised platform enabling all books and other products to be displayed in a showcase, and from the power of logistics and warehouse sites. A significant example of the long tail effect is, for instance, the classic book trade or video rental.

A traditional shop is limited by the width and length of shelves, often paid in the form of rent. To maximise his profits, one has to expose only the most wanted titles, in order to make optimal use of the space available. For example, a classic bookshop, but also an e-commerce site that does not have *Amazon*'s storage capacity, tends to sell only the most popular products. The key variable of the long-tail model is the cost of storage and distribution. When these costs are low, thanks to the centralisation of a wide range of products released by the platform and reducing the costs of storage and distribution, it is profitable to sell low-demand products as well; instead, when storage and distribution are expensive, only the most popular products will be sold.

Giving easy and low-cost access to niche products also makes it possible to expand the market by attracting a considerable number of consumers interested in this varied range of goods.

Amazon, or *Netflix*, instead, have centralised warehouses that enable them lower storage costs. The result is that the cost of distribution is the same, for both popular and less popular goods.

These competitive advantages related to the integration of economies of scale also make it easier for the Seattle-based company to practise dumping policies. Give-away prices, sacrificed margins and even sales at a loss, all in order to defeat a competitor, then a rise in prices and conditions of purchase, which become less favourable for the consumers. To better understand the power of these monopolistic dumping strategies of *Amazon*, it is important to recap, taking into account the

analysis of François Lévéque (2018), the three main situations in either physical or digital distribution.

The first is partial vertical integration by pressurising the subcontractors, when the distributor defines the characteristics of the product and owns its brand. This is the model of many supermarkets like *Walmart* in the United States or *Carrefour* in Europe.

In the second case, instead, the distributor acts as a reseller of products purchased from third parties.

Finally, the third case is a situation where the distributor is a Marketplace, pure intermediary between sellers and buyers on their site or at their store.

Amazon exploits these three situations, but the last two in particular. It is both a reseller and a marketplace. Historically, he was only an online bookshop, but today, one-fifth of *Amazon's* sales revenue²⁰ is earned by third-party sellers, or partners paying a commission. However, they account for half the number of the transactions, meaning that one out of every two products sold on *Amazon* was not bought by *Amazon*.²¹

This allows to better understand how *Amazon* manages to maximise the long-tail effect (combining economy of scale and economy of scope) in order to subordinate and then destroy potential competitors. How? First of all, the platform is characterised by self-sustaining and collective network economies: the more partner-sellers on the site, the more interesting it is for consumers and, equally, the more visitors to the site, the more interesting it is to be there as a salesman (Lévéque 2018).

This is the famous device of two-sided markets leading monopoly trends in the platform economy. But *Amazon* is not a simple two-sided market. Indeed, the risks are not the same when the retailer has bought the product. In the case of unsold, it is the one who has to take responsibility for losses, by lowering prices, for example, because he is the one fixing them, unlike the case of the platform that acts only as intermediary. In short, there is a huge difference between having a purchase

²⁰ Source: <https://www.sellbrite.com/blog/how-does-amazon-make-money/>

²¹ Source: <https://www.statista.com/statistics/259782/third-party-seller-share-of-amazon-platform/>

agreement with a resale supplier and a partnership agreement to sell in its marketplace. The economic theory of contracts shows how these two options differ in terms of risks, incentives and investments.

So, it is clear that the decision made by a company of being either a reseller or a marketplace is strategic. It is a negotiation carried on by *Amazon* through a sophisticated policy. The choice to act as distributor-retailer is particularly preferred if the products are popular. For instance, successful DVDs are most often purchased and resold by *Amazon*. But, instead, less popular items are more frequently sold by third-party partners (Hagiu and Wright 2014). In short, the famous long-term effect is based on an asymmetrical strategy depending on the market power available to the companies using its services.

This is confirmed by three other aspects of *Amazon's* market policy.

- 1) *Amazon's* opening to direct reselling is focused on products characterised by low delivery costs. In any case, it does not result in a price increase, thing depending on a dumping policy that often ends up in discouraging, if not destroying, old competitors-partners.
- 2) *Amazon's* opening to direct selling is less likely for the products whose storage, packaging and delivery is already handled by them. For these products, *Amazon's* cost/benefit balance is different, because its appearance would result in losing revenue paid by its partner for these services in addition to losing its marketplace commission.

In these negotiations, the choices made by *Amazon* are obviously based on the algorithmic mastery of mass of data, enabling the platform to know almost everything about its partners' sales and their products: prices, sizes, destinations, terms and delivery costs, customer ratings, and so on.

- 3) Finally, *Amazon* has adopted an increasingly aggressive policy, including towards its major partners. For months now, the online bookseller has been pushing *Hachette*'s American subsidiary, to lower digital books' prices and grant it higher commissions, not hesitating to threaten it with the risk of French longer delivery times or blocking of pre-orders for its products. It was the same with *Disney*, which saw its pre-order of films blocked. Nineteenth century North-American authors,

including Stephen King, have chosen to speak out against these practices in *The New York Times*, and they were followed by 1.000 German authors. If *Amazon* accepts the risk of ruining its reputation, it is because it wants to increase its profitability, to be maintained at its lowest by its investments in order to destroy its competitors²².

Productivity related to the market size and resources of a technical-Taylorist labour division

Speaking of its profit model, as well as of its production organisation model, *Amazon* is therefore a platform combining the most advanced digital economy to modern forms of Taylorist labour organisation, particularly as far as logistics tasks are concerned. This ‘double face’ makes *Amazon* a clear example of the combination of cognitive division and a Taylorist division of work based on the division and standardisation of tasks (Mouhoud El and Plihon 2009). Let us analyse these two aspects and their combination.

On the one hand, as far as the governance of information platforms is concerned, *Amazon* employs a highly specialised work in the programming functions of algorithms and R & D.

This central role of cognitive work is particularly evident in the development of *Cloud Computing* and *Artificial Intelligence* services provided by its subsidiary *Amazon Web Services* (AWS), which eleven years after its launch remains the leader in the sector with an estimated 44 percent market share.

On the other hand, *Amazon* applies and experiments algorithmic devices and artificial intelligence in the organisation of execution work in logistics. *Amazon* indeed renews a management of neo-Taylorian type based on time and movement direct digital control, enabling to detect not only the best gestures, but also to recommend them when actually working. To do this, *Amazon* employees wear a scanner attached to the wrist, which turns green when the rates are respected, red or black when they are not.

²² Alternatives Economiques #338, 01/09/14. URL: <https://www.alternatives-economiques.fr/e-commerce-amazon-ogre-affame/00049248>

This situation is not only responsible for musculoskeletal disorder, but also promotes anxiety: sleep disorders, burnout and depression are common disorders. These accidents and health problems cause a high turnover of employees, through dismissals for incapacity and conventional breaks. Also, depending on the period, the number of temporary workers can amount to two-thirds of the workforce.

In summary, as Smith had already pointed out, the size of Amazon's market enables it to exploit the three key advantages of the technical division of labour: the routine learning effects related to the specialised-task division, the reduction of idle time and the following intensification of work, as well as the possibility of changing the specialised-task division into automated work.

For Amazon, the key importance of these old industrial economy laws, linking the production size to economies of scale and to the productivity profits resulting from labour division, is apparently confirmed by its more recent strategy. Indeed, after managing to create more stable profits, even if in a still uncertain situation, Amazon has gone back to its strategy of aggressive expansion both in e-commerce and in well-established networks of commercial services.

To conclude, Amazon's hybrid model teaches us three main lessons:

- The first concerning how platform economy and algorithms are increasingly penetrating the tangible economy;
- The second concerning the increasing risk that this evolution represents, not only for Internet users' privacy but also for salaried workers;
- The third concerning the increasing dangers of a digital desertification of the metropolises, which would lead to the progressive disappearance of ordinary social places caused by e-commerce. This is one of the dark sides of the *Smart Cities*' dream that the major Internet platforms, Google and Amazon first, are eager to sell us.

1.5 Generalisation of the platform model: towards the nomos of the Cloud, the Internet of Things and the Smart Cities²³

In this section of the research we will linger in the critical analysis of those technological transformations that in the last decade, at an increasing evolutionary rate, have given a centralizing twist to the architecture and the political form of the Internet²⁴. The latter used to be a very decentralised and pluralistic system, based on the principle of the *network neutrality*. However, it has now been deeply altered.

This transformation has been supported by the appearance of capitalist platforms. In light of this, we talk about the generalisation of the platform model, which is influenced by two key factors related to each other: on the one hand, the frenetic increase in computing power of computer machines, owned by the biggest oligopolies of the Internet (Cloud computing); and on the other hand, the exponential growth of digital data (*Big Data*), generated either directly in the virtual space or indirectly in the physical space (*Internet of Things*).

If these Internet re-centralization processes have been going on for long time « *with the aim of recovering in it the supremacy of mercantile mediation and/or the bureaucratic-administrative control of the public* » (Vercellone et al. 2017: 170), only now they seem to make a real leap in scale in ‘disruptive’ terms, to the point where some authors talk about a new phase of the Internet (Mosco 2016).

To our mind, this ‘new Internet’ looks like not only a system leaning towards the economic and political power, but also an “apparatus for data and value capture” (Deleuze and Guattari 1980; Pasquinelli 2014) - produced at that time by collective intelligence.

If the original Internet was basically democratic, pluralist and decentralised, on the contrary the new Internet is organised in an increasingly hierarchical form. It

²³ Written by Brancaccio F. e Vercellone C.

²⁴ It should be remembered that the architecture of the network has a crucial role in the regulation of the behaviour of individuals within the Internet, as noted by lawyer and theoretician Lawrence Lessig. For Lessig, there are four elements that define the ‘normativity’ of the Net: the architecture, the market, the legal norms set by the countries and social conventional rules.

supports new processes of appropriation of ownership of the means of production (the powerful computational structures gathered in the data centres), algorithms and data, which - as we have stated above - are the main raw material of platform capitalism:

The plurality of the servers representing the basis of the original Internet has developed into a global and centralised system made of data centres, which contain tens or hundreds of thousands of interconnected servers mainly used by private companies and by state, military and intelligence agents (Mosco 2016: 255).

There are three closely interconnected systems that build this new structure: a) the *Cloud* (in the dual articulation of the *cloud computing* and the *data centre*); b) analysis and extraction techniques for *Big Data*; c) its extension through the Internet of Things. The safety of these three systems affects simultaneously the organisation of the cyberspace and the physical space. In particular, it has to do with flows and strategies for city logistics, taking into account the *Smart City* model: utilities, mobility, resource consumption and social policy.

As a first step, it should be noticed that we have been experiencing and using these three technologies for a while in our daily lives.

For example, we use the *Cloud* to check our inbox, such as *Gmail*, or when we share large files, through *Dropbox*, or even when we save on *iCloud* photos and videos taken with the iPhone, paying a monthly variable fee, depending on the amount of space required.

We get in touch with *Big Data* every time we receive personalised advertisements, which are based on a tracking system of our activities on the Web, such as a search on *Google*, or content posted on *Facebook*.

We 'use' the *Internet of Things* when we open applications on the Smartphone, such as geo-location services or applications to calculate the best route from the current position to a desired destination, or by monitoring our sports activities. The millions of sensors installed on every corner of the world, on animals, on plants, in the streets of our cities or in drones, in cars and in the latest generation of appliances, are less conspicuous. All of these interconnected objects register and sometimes deal directly with an enormous amount of digital data in real time. They are related to

individual or social group behaviours, environmental or atmospheric phenomena, and so on.

The interconnection of these three systems has allowed « *the establishment of an economy of storage spaces which gave rise to a rapidly growing industrial sector, relying on companies that offer storage solutions, IT services and which sell customer data to other companies specialised in the marketing of goods and services* » (Mosco 2016: 255).

It is also important to underline that the data we produce every day are not only sold for advertising purposes. *Cloud computing technologies* and the construction of large data centres have also encouraged their sale to government agencies for surveillance purposes, such as the NSA (National Security Agency) and the Central Intelligence Agency (CIA), who work closely with companies like Amazon and Google.

In light of this, it is therefore necessary to dwell more in detail on the ‘breaking’ effects of this three technologies’ interconnection, analysing them one by one.

Cloud and Data Centres

In Computer Science, the word *cloud* means a particular space for archiving, processing and sending data at *distance* called *cloud computing*. It is a form of ‘advanced-technology tertiarisation’: companies rely on a specialised provider for the management of a series of IT resources and services (software, computing machines) provided via the Web through an outsourcing contract. All companies do not cover any software and hardware license costs; they usually subscribe for them. So, it is the service provider being responsible for the costs of the infrastructures and the IT licenses necessary to manage and distribute the services depending on the request (*on-demand*) and according to the pay-per-use formula.

These services are described in specific fixed-fee contracts, the amount of which changes depending on how much and long they are used. Cloud supporters plan for the computer science the same model already experimented by the mobile, press and television operators: the subscription.

The economic model is based on the transformation of an investment into a rent: « *it is about proposing to companies to recover part of their IT costs - storage of data and calculation power [...] to transform them into an income for the data center* » (Carnino and Marquet 2018: 37). The Cloud is a strategic market for Internet oligopolistic actors: « *having this type of mass equipment is one of the conditio sine qua non to occupy nowadays a central position in the Internet economy* » (Smyrnaios 2017: 79). Between October 2016 and September 2017, the Cloud market reached \$ 180 billion, an increase of 24 percent over the previous year²⁵.

Newspapers give us more and more information about this new frontier of capitalist accumulation, using expressions - not entirely metaphorical - such as 'the battle of the Cloud'²⁶ or as the conquest of the 'promised land'²⁷. This battle involves the main oligopolistic actors of the Internet, such as *Amazon, Google* and *Microsoft* (but also *IBM, Salesforce, Cisco*, and *China, Alibaba*) and major government agencies, such as the NSA and the CIA.

Google, Microsoft and *Amazon* have the most powerful data centres with a number of servers that will exceed one million for the first one, and approaching one million for the other two. *Facebook* and *Apple* follow with more than two hundred thousand servers each.

In terms of providing services and computing services to third parties, *Amazon* is the world's leading player in this sector, through its *Amazon Web Services*. It is a growing part of its turnover and has in its portfolio clients like *Netflix* or the U.S. Administration. More specifically, according to data from February 2, 2018 provided by *IlSole24Ore*, *Amazon* occupies 40 percent of the Cloud market, ahead of *Microsoft* and *Google Alphabet*. *Amazon Web Services* saw revenues rise by 45 percent in 2017

²⁵ The Cloud services market grows three times faster than cloud computing materials and infrastructures. See: <https://www.zdnet.fr/actualites/2017-le-marche-du-cloud-a-180-milliards-de-dollars-en-croissance-de-24-39862336.htm>

²⁶ See: *The Battle of Clouds*, The Economist (2009), 15/10/09. URL: <https://www.economist.com/leaders/2009/10/15/battle-of-the-clouds>. Marin J. (2017), *Amazon veut gagner la bataille du cloud*, Le Monde, 02/12/17. URL: https://www.lemonde.fr/economie/article/2017/12/02/amazon-veut-gagner-la-bataille-du-cloud_5223685_3234.html

²⁷ Nicolas P. (2018), *La bataille des services fichiers cloud*, Le Monde Informatique, 02/07/18. URL: <https://www.lemondeinformatique.fr/actualites/lire-la-bataille-des-services-fichiers-cloud-72128.html>

(\$ 5.11 billion) and operating profits rose by 46 percent (\$1.35 billion)²⁸. Microsoft Azure is the world's second largest provider of IT services (in 2017, sales of Azure services grew by 90 percent)²⁹. Google is at the third position.

Computer Science was originally founded on the sharing of information, which were basically 'stored' on autonomous supports and owned by individual users - hence the definition of personal computers. Instead, the *Cloud* pushes users towards a level of distance sharing information in near-real time, thanks to the strengthening of telecommunication technologies and network infrastructures. Google, as announced recently in its official blog, has invested 30 billion dollars for the 'conquest of the Oceans'³⁰, and to close the gap that separates it from Amazon and Microsoft.

The goal of this huge investment is the construction of three new submarine cables (in collaboration with *TE SubCom*, *NecCorp* and *RTI-C*) in order to integrate five regions in its *Cloud* network: Chile-Los Angeles, Denmark-Ireland, United States-Hong Kong-Guam. The cable between Chile and Los Angeles, called 'Curie', will become the largest 'data highway' for Chile and will have the function of 'covering' the whole Latin America³¹.

With these new technologies, the access and the sharing of information become so omnipresent, available in every place, at any time and with any device. The *Cloud* is thus presented by its supporters as the 'natural' fulfilment of the Information Society paradigm. This perspective, which is based on the close interrelation amongst technologies, noosphere and augmented reality (Eychenne and Cointot 2014),

²⁸ Amazon's total revenue grew 38 percent to € 60.5 billion the last year. It is estimated that for every dollar spent by the Americans, 40 cents pass from Amazon. The three main sectors that have allowed this growth are: the control of the three-quarters of the smart-speaker market, cloud computing and the absorption of Whole Foods supermarkets. See: Valsania M., *Apple e Amazon, utili record per 22 miliardi. Alphabet cresce, ma inciampa su tasse e costi*, IlSole24Ore, 02/02/18. URL: http://www.ilsole24ore.com/art/finanza-e-mercati/2018-02-02/apple-e-amazon-utili-record-22-miliardi-alphabet-cresce-ma-inciampa-tasse-e-costi-064420.shtml?uuid=AEcejEtD&refresh_ce=1

²⁹ Weinberger M. (2017), *Amazon's \$18 billion cloud business continues to crush Microsoft and Google — here's the latest scorecard for the cloud war*, Business Insider, 26/09/17. URL: <http://www.businessinsider.fr/us/amazon-web-services-is-battling-microsoft-azure-and-google-cloud-2017-10/>

³⁰ Mastrolilli P. (2018), *Google alla conquista degli oceani*, La Stampa, 5/03/18. URL: <http://www.lastampa.it/2018/03/05/esteri/google-all-a-conquista-degli-oceani-pronte-tre-nuove-reti-sottomarine-sq0SMrKwvobmcqGhFIFnTI/pagina.html>

³¹ Licata P. (2018), *Google sponge sul cloud: cavi sottomarini per servizi super-veloci*, Corcom, 17/01/18. URL: <https://www.corrierecomunicazioni.it/digital-economy/cloud/google-sponge-sul-cloud-cavi-sottomarini-servizi-super-veloci/>

presents the *Cloud* as the correlation of two technological trends that have emerged in the last decade: on the one hand the *social*, on the other the *mobile*.

From the recipients' point of view, it should be noticed that the 'technological conversion' to the *Cloud* does not only affect the single user who chooses services such as *iTunes*, *Google Drive* or *Amazon Cloud Player*, but also the growing companies - above all the SMEs - which decide to outsource the management of data storage as well as to pay for applications and calculation services' subscription.

The appearance of the *Cloud* is explained by computer scientists using the metaphor of electricity - referred to data centres and power stations. Electricity consumers do not get the energy source themselves, but they do so by connecting devices, thanks to standardised plugs and power adapters. Information technology has a good chance to share the same destiny: instead of processing the information from our own systems, we will delegate more and more activities to the storage and calculation centres (Rivard 2012: 21).

It seems useful to have a closer look at two definitions in computer literacy, which are often used for promotional speeches aimed at facilitating the transition of companies to the *Cloud*. It is defined as the end of the 'self-produced' Internet or as the advent of a new infrastructure, thanks to which the user will have only a slight interface, while all the custody and data processing operations will take place *elsewhere*. Furthermore, the *Cloud* is shown as the fulfilment of 'dematerialised' computing and as the definitive transition of the information society from the earth to the *Cloud*. Indeed, "*from the ground to the cloud*" is one of the mottos of this technology (Thoreau 2014: 71).

Some authors affirm that this technology, combined with the Internet of Things, is already leading us towards a society in which proprietary relations will be definitively overcome, allowing the affirmation of an economic access paradigm of 'Collaborative Commons' and of the 'zero marginal cost society' (Rifkin 2015).

However, there is a lack of a realistic consideration of the social and property relations' changes in the Web. At the moment, the end of 'self-produced' computing is producing an impressive process of centralisation of the media production

(machines) and calculation (algorithms) as well as digital data (the raw material) produced by users.

The pay-per-use formula is possible because the biggest actors of the platform capitalism are increasingly concentrating *Cloud* ownership in their own hands.

In 2008³² at the dawn of this new technology, the founder of the *Free Software Foundation*, Richard Stallman harshly criticised the ideological question and the advertising campaigns aimed at presenting the *Cloud* as an ‘inevitable evolution’ of information technology and Internet infrastructure, inviting companies to not adopt it. According to Stallman, there were two main problems: on the one hand, the transition to *Cloud* computing - far from attenuating the commercial logic that had colonised the Internet for some decades - reinforced it, thanks to the ‘location’ system of services and licenses; on the other hand, there was a growing risk of dispossessing personal data, transferred to a ‘cloud’ owned by others - a phenomenon that renews property relations and, at the same time, threatens individuals’ freedom and privacy.

In light of this, Stallman has repeatedly invited users and businesses to store data on their personal computers or servers.

A few years later, at a ‘*Nuit Debout*’ gathering in Paris in 2016, he suggested a very effective formula: with the *Cloud*, it is not the user who has control of the program, but the program has control of the user; and it is the owner (of the *Cloud*) who has control over the program and the data produced through it. The *Cloud* is therefore, in Stallman’s opinion, a device ‘deprived’ of freedom and autonomy on the Internet, which introduces surveillance techniques much stronger than those experienced in the Soviet Union³³

³² ZDNet (2008), *Richard Stallman dénonce le caractère propriétaire du Cloud computing*, 30/09/08. URL: <https://www.zdnet.fr/actualites/richard-stallman-denonce-le-caractere-proprietaire-du-cloud-computing-39383753.htm>; Johnson B. (2008), *Cloud computing is a trap*, warns GNU founder Richard Stallman, The Guardian, 29/09/08. URL: <https://www.theguardian.com/technology/2008/sep/29/cloud.computing.richard.stallman>

³³ A summary of the intervention can be found at the following link: <https://blogs.mediapart.fr/jean-pierre-favier/blog/250416/richard-stallman-pionnier-des-logiciels-libres-la-nuit-debout>. Stallaman’s complete intervention can be downloaded from the NuitDebout Wiki page: <https://wiki.nuitdebout.fr/wiki/Villes/Paris/Numérique>

As far as the second ideological justification of the *Cloud* is concerned, it is based on the advent of a new ‘dematerialised’ computer science through the ‘*cloud*’. This means that the data centre is the second essential aspect of the *Cloud*, and that pushes us to redo the reverse path: *from the cloud to the ground*.

Vincent Mosco defines data centres not as simple ‘deposits’, but as real digital factories (Smyrnaios 2017) that store and process an enormous amount of data. For François Thoreau, in the same way the industrial society used to extract barrels of oil, the information society produces its data centres (Thoreau 2014).

More precisely, data centres can be defined as:

physical sites where the computer equipment and the technological devices necessary for their continuous operation are concentrated (frames and cable ducts, air-conditioning systems, air filtering, energy distribution, alarm and fire-extinguishing systems, surveillance with cameras and / or sensors, network inputs and outputs, physical security on the site (Carnino and Marquet 2018: 25).

However, they cause not only an indiscriminate consumption of soil in proximity of urban centres, but also enormous ecological impact problems. In short, we are exactly in the opposite direction of what has been defined as the advent of dematerialised IT.

Each data centre is made up of two parts: the part of the calculation machines is generally defined IT (Information Technology) and the rest is defined as ‘out-IT’. Together, IT and ‘out-IT’ make up what is called ‘infrastructure’.

The data centres are also divided according to their size: ‘micro’, ‘meso’ and ‘mega’ (Carnino and Marquet 2018: 28). Different types of economic activity correspond to different surfaces. For example, a data centre in a computer room in a university can occupy 30 square meters; Courneve’s data centre in the Parisian suburbs occupies 20.000; Apple owns one in Oregon of 330.000 square meters. The largest in the world occupies 6.3 million square meters and is installed near the city of Langfang in China.

The mega data centers are an exclusive prerogative of the biggest actors of the Web. They are usually built in exotic places or very far from the urban centres, so much

distant that they sometimes talk about ‘offshore platforms’. Some of them are in the San Francisco Bay, the caves of the Loire, Siberia or ancient missile launching sites. The data centres in urban centres, and especially in their suburbs, belong instead to the ‘meso’ or ‘micro’ categories, and mainly concern data processing that require a certain proximity to the network nodes (which are often used by banks and insurance companies).

Although there are data centres of different sizes, the most common strategy is to concentrate the *Cloud* computing technologies in large infrastructures, owned by Internet oligopolies. As shown in a 2010 study by *Microsoft* (Rivard 2012) - contained in a White Paper dedicated to this topic - in terms of economies of scale, the cost of computing deriving from a large ‘cloud’ size is considerably reduced compared to that produced by small ‘clouds’. More specifically, *Microsoft’s* ‘White Book’ states that the mega data centre produces an 80 percent reduction in total cost of ownership (TCO, Total Cost of Ownership) of machines: the combination of ‘large’ operations (connection pooling, data and service mutualisation in ‘multi-tenant’ mode), therefore, creates enormous economies of scale. A data centre of 100.000 servers has a TCO of 80 percent lower than that of a data centre made up of 1.000 servers.

Big Data

The second system that makes up the ‘new Internet’ is *Big Data*. In the first instance, *Big Data* refers to the processes and techniques of collection, storage and processing of a very large set of digital data, quite often of an unstructured quantitative nature. At the same time, with this term - and more specifically, with the expression *data mining* - we refer to the techniques of correlating data, in order to acquire information individuals’ behaviour and attitudes, and to elaborate on them *predictive analyses* (Bensamoun and Zolynski 2015).

This is the case of the *Amazon Machine Learning* algorithm, which aims to calculate in advance who will buy and what will buy, in order to optimise on the one hand logistics, and on the other to offer customers solutions and offers always more personalised. Amazon’s technique is based on predictive analysis, defined on the basis of the client’s history, its profile and other factors, such as lists of wishes and

products expressed in the past, as well as the time when the customer's pointer remains stopped on a certain object (before clicking it). The system does not expect the package to be delivered before it is ordered, even if Amazon does not rule out this 'goal'. For the time being, the predictive system serves to speed up the transfer of the object from one storage point to another so that it is closer to the customers' addresses when (and if) they order it.

Over the past fifteen years, we have moved from a context in which three-quarters of the data was produced analogically in a context where they constitute only 1 percent of the data produced. Therefore, the term *Big Data* applies to a voluminous amount of data, and voluminously means that it exceeds the human computing capacity. This is the first V, which indicates the *Volume* of *Big Data*. Then there are three more:

V for *Velocity*: the extreme speed with which we produce data at every moment of our daily life, at a speed that by far exceeds the time of human decision to learn its flow and calculate it.

V for *Variety*: the wide variety of available data and which makes possible their correlation (the scientists believe that variety and quantity of possible correlations will allow the phenomenon of 'serendipity', i.e. unexpected discoveries, in scientific research).

V for *Value*: *Big Data*, as we have already specified, are a source of value, a raw material that is transformed into economic value (as we have fully shown in the first part of this chapter).

Google has come to a turning point and a decisive acceleration as far as both the data mining and data extraction processes are concerned. Thanks to its search engine based on the Page Rank algorithm and its Web global indexing techniques, it has been the first to have to compare with a large amount of data, data correlations and with the limits of the 'traditional' data storage tools. The mathematical algorithm model of *Google*, until then used just a little in computer science, is the web link graph, made up of all the pages (nodes) and links (arcs) that form the web. It assigns a numerical value to each link (hyperlink) present in a World Wide Web document. The value of the *Page Rank* measures the importance of a

page. The link to a page counts as a support vote. The *PageRank* of a page depends on the *PageRank* of the pages linking to it.

Besides *Google Page Rank*, an enormous amount of data also comes from social networks. In 2017, *Facebook* has brought together more than 2 billion users and the *Facebook-based WhatsApp* messaging brings together about 1 billion. *Instagram* has been joined by 700 million users, *LinkedIn* by 500 (owned by *Microsoft*) and *Twitter* and *Snapchat* by about 300 million.

But what defines the peculiarity of *Big Data*, considering the Four V rule?

Variety and Volume determine that *Big Data* are free from the crucial notion in statistical science of ‘representative sample’. In fact, they do not give us a sample average, but tend to the descriptive totality of a set of behaviours and social relations, in order to acquire the most collectable data to be able to then correlate them. They thus challenge the method of random sampling, which has informed the science of statistics since its birth. They respond to Western societies’ tendency by reducing the risk to regulate complexity (Mayer-Schonberger 2014: 70).

As some authors show, *Big Data* are the basis of a new form of governmentality, the algorithmic governance. They are distant from our traditional statistical techniques based on ‘average’, ‘normality’ and ‘norm’: indeed, they try to capture the ‘social reality’ in a direct and immediate way, going towards a new ‘regime’ of digital truth (Rouvroy and Berns 2013: 165). Data mining reconstructs singular cases without referring to any ‘general norm’, but rather to a system of relations between different measures, irreducible to a ‘medium’. Together with the sampling method, the traditional ‘normativity’ of statistics (and consequently the ratio of causality) is thus overcome: *Big Data* do not explain why a phenomenon happens, but show us what happens, with the claim to achieve a greater level precision.

A sort of new ‘digital positivism’ (Mosco 2016), is the basis of a new technique of statistical government, as already anticipated by Michel Foucault in his course at the Collège de France of 1977-78 (Foucault 2004). With the advent of neoliberal policies, the monopoly of statistics on the side of public institutions has led to private use, and above all monopolised by companies that use them for commercial purposes

(Cardon 2015). The new techniques of statistical calculation « serve now less to represent what is real than to act on it » (*Ibidem*: 41).

As Dominique Cardon notes, the so-called *Big Data* ‘revolution’ is in the way they are calculated, more than in the accumulation of a large amount of data. In the author’s opinion, the advent of data-analyses led to three main changes in how our societies construct self-representations through numbers and figures: 1) the ‘measured’ subjects have turned into computers (i.e. the public institutions are no longer in charge of functions of calculation) 2) ‘pre-owned categories’ represent less and less individuals who singularise more and more 3) statistical correlations go no longer from the cause to the consequence, but they go back from the consequence towards the estimation of probable causes through correlations.

In light of this, Cardon (*Ibidem*: 18 ff.) distinguishes four types of digital calculation, depending on the position occupied by the machine and the calculation algorithm in relation to the world that it tries to ‘describe’, the Web: the measurements can be ‘on the side’ of the Web, or ‘above’, ‘inside’ or ‘below’. Let us have a closer look at the Cardon classification:

- a) ‘Beside the Web’: these are the audience measurements, which calculate the users’ clicks and order the popularity of the sites. These measures are still based on traditional calculation techniques, i.e. on the statistical sample (the classic example is *Google Analytics* or web advertising).
- b) ‘Above the Web’: these are the techniques of hierarchical site authority through hypertexts (this is the case, as we have seen, of *Google Page Rank*, which has paved the way for *Big Data*).
- c) ‘Inside the Web’: these are the measures of reputation - typical of social networks - which are aimed at enhancing the reputation of people and products (it is the case of *Facebook* and *Twitter*, which have contributed in relevant way to the quantitative jump of *Big Data*).
- d) ‘Below the Web’: these are the new predictive algorithms designed to record the traces of user behaviour, in order to personalise information (in particular advertising) and to predict their behaviour (as in the case of *Amazon Machine Learning*).

The analyses we have referred to above are useful because they show us not only the modification of the calculation systems in the last decades, but also the social conditions that have allowed their development. It is clear that it is society itself that tends to use calculation - statistics, reputation measures, and evaluations - as a form of measurement and organisation of social relations.

But we cannot absolutize the *Big Data* model and reach the conclusion that it will lead us to a form of government based on total calculation and to an entirely calculable and predictable society. In fact, these algorithms very often are wrong, and tend not to grasp the nuances and aspects of unpredictability that make up the sphere of individuals' desires and expectations, in their singular and collective actions.

Before setting up a new Leviathan and a great digital Panopticon, as we have deeply shown earlier in our analysis, the algorithms are for the actors of platform capitalism: the main fixed capital of the capitalist platforms and the *Big Data* production of the raw material from which they continuously extract value.

As Matteo Pasquinelli (2009) has observed, too often there is a tendency to criticise the *Big Data* model and the algorithms on the 'bio-political' level, showing how it introduces new forms of surveillance and control, while the 'bio-economic' side of the problem is forgotten. In the case of *Google*, for example, « *is not simply an apparatus of dataveillance from above but an apparatus of value production from below* » (Pasquinelli 2009: 155). To the author, even the alternative digital models often underestimate the problem of the 'network value' production. On the contrary, a political response to *Google's* monopoly in the algorithms' field can be imagined only by focusing on the problem of the production of value (and added value) of the network: « [...] *also the new fashionable schools of peer-to-peer cooperation and internet-based 'social production' will fail to represent a decent political proposal until they address the issue of production and accumulation of Network surplus-value*» (*Ibidem*: 161).

The *Internet of Things*

We have already observed how the evolution of Google's algorithm, *PageRank*, and the following appearance of Web 2.0 and *social networks* has promoted the advent of *Big Data*. Together with these major Web innovations, we have to consider the 'tangible' side of data spread, today called the '*Internet of Things*'.

The data, indeed, come from different sources: Internet, social networks, messaging services, smartphones, GPS, sensors and other connected devices. These data collection techniques also fuel the *Smart City* model (which we will discuss in the second chapter, with reference to *Open Data*).

The *Internet of Things* presents itself as a sort of version of the current Internet extended to the set of connected devices which is able to send information, directly or indirectly, to the Internet itself (Weill and Souissi 2010: 90). Originally, the *Internet of Things* started from *mobile* technology. Then, this technology has developed thanks to the spread of Smartphones and Pads. The *Internet of Things* represents, indeed, the evolution of the *Machine-to-Machine* (M2M) technology developed in order to control machines at a distance. At the same time, its appearance was supported by the introduction, in 2000, of the IP (*Internet Protocol*) on mobile networks.

If, at first, the Internet was based on the connection between people, through a *personal computer*, the *Internet of Things* represents, at the same time, a connection between men and machines and between machines and machines. A 'connected device' consists of three fundamental elements: a) collected, stored or processed data; b) algorithms for processing data; c) the ecosystem in which it interacts;

As Imad Saleh points out, starting from these technological innovations the Internet is, therefore, becoming a '*HyperNet*':

A network consisting of a multitude of (physical, documentary) artefacts, (biological, algorithmic) actors, scripts and concepts (linked data, metadata,

ontologies, folksonomies), called the Internet of Things, which connects billions of human beings, but also billions of objects (Saleh 2017³⁴).

The *Internet of Things*, in the author's opinion, shows us the third stage of the Internet network's evolution: from a network of computers to a network of personal computers, and then to a roaming network integrating communication technologies.

According to the Cisco White Paper³⁵, the *Internet of Things* represents an economic affair of \$ 14.4 trillion dollars for businesses and other economic actors in the next ten years. This is not the value resulting from the sale of 'communicating devices', but from the integration of IoT into the company in order to transform, automate, speed up processes, use resources better, improve productivity and provide better products. Cisco defines this convergence of objects, processes and people as the *Internet of Everything*.

Today, the *Internet of Things* affects, on the one hand, the organisation of urban services; on the other hand, the *Industry 4.0* model and logistics presenting a neo-Tayloristic man-machine relationship. But it tends to invest in many other sectors: healthcare, remote surveillance systems, connected farming aimed at optimising water use, connected vehicles aimed at improving urban traffic management, connected electromagnetic devices aimed at reducing electricity consumption and distribution, and so on.

The introduction of the *Internet of Things* is seen by some authors as one of the main ways in which a new intelligent Internet infrastructure, once established, will give life to the Third Industrial Revolution, where companies will be capable of connecting *online* neighbourhoods, cities, regions, continents, what some define a global neural network (Rifkin 2015). The *Internet of Things*, in Rifkin's opinion, consists of three components: an Internet of communications, an Internet of energy and a logistics Internet, all « working together in a single operating system, continuously identifying ways to increase thermodynamics efficiency and

³⁴ Available at : https://www.openscience.fr/IMG/pdf/iste_idovln1_1.pdf

³⁵ Consultable at the following address: https://www.cisco.com/c/dam/en_ca/solutions/executive/assets/pdf/internet-of-things-fr.pdf

productivity in the management of resources, in the goods and services creation and distribution, and in waste recycling » (*Ibidem*: 12).

Also in this case, it should be noticed that the author's analysis is characterised by a certain technological optimism (and determinism), in which the conception of technology is separated from an analysis of social balance of power. The use of technology is never neutral, but it belongs to social, economic and political fields. The productivity efficiency attained thanks to the improvement of interconnected logistics, which Rifkin is praising, at the moment is also taking the shape of neo-Taylorism and worse working conditions.

In other words, the *commons* of the *Internet of Things* that Rifkin describes will not spontaneously arise from technology, but from a social construction that will change the technology and the relationship between human beings and the algorithmic machines.

Amazon, for example, has patented a bracelet that remotely monitors the position of the worker's hands and guides them by vibrating if the movement does not meet the company's standards. More than replacing men with robots, as the magazine *GeekWire* observes³⁶, we are in front of an automation of the man, who works next to a real robot, performing repetitive packaging tasks, optimising times. This 'innovation' introduced by *Amazon* in order to control of the timing of logistics workers' tasks, is part of the general worsening of working conditions and salary. All this happens in an algorithmic way, as in the case of about half a million crowd-workers, recruited on call thanks to the algorithm *Amazon Mechanical Turk* in order to perform hyper-repetitive tasks (see Ciccarelli 2017: 23).

But some phenomena of self-organisation led by trade unions and other ones of new mutualism from the bottom-up are more and more beginning to oppose these new control devices limitations of the workers' autonomy, which is something that we will analyse in the second section of this report.

³⁶ Boyle A. (2018), *Amazon wins a pair of patents for wireless wristbands that track warehouse workers*, *GeekWire*, 30/01/18. URL: <https://www.geekwire.com/2018/amazon-wins-patents-wireless-wristbands-track-warehouse-workers>

The two faces of the new Internet: data extraction and the *Cloud law philosophy*

The entanglement of the three technological systems that we have analysed relies on a double *structural* aspect of platform capitalism.

On the one hand, *Cloud computing* technologies show us the *extractive logic* that characterises the so-called GAFAM related to social data produced by users. On the other hand, the progressive concentration of these technologies in *data centres* gives us an idea of the *intangible* side of platform capitalism.

Indeed, the main Internet actors have not only gained economic dominant positions, but are at the same time globally reconfiguring the relations of sovereignty. This is what Benjamin Bratton, with a very evocative formula borrowed from jurist Carl Schmitt, defined as a new *cloud nomos* (Bratton 2015). With this expression, the author wants to describe the intertwining of the traditional powers of sovereign states, of supranational entities like the IMF and the World Bank, and the new power represented by the great actors of platform capitalism. In Bratton's view, this combination would be shaping a new global infrastructure, made up of different layers (*The Stack*) affecting both virtual and physical reality.

Let us look at these two aspects more closely.

First of all, let us focus on the extraction logic of the so-called GAFAM, well expressed by expressions such as *data mining* or *data extraction*. Far from approaching to technical and technological innovation in a deterministic way, it is our intention to bring these trends within a more general 'extractive logic' of the municipality, characterising the platform capitalism model today.

For Srnicek, the author of *Platform Capitalism* (2017), the platform business model is essentially based on the extraction and exploitation of data, and this, in the author's opinion, is the keystone that enables us to understand their oligopolistic statement. Srnicek is for an interpretation of the capitalist platforms that highlights their dual function: they play the role of political actors increasingly gaining a position of power and, at the same time, the one of economic actors within a new capitalist production mode.

For other authors (Mezzadra and Neilson 2018; Hardt and Negri 2017), the same ‘extractive logic’ invests today not only in the sector of mineral resources and ‘land’ or ‘natural’ common assets - as in the case of *land grabbing* in Africa and the ‘neo-extractivism’ in Latin America - but also other direct sectors such as logistics, finance and algorithms, the latter designed to extract value from social cooperation, when it « consists of machines, device control, algorithmic protocols, and logistic coordination systems » (Mezzadra and Neilson 2018: 103). An extractive logic that, even if showing each time a different face, acts directly on the common, conceived as an intrinsic quality of social cooperation and its products (such as data): « *The best guide to understanding contemporary extraction, in fact, is to follow the forms of the common on which it depends, since the common is what is extracted and transformed into private property* » (Hardt and Negri 2017: 166). One of these faces takes the form of the extraction of what the authors call *social data*:

The metaphors of “data mining” and “data extraction” paint an image of unstructured fields of social data that are available for capture by intrepid prospectors, just like oil or minerals in the earth - and indeed there is today a digital gold rush to rival California and the Yukon. The mining and extraction of data means capturing value by searching for patterns in large data pools and structuring data so that it can be stored and sold (Ibidem: 168).

If the extraction of data produced by social cooperation is the first crucial aspect characterising the logic and dynamics of platform capitalism, also the second aspect of the same problem, which we have defined as the *tangible side* of the *Cloud*, should not be underestimated.

Indeed, the big Internet oligopolies need not only the extraction of large amounts of data, but also the extraction and consumption of huge quantities of energy and raw materials (silicon, water, electricity, and so on). Not only that: they also need portions of territory in order to install *offshore* platforms, where they can group together computing machines and digital data. Summarising and developing the Benjamin Bratton’s suggestion, the new *Cloud nomos*, from the point of view of the consumption of resources and raw materials, involves the main elements recalled by Schmitt in his analysis dedicated to the birth and development of modern

capitalism³⁷: the *land* (in its double meaning of territory of the States and of mineral resources); the *water* (source of energy and, at the same, element needed for the cooling of *data centres*, as well as the cables built in the seabed); the *air*, in the form of the ‘*cloud*’ (the privatisation of cyberspace).

On the subject of sovereignty, it should be further noticed that the new actors of platform capitalism call into question some modern law cornerstones, starting with the concepts of the public and private. They present themselves as ‘hybrid’ subjects: if, on a formal level, they continue to be private actors, they tend to assume more and more of public functions.

As the French Council of State observes, in a 2017 study dedicated to digital platforms³⁸, the big Internet oligopolies tend to take over some key functions traditionally attributed to the state, such as certifying identity, decision making effectiveness, security and citizen control (such as in the case of the analysis of predictive algorithms in terms of justice).

The French Council of State, in a very effective way, defines digital platforms as *new legal entities* with their own rules and with sovereign action that is juxtaposed to the action of the States:

These entities, these meta-platforms on the net, impose their own rules on individuals, in particular through the algorithms through which they work. Moreover, the fact that these platform networks are located in the digital space enables them to impose the same rules whatever the territory on

³⁷ As it is well known, the concept of the *nomos of the earth* was introduced by the jurist Carl Schmitt in 1950. With this polysomic expression, Schmitt wanted to describe the tendency to spatial transformation related to the development of capitalism. Original capitalism is, indeed, based on a ‘great space revolution’ which shows two aspects, linked to each other: the *enclosures* of the common lands in England; the ‘discovery’ (i.e. the occupation) of the *terrae nullius* in the Americas. Thus, according to Schmitt, the history of capitalism should be read through the dynamic relationship between the ‘*land*’ (the sovereignty of territorial states) and the sea (the beginning industry which needs new lands to exploit, through ocean navigation). The ‘second space revolution’ for Schmitt took place in the 20th century, with the two World Wars and the air war. Bratton uses the concept of *nomos* to indicate the fourth element, the Cloud, which would introduce a new spatial revolution and new sovereignty forms extending up to the Internet virtual space which resets the power of states and transnational entities.

³⁸ Conseil d’Etat, *Etude annuelle 2017. Puissance publique et plateformes numériques: accompanying ubérisation*. URL: <http://www.conseil-etat.fr/Decisions-Avis-Publications/Etudes-Publications/Rapports-Etudes/Etude-annuelle-2017-Puissance-publique-et-plateformes-numeriques-accompagner-l-uberisation>

which they are located, making it difficult for states or territorial entities to control them. This reinforces the feeling that they constitute authentic ‘superpowers’ capable of having a sort of legal sovereignty in their space that replaces the one of States. Thus, the horizontal and global network, which is able to create the largest global platforms, turns into a legal entity of its own, capable of competing and challenging the juxtaposed vertical organisation of nation-states (Conseil D'Etat: 55).

The problems we have analysed so far strengthen our belief in an alternative to capitalist platforms, which is not only desirable but also increasingly necessary.

To sum up, our analysis showed that the combination of the *Cloud*, the *Internet of Things* and *Big Data* technologies raises different relevant issues related to:

- The means of production - computing machines, proprietary algorithms - belonging to the Internet oligopolies which are changing and shaking up the architecture and the political form of the Internet, with its decentralised and pluralistic origins.
- The tendency towards the privatization of an enormous quantity of socially produced data, on the one hand, offers a dominant economic position to Internet oligopolies, contributing to the strengthening of a commercial logic; on the other hand, it gives these actors increasing political power and regulatory capacity independent from the power of the States and other international and supranational entities.
- Differently from what is commonly thought, the tangible side of the Internet, and its impact in ecological terms raises major problems. In this sense, the extractive logic of platforms relies not only on digital data, but also on raw materials and other fundamental resources of the planet.
- The action of the platforms reorganises the physical space on two main levels: on the one hand, logistics flows are globally re-organised (the model-type is *Amazon*); on the other hand, urban services are ‘locally’ re-organised (as in the case of *Uber*, *Airbnb*, and so on).

Here, different solutions have been suggested in order to limit the power of the platforms and the logic of the *Cloud*.

As far as the management of data contained in the *Cloud* is concerned, over the last few years the *Open Data* policy has developed, in particular for data produced by public institutions and local communities. We will talk about this suggestion, its strengths and its limits, in the second chapter, showing also some virtuous experiments, such as the *OpenStreetMap* project on geolocalized data and the *Framasoft* project (paragraph 2.2.2.3).

In conclusion, it should be noticed that two further alternative ways are suggested in order to limit the *Cloud* tendency to privatise.

A first path is based on a re-establishment of the primacy of *the public*, in some fundamental science fields such as genomics. This is the case of the suggestion made by some researchers and appeared on the journal *Nature*³⁹, inviting the U.S. government to establish a ‘*Common Cloud*’ for genomics and other key fields of scientific research.

A second way, however, is what we are going to analyse in the second chapter of this research, illustrating the main digital alternatives to *Google* and *Facebook*. In this second case, the spirit of the *Free Software Movement* emerges, as it had already been expressed in Stallman's views against the *Cloud*. The solution would consist in decentralising the Net, and therefore going back to an IT made of personal servers, run according to a non-appropriative legal logic, and requiring a reduced consumption of energies and of fundamental environmental resources, thanks to a more rational less undiscerning data use.

³⁹ Stein L. D., Knoppers B. M., Cambell P., Getz G., and Korbel J.O. (2015), *Data analysis: Create a cloud commons*, *Nature*, 08/07/15. URL: <https://www.nature.com/news/data-analysis-create-a-cloud-commons-1.17916>

2. Resistance and alternative models to platform capitalism

2.1 Voice and exit, and their possible combinations depending on the three platform categories⁴⁰

In the first chapter of the research, we have identified three categories of capitalist platforms, classifying them according to the economic model and the form of work organisation characterising them.

The first category of platform includes *Google* and *Facebook*. They centre their economic power, on the one hand, around the 'merchantable gratuitousness' model (selling users' data and profiles to advertisers); on the other, around the legal and monetary non-recognition of platform users' *digital labour*.

The second category includes the *on-demand* platform model, such as *Airbnb*, *Uber*, *Deliveroo*, and *Foodora*. Their profit model is based on the introduction of a new intermediation form between users and service providers, through which the maximum added value is captured (in the form of a levy on each commission). In terms of work organisation, they make use of workers who are only formally autonomous and paid per-piece, as well as platform users' *free digital labour*.

The third category includes the hybrid model of *Amazon* and other e-commerce platforms, whose economic success relies on a combination of digital network economies and *long tail* economies of scale. In terms of work, they combine forms of neo-Taylorist labour and cognitive labour (and, also in this case, users' *free digital labour*).

We have finally shown how all these platforms have contributed, in terms of network infrastructures and extraction of user-generated social data, to the establishment of the paradigm of *Cloud computing*, which has had strongly 'disruptive' effects on

⁴⁰ Written by Brancaccio F. and Vercellone C.

Internet's architecture and political form. This has led to a process of re-centralisation of the means of production - computing machines, algorithms - in the hands of the great Internet oligopolies, and to a further extension of market logic.

In light of this situation, in this section of the research we are going to focus on the critical analysis of the collective resistance forms and the main alternative models to platform capitalism, highlighting their strengths, the projections of their further development but also their limits and contradictions.

Indeed, for each one of the above-mentioned three categories of capitalist platforms there are corresponding forms of collective protest, as well as alternative experimentations.

To give just a descriptive example of the analysis method we are going to adopt, let us show the case of a *social network* like Facebook. At the moment, there are two main types of reactions to it: on the one hand, platform 'users' have started organising *class actions* (or collective forms of lawsuit), aimed at reducing the power of censorship and the privatisation of data and contents produced by them; on the other, a number of 'free and decentralised' *social networks*, as in the case of Diaspora or Mastodon, have begun to lay the groundwork for a concrete alternative to the economic models, the work organisation forms, the conception of technology and the ownership forms characterising capitalist platforms.

For these reasons, we have found it useful to reintroduce and update the tripartite division proposed in 1970 by Albert Otto Hirschman in his treatise on the behaviour and choices of consumers towards (public or private) companies providing services. Hirschman identified two forms of user response, in the framework of service-related relationships: *voice* (protest or resistance) and *exit* (withdrawal or exodus). The choice between these two options is affected by a third variable: *loyalty*, the degree of attachment and trust felt by the users towards the service provider.

The case study examined by the German economist in 1970 was the one of the Nigerian railway service, an example which is even more interesting since the railway lines are characterised, as the Internet platform economy, by a strong tendency to the establishment of the so-called natural monopolies, due to the presence of powerful economies of scale and/or network economies.

The author noticed that, in the face of its inefficiency and malfunctioning, the widely prevailing response of the users did not consist in protesting (*voice*) but in

withdrawing (*exit*). The presence of a feasible alternative, namely road transport, and the low degree of attachment (*loyalty*) felt by the users towards the public service, encouraged, according to the author, their *exit*: rather than organising and protesting for qualitative improvement of the railway service, users preferred to use an alternative service and travel on roads.

At this stage of Hirschman's analysis, *voice* and *exit* seem to be two clearly alternative options, affected in turn by two variables: on the one hand, service users' degree of *loyalty*; on the other hand, the availability of market alternatives (or alternatives of a different nature, such as a *common* – even though in his Fordist times, Hirschman could not take them into account as a possible hypothesis). If the degree of attachment to the service is high, and if there are no competitive alternatives to the service, users will most likely *voice*. If, on the contrary, the degree of attachment to the service is low, and if there are alternatives, as in the case of Nigerian rail transport, users will probably *exit*.

After the fall of the Berlin Wall, Hirschman will come back to this tripartite division, showing how *voice* and *exit* do not represent two inevitably alternative options, since they can sometimes combine and affect each other (Hirschman 1997).

In this case, the analysis did not focus on service users' behaviours, but on a more specifically political phenomenon: the exodus of East Germans from the German Democratic Republic. Indeed, every year, from the construction of the Wall in August 1961 until its fall in 1989, more than 100.000 Germans silently opted for *exit*. Those who had alternatives (relatives or friends, job opportunities, and so on) left; those who did not have alternatives stayed, instead.

In this case, the degree of *loyalty* was low for both those leaving and staying. The latter, indeed, also felt the need for a change, a feeling which had not been weakened by *exit*, but, on the contrary strengthened thanks to it (Hirschman mentions a *pattern* between *exit* and *voice*). This silent and constant exodus, therefore, showed the political weakness of the German Democratic Republic, also to those who had stayed, slowly leading to a situation that the author defines as 'self-subversion'. *Exit*, weakening *loyalty* - the degree of ideological attachment to the political regime - had strengthened and made *voice* possible.

The use of these categories appears to be really useful when studying current and/or potential alternatives to platform capitalism.

The subjects, in this case, are not simple consumers or service users, as in Hirschman's analysis, but actors making the distinction between producing and consuming goods (as well as the one between the supply and the use of services) more and more blurred. And, as we have seen in Chapter 1, this is the reason why platform users are more and more often referred to as prosumers.

In the same way, another 'frontier', which in the Fordist mode of production had kept political action separated from production, is apparently fading: as noticed by Paolo Virno (1993), dealing with Hirschman's categories, it is the productive practice itself that has assimilated, in the current context, the typical features of the political action: creativity, performative action, relational, linguistic and emotional skills which, as we have seen, are widely mobilised and exploited by the big platforms of the Internet political economy and data industries. Here, in this self-organisational ability, there is the possibility of developing alternative forms to both public and private sector in their forms of coordination.

Therefore, the potential development of a *commons* logic could possibly enable to analyze *voice* and *exit* in platform capitalism, being aware of the fact that the element of *loyalty* is becoming more complex and prominent today. Just think about how much platform users, in the case of *social networks* such as *Facebook*, depend on its network economy, which explains why most of them do not leave. Furthermore, digital platforms provide their users not only with a number of services but also with tools expressing affection and strengthening sociality - and this is what some authors have started to define, today, as the *emotional web* (see Alloing and Pierre 2017, but also the studies on attention economy, starting from the essays contained in Citton 2014).

Therefore, on the one hand, capitalist platform users begin to organise in terms of individual protest and collective resistance. By *voice*, we will then refer to those expressions of protest and resistance that can take different forms: from class action against data privatisation and privacy violation to labour disputes and forms of strike by workers at *Uber*, *Deliveroo*, *Amazon*, and so on.

Within this first variant, socially widespread practices of bypassing platform control (advertising blocking software, multiple uses of Darknet) will be analysed. Such practices do not present themselves as mere protest actions but, reintroducing a notion by Michel Foucault, as individual and collective 'counter-conducts' towards

the controlling and capturing system used by digital platforms⁴¹, they are behaviours and practices which bypass platform codes and rules in the everyday use of networks and platforms, without turning into real acts of resistance.

On the other hand, users are developing social and productive experiments foreshadowing real future alternatives to platform capitalism. As we are going to see, there are many different cases: *social networks* and search engines focusing on ecosystems that subvert, totally or partly, the principles of *data-driven industry* and *Cloud computing*; new forms of social and metropolitan unionism based on mutualism and on the recognition of positive autonomous work forms; organisation of alternative cooperatives in the consumption and distribution sectors that are compatible with the ecological dimension and, therefore, with the limited planetary resources.

However it is crucial to reiterate, as Hirschman has already observed, that *voice* and *exit* can be combined with each other and that they affect each other. This is of primary importance for the models that we are going to analyse. Looking again at the example reported at the beginning: the consolidation of an alternative *social network* like *Diaspora* could also encourage the proliferation of forms of protest and resistance for those 'staying' on *Facebook*.

At this stage of the analysis, the development of the *commons* conceived as an alternative mode of production to platform capitalism, combines forms of resistance to the Internet oligopolies' power with concrete alternatives, able to federate with each other, alternatives that are not mere 'withdrawals' but forms of real 'constituent exodus' (Virno 1993).

⁴¹ Michel Foucault introduced the notion of 'counter-conduct' during his course at the Collège de France in 1978-79, referring to daily behaviours and practices adopted by Protestants in opposition to pastoral power and 'the government of souls' of the Church of Rome, redefining in immanent and mundane terms some of its canons and precepts (such as the discourse on redemption) (on this point, see Rahola 2015).

2.2. The way of voice and resistance within and against the logic of platform capitalism⁴²

This paragraph aims at framing the role of *voice* in the context of the three models of platforms under consideration.

Within the first model, given the intangible and ‘free’ nature of the services offered, voice takes predominantly the form of the legal action, be it individually or collectively filed. In line with our previous work (Lucarelli et al. 2017), where *inter alia* we detailed Google and Facebook’s advertising-based business and value creation models and took stock of top-down regulatory interventions with respect to data protection and competition, in 2.2.1 we will instead look at bottom-up initiatives brought against the two companies, restricting the field to some privacy cases worked out in a summary table. We will later take a brief look to Cambridge Analytica data harvesting scandal. Even if, given the favourable juridical environment, most of the class actions concerning the two tech-giant took place and is likely to keep being preponderant in the US, one of the most important international privacy case in recent history arose, as we shall see, from complaints brought to the Irish Data Protection Commissioner against Facebook by the Austrian privacy advocate Max Schrems. Although it was an individual legal action, we will discuss it on account of the changings it caused with regard to EU data protection law’s framework.

The second model includes the platforms of the so-called *gig economy*, in turn subdivided into *on demand*⁴³ (location-based) and *crowd work* (web-based) platforms, whose diffusion has now reached enormous dimensions. The supporters of these highly disruptive digital labour markets claim to create cutting-edge, more flexible and cost-efficient services, at the same time driving force for economic innovation. However, as exhaustively expounded in the previous chapter, this workforce of independent contractors carries out these algorithmically dictated activities under precarious working conditions and in the absence of any labour

⁴² From paragraph 2.2 to 2.2.1 writing by Rocchi G.

⁴³ In Lucarelli et al. (2017), besides describing *inter alia* Uber’s business and value creation model, we tried to give an as complete as possible overview of the juridical controversies and legal bans of Uber’s services in Europe, resulting from massive protests by local cab drivers and most of the time accusing Uber of anti-competitive behavior.

right, including the right to unionize. We are witnessing a shift in the structure of labour markets which undermines hard-won work standards by leveraging the lack of a proper legislation. It is then understandable that in this case voice is raised, as will be showed in 2.2.2, both through legal proceedings (which are often silenced with multi-million dollar settlements) and via 'on-the-field' protests and mobilisations.

This same mixture between legal actions and 'cries of protest' applies to the third 'hybrid' model under analysis, namely that of Amazon. Jeff Bezos's company has evolved to become, over the past 20 years, an ecosystem which includes among others the world's biggest e-commerce and retail platform (*Amazon Marketplace* and *Retail*) and one amongst the most popular *Cloud computing* platforms (*Amazon Web Services*), of which the well-known crowd working site *Amazon Mechanical Turk* is part. As explained in 2.2.3, on the one hand voice take the form of protests raised by warehouses' employees and motivated by the unhealthy and unsafe working conditions to which they are subject; on the other hand, in response to the imbalanced power relationship and information asymmetry that elapses between crowd workers and clients, the former are building up online tools to exchange information, communicate with one another and rate clients based on their trustworthiness.

Finally, 2.2.4 will outline the mix of strength and ambiguity underlying the *Darknet* and tools like ad-blocking software as counterbalancing forces to defend anonymity, digital liberties, and to avoid the increasingly high intrusiveness of online advertising during Internet surfing.

Hirschman defines voice as « *any attempt at all to change, rather than to escape from, an objectionable state of affairs, whether through individual or collective petition to the management directly in charge, through appeal to a higher authority with the intention of forcing a change in management, or through various types of actions and protests, including those that are meant to mobilize public opinion* » (Hirschman 1970: 30).

As opposed to the variable efficacy of protests and informal movements for conveying dissent or dissatisfaction with respect to a given state of things, class actions represent an actual procedural device which allows one or several plaintiffs to represent and legally bind an entire class through a single lawsuit.

Although the origin of this institution must be historically sought in the England of the first centuries following the birth of the common law system, the class action instrument ends up finding fertile ground in North America, where it is governed at the federal level by Rule 23 of the Federal Rule of Civil Procedure⁴⁴ and it is adopted in state laws with equal or only slightly different versions compared to the federal one (Boato *et al.* 2009).

Unlike European countries, where collective litigation procedures are of variable effectiveness and can be generally resorted only by consumers, in the United States also employees can bring collective actions both under section 216(b) of the Fair Labour Standards Act⁴⁵ (FLSA) and the over mentioned Rule 23. Class actions are generally permitted in all areas of law, including product liability, environmental law, antitrust and competition law, pension disputes, and civil rights. Rule 23(a) lists the four threshold requirements that any class action has to satisfy to be proposed and that are generally referred to as the principles of *numerosity* (the class is so numerous that joinder of all members is impracticable), *commonality* (there must be question or fact common to the class), *typicality* (there must be equivalence between representative parties' claim and that of the other class members) and *adequacy of representation* (the representatives are part of the class, possess the same interest and suffer the same injury as the class members). Once these pre-requirements are met, Rule 23(b) outlines the distinction between

⁴⁴ See: https://www.law.cornell.edu/rules/frcp/rule_23

⁴⁵ Full text available at: <https://www.dol.gov/whd/regs/statutes/FairLaborStandAct.pdf>. The plaintiff in an FLSA action has the option of filing a class action under Rule 23, a collective action under the FLSA, or both. But FLSA collective actions follow different procedural rules than Rule 23 class actions, ones generally considered more permissive. Section 216(b) of the FLSA provides employees with the right to proceed collectively, seeking recovery not only for their own claims, but also for those of 'other employees similarly situated'. The FLSA, however, does not define 'similarly situated', nor does it prescribe a method for certifying a collective action. Unlike class actions under Rule 23, collective actions under the FLSA require putative class members to opt into the case and, if the court decertifies the collective action, it dismisses the opt-in plaintiffs without prejudice to reasserting their claims individually. For a detailed explanation of the historical background and legislative evolution of the two procedures see Jhaveri-Weeks and Webbert (2016).

the different categories of class actions, also examining the requirements needed to proceed⁴⁶: Rule 23(b)(1) provides for class actions when separate actions would risk conflicting rulings concerning the same defendant's conduct, Rule 23(b)(2) provides for class actions when the relief sought is injunctive or declaratory, and Rule 23(b)(3) provides for class actions seeking damages when the requisites of 'predominance'⁴⁷ and 'superiority'⁴⁸ are met. The final step, enunciated under Rule 23(c), directs the court to 'certify' the class. The certification is followed by the so-called 'notice', aimed to spread, through suitable means of communication⁴⁹, the notification of the approval of the action, so as to allow the members of the class to exercise, within a certain time frame, their right to exclude themselves (opt out). Indeed, if the court finds that the representatives' rights were not violated, the entire class of plaintiffs is bound by that judgment and will not be allowed to pursue individual claims regarding the substance of the class action lawsuit. The case is then referred to a jury that proposes a decision which is rejected or confirmed by the court. In this latter case, the process continues towards the final decision. During the course of the proceedings and only prior the court's approval, the claims may be settled, voluntarily dismissed, or compromised (Rule 23(e)). As explained by Cooper Alexander (2000), similarly to the contingent fee agreement⁵⁰ to which a plaintiff normally resort as a means for financing individual litigations, if the class action is resolved, either by settlement or by trial, with a monetary recovery for the plaintiff class, the lawyer submit a request to the court to award him reasonable fees, which are paid out of the class recovery. All beneficiaries thus share in the cost of obtaining the recovery. Finally, the amount awarded by the defendant if he is found liable, compensates for actual damages and, where appropriate, also for punitive damages, awarded when the defendant's actions are especially reckless or malicious.

⁴⁶ For an extensive examination, which is beyond the scope of the paragraph, see Boato et al. (2009, 35-37).

⁴⁷ Which is satisfied when the questions of law or fact common to class members prevail over any questions affecting individual members.

⁴⁸ Which is satisfied when the class action instrument is superior to other available methods for adjudicating the controversy.

⁴⁹ As early as 1977, and in opposition to what is generally provided in European Countries, attorney commercial advertising of the class action is protected as free speech under the First Amendment to the Constitution (Srouij and Dolhem 2017).

⁵⁰ Contingent fee agreements are contracts by which the lawyer advance litigation expenses and receives as a fee an agreed percentage of the recovery, in the absence of which he gets nothing. In the U.S. this method represents the most used one for individual plaintiffs to finance their lawsuits.

However, it is noteworthy that, according to a study (Mayer Brown LLP 2013) conducted on a neutrally-selected sample set of 148 putative consumer and employee class action lawsuits filed in or removed to federal court in 2009, only a few cases delivered tangible benefits to more than a small fraction of class members. With regard to class actions having as their object privacy and data protection, the possibility of the action to be certified is tied to the ability of the plaintiff to meet the constitutional requisites under Article III for the existence of standing⁵¹, reached when the plaintiff seeking to sue demonstrates that he has suffered a fairly traceable ‘injury-in-fact’. The question is whether allegations of future injuries suffice for Article III standing purposes. It is indeed quite hard « *to show harm or injury for such incidents as a data breach, especially for a harm – through identity theft for example – that may not occur until some unforeseen time in the future, if at all* » (Srouij and Dolhem 2017: 296). Far from providing clarity or consensus, recent decisions issued by federal courts of appeal have reached dissimilar conclusions, which appear highly dependent on the nature of the facts alleged in each case⁵².

When we turn our sight to Europe, a distinction between the supranational and the national sphere is always deserved. At a European level, all the measures launched so far with the aim of protecting consumers’ collective interests⁵³ can be defined as soft law instruments limited to establishing general principles, leaving the recipients more or less room for autonomy in the implementations’ choices. If it is true that the majority of Member States have introduced mechanisms enabling consumers’ collective redress actions subsequent to and at the behest of the Directive 98/27/EC (1998), it is also true that the absence of binding provisions, arguably resulting from the fact that Consumer Protection comes within EU ‘shared competences’ area, led to a situation that is very far from being ‘harmonized’. As shown in a publication that collects a series of articles describing the current state of the law in Europe concerning class actions and other procedural tools for collective litigation (Libralex

⁵¹ See: https://www.law.cornell.edu/anncon/html/art3frag17_user.html

⁵² See: Christensen D., Glass A. C., and Lowe Matthew (2018). *Risky Business: Whether an Increased Risk of Harm Supports Legal Standing in Data Breach Class Actions Continues to Divide Federal Courts of Appeals*, JD Supra, 27/03/18. URL: <https://www.jdsupra.com/legalnews/risky-business-whether-an-increased-risk-of-harm-supports-legal-standing-in-data-breach-class-actions-continues-to-divide-federal-courts-of-appeals-42983/>

⁵³ Directive 98/27/EC (1998), Recommendation 2013/396/EU (2013), Communication COM/2013/401 (2013).

2014), some European states have rules on class actions with some resemblance to the U.S. model (e.g. Bulgaria, Denmark, Sweden and Portugal), while others have ad hoc arrangements for specific circumstances and often the conditions to introduce a class action are so restrictive that they undermine its adoption and effectiveness. Paradigmatic are the French and the Italian cases. Class actions were introduced after much debate into French national law with the adoption of the 'loi Hamon'⁵⁴ in 2014 and in the Italian law with the modification of the Consumer Code's Article 140 bis 2010⁵⁵. The lack of efficiency of French-style class actions depends of three main aspects: first, a concerned party is not by default part of the group unless he proactively joins (opt-in regime); second, only certified associations regularly constituted for five years and whose statutory purpose is the defence of a prejudice are allowed to initiate a class action; third, the instrument is addressed only to consumers and users and not to businesses and public administration bodies. The Italian version shares the first and the third shortcoming and it is alien to the second. A legislative proposal⁵⁶, unanimously approved at the Chamber of Deputies in 2013 and aimed at reforming the current law is still waiting for the Senate's final approval. Coming back to a European dimension and shifting the focus to class actions having as their object privacy and data protection, Article 80(1) of the just come into force General Data Protection Regulation (GDPR) provides that an individual data subject that considers his/her rights to be violated, is entitled to mandate "a not-for-profit body, organisation or association which has been properly constituted in accordance with the law of a Member State, has statutory objectives which are in the public interest, and is active in the field of the protection of data subjects' rights and freedoms with regard to the protection of their personal data, to lodge the complaint on his or her behalf" with a supervisory authority⁵⁷. The 'New Deal for

⁵⁴ Loi n. 2014-344 du 17 mars 2014 relative à la consommation.

⁵⁵ Articolo 140 bis Codice del Consumo (D.lgs. 06/09/05, n. 206).

⁵⁶Full text available at:
http://www.camera.it/leg17/995?sezione=documenti&tipoDoc=lavori_testo_pdl&idLegislatura=17&codice=17PDL0012560&back_to=http://www.camera.it/leg17/126?tab=2-e-leg=17-e-idDocumento=1335-e-sede=e-tipo

⁵⁷ Shortly after the GDPR came into force, Maximilian Schrems (whom we will talk about in the next paragraph) filed four complaints against Google (Android), Facebook, WhatsApp and Instagram over 'forced consent' on behalf of noyb.eu (<https://noyb.eu/?lang=it>), a non-profit organization he founded in 2017 through a crowdfunding campaign that has raised more than \$370,000 from 2,500 contributors as well as the city of Vienna, labour unions, and small tech companies. The maximum possible penalty

Consumers' package⁵⁸, recently proposed by the European Commission and that will be discussed in the near future by the European Parliament and the Council, seems to pave the way for a European collective redress right mechanism. All the proposals seek to modernise consumer protection laws in order to face the new challenges deriving from the ever increasing ubiquity and strength of digital data-driven markets, calling therefore for more transparency in online marketplaces and online platforms, and better protection against unfair commercial practices. Representative actions will allow a qualified not-for-profit entity to seek redress on behalf of a group of consumers that have been harmed by an illegal commercial practice or victim of a common infringement of rights in a 'mass harm situation'. Therefore, redress actions will not be available neither to individuals nor to law firms but only to plaintiffs (such as consumer organisations) that fulfil strict eligibility criteria. Furthermore, the 'New Deal' will not establish any kind of punitive damages for the benefit of the plaintiffs or ultimately the consumers. The irrefutable distance between such an approach and US-style class actions is deliberately intentional. Whether or not this new tool will actually reinforce consumers' right will be unveiled once and if it has properly entered into force.

2.2.1. Movements and class actions against the private appropriation of data by social network platforms and search engines

Both Google and Facebook have been involved in a long list of class actions. With respect to the former, given the greater seniority of its advertising networks and the magnitude of its service offering, the range of alleged violations beyond privacy matters is quite multifaceted: from false advertising⁵⁹ to copyright infringement⁶⁰, up

amounts to the 4 percent of the companies' global revenues, which means more than a billion euros each.

⁵⁸ European Commission, press release, *A New Deal for Consumers: Commission strengthens EU consumer rights and enforcement*, Brussels 11/04/ 18. URL: http://europa.eu/rapid/press-release_IP-18-3041_en.htm

⁵⁹ CLRB Hanson Industries, LLC et al. v. Google Inc., Case n. 5:2005cv03649. Available at: <https://law.justia.com/cases/federal/district-courts/california/candce/5:2005cv03649/34465/339/>

⁶⁰ Authors Guild v. Google, Inc., No. 13-4829, 2015. Available at: <https://law.justia.com/cases/federal/appellate-courts/ca2/13-4829/13-4829-2015-10-16.html>

to discrimination against white, conservative employees⁶¹. On the contrary, most of the class actions filed against Facebook revolve around data misuse contentions. In any case, our focus is on privacy-related cases. The following table (2.1) summarizes some of them.

COUNTRY JURISDICTION AND CASE	COMPLAINT	VERDICT	SERVICE'S IMPROVEMENTS
United States Lane, et al. v. Facebook, Inc.⁶² August 2008 - September 2009	In November 2007, Facebook launched a new program called 'Beacon', allowing its users to share with Friends' information about what they do elsewhere on the Internet, without an option to opt in (introduced starting from December 2007) and in absence of the user's affirmative consent. The program operated by updating a user's Facebook profile to reflect certain actions he/she had taken on websites belonging to companies that had contracted with Facebook to participate in the Beacon program ('Facebook Beacon Activated Affiliates') ⁶³ . The Beacon program sent information regarding transactions on the third-party sites regardless of whether the user was a Facebook member or not. Each of the Plaintiffs' claims	The class action was settled providing for the creation of a \$9.5 million settlement fund, of which approximately \$3 million were used to pay attorneys' fees and incentive payments to the class representatives. The remaining \$6.5 million or so were envisaged to establish a non-profit organization (the Digital Trust Foundation ⁶⁴) aimed at funding projects that promote the cause of online privacy, safety, and security, following the <i>cy-près</i> doctrine ⁶⁵ .	The Beacon program was permanently terminated in September 2009 as part of the class action lawsuit settlement.

⁶¹ James Damore, et al. vs. Google, Inc., Case n. 18CV321529. Available at: <https://fr.scribd.com/document/368688363/James-Damore-vs-Google-Class-Action-Lawsuit>

⁶² Lane, et al. v. Facebook, Inc., Case n. 5:08-cv-03845-RS. Available at: <https://web.archive.org/web/20110707220327/http://www.beaconclasssettlement.com/Files/SettlementAgreement.pdf>

⁶³ For instance, if a Facebook's user rented a movie through the affiliated website Blockbuster.com, the latter would transmit information about the rental to Facebook, and Facebook in turn would broadcast that information in the user's NewsFeed.

⁶⁴ <http://digitaltrustfoundation.org/>

⁶⁵ For an explanation of the *cy-près* doctrine applied to class actions see Shiel (2015). With regard to this particular case, it is worth reporting that a former Facebook executive served on board of the Foundation. Consequently, « *with the settlement, Facebook purchased a release of all liability for*

	centred on the general allegation that <i>Beacon</i> participants had violated Facebook members' privacy rights by gathering and publicly disseminating information about their online activities without permission.		
United States Google Buzz Privacy Litigation⁶⁶ February 2010 - December 2010	<p>The social networking product 'Google Buzz' was launched in February 2010 and connected to Google's email program <i>Gmail</i>. <i>Buzz</i> was installed without giving users an option to opt in. Once activated by default, a list of 'followers' and 'people who you follow' were already built using frequent contacts. These lists were both viewable by other <i>Gmail</i> users and might be publicly indexed if a user had a Google profile.</p> <p>Plaintiffs alleged that this approach raised privacy concerns because email users did not necessarily want to be networked with their email contacts, and because the potential public availability of these above mentioned lists appeared to divulge a <i>Gmail</i> user's most frequent email contacts without sufficient consent.</p>	<p>The class action was settled providing for the creation of an \$8.5 million settlement fund, of which the prosecuting lawyers requested 25 percent. The class representatives received \$2.500 each, while the rest was paid out to cy-prés recipients, in this case organizations that promote privacy education on the web.</p> <p><i>Google Buzz</i> was discontinued in December 2011 and superseded by <i>Google+</i>, in turn object of privacy concerns related to Google's new 'Shared</p>	<p>Before the program was shut down, Google responded by implementing the following modifications:</p> <ol style="list-style-type: none"> 1) A more visible option for users to avoid displaying their 'followers'; 2) An easier mechanism to block individuals from following users; 3) Introduction of a mechanism to not automatically follow others; 4) Removal of the default connection to other Google content (e.g. users' public photo albums previously uploaded online); 5) Addition of a <i>Buzz</i>

claims from millions of affected consumers, without attempting to provide individual compensation, and while effectuating a charitable donation over which they retained significant control of the charity's objectives » (*Ibidem*: 947). Another highly criticized cy-prés-based settlement was '*In re: Google Referred Header Privacy Litigation*' (Case n. 5:10-cv-04809-EJD, available at: <https://digitalcommons.law.scu.edu/cgi/viewcontent.cgi?referer=https://www.google.it/&httpsredir=1&article=1463&context=historical>), which settled two class actions filed against Google, in each of which Plaintiffs alleged Google divulged user search queries to third parties without user knowledge or consent. The settlement awarded most of the money to Plaintiffs' attorneys and to third party charities, but nothing to the roughly 129 million US users who the plaintiffs were to have represented in the class action, because they would have received only about 4 cents each. In April 2018 a challenge to the class action settlement was brought to the Supreme Court by the Competitive Enterprise Institute, which is representing petitioners Ted Frank and Melissa Holyoak, claiming that "an \$8.5 million class action settlement that awards absent class members no relief at all in exchange for their claims - no money, no alteration of the defendant's allegedly injurious conduct, not even coupons - is not 'fair, reasonable, and adequate' by any measure" (*Frank v. Gaos*, Case n. 17-961, available at: https://www.supremecourt.gov/DocketPDF/17/17-961/26575/20180103095144639_USSC%20Petition%20for%20Writ%20of%20Certiorari.pdf). The court will hear arguments and rule during the nine-month term that starts in October.

⁶⁶ *In re: Google Buzz User Privacy Litigation*, Case n. 5:10-cv-00672. Available at: <https://www.scribd.com/document/36899469/goog-doc>

		Endorsement' policy' ⁶⁷ .	tab to <i>Gmail</i> settings to allow users to have more choice over the connection between the two programs.
United States Fraley, et al. v. Facebook, Inc. ⁶⁸ March 2011 - August 2013	<p>A 'Sponsored Story' is a form of paid advertisement that appears on a user's <i>Facebook</i> page and that generally consists of another Friend's name, profile picture, and an assertion that the person 'likes' the advertisement. The advertising service was enabled by default for all <i>Facebook</i>'s users in January 2011. A <i>Sponsored Story</i> may be generated whenever a member utilizes the Post, Like, or Check-in features, or uses an application or plays a game that integrates with the <i>Facebook</i> website.</p> <p>Plaintiffs claimed that the company turned users' social actions into paid advertisements that included users' identities without their express knowledge or consent. Since, according to <i>Facebook</i>, users are three times as likely to purchase a service or product advertised through a <i>Sponsored Story</i> compared to a standard <i>Facebook</i> advertisement, plaintiffs also asserted that <i>Facebook</i> profited from selling this added value to advertisers.</p> <p>Plaintiffs faced significant barriers to class certification because of a substantial burden in showing they were actually harmed and in proving a lack of consent, either express or implied.</p>	<p>After two years of trials and appeals, the class action was settled providing for the creation of a \$20 million settlement fund. Any US <i>Facebook</i> user who appeared in <i>Sponsored Stories</i> was eligible for a \$15 payout that is, as long as he/she submitted a claim by May 2, 2013. Plaintiffs attorneys' fees were reduced compared to a previous proposed settlement. The class representatives were awarded \$1,500 each. The remaining several million dollars were distributed to <i>cy-prés</i> recipients that focus with issues in line with those raised in plaintiffs' complaint: consumer protection, research, education regarding online privacy, the safe use of social media, and the protection of minors.</p>	<p><i>Sponsored Stories</i> was discontinued in 2014. While the advertising feature is no longer available, the class action settlement agreement required <i>Facebook</i> to add language to the company's 'Statement of Rights and Responsibilities', about how people under age 18 are expected to get permission from a parent or legal guardian before agreeing to certain <i>Facebook</i> terms. The company was also required to provide more information about similar programs in the future.</p>

⁶⁷ See Lucarelli et al. 2017: 69-70.

⁶⁸ *Fraley v. Facebook, Inc.*, Case n. 11-CV-01726 LHK (PSG). Available at: <https://www.slideshare.net/gesterling/facebook-class-actionagreement>

Europe Maximilian Schrems v. Facebook Ireland Ltd. August 2014 - Pending	<p>In August 2014 Maximilian Schrems, an Austrian PhD student and privacy activist, filed a lawsuit against <i>Facebook Ltd</i> before the Vienna District Court⁶⁹, attempting to consolidate an EU-wide consumer class action against <i>Facebook Ireland Ltd.</i>, accused of using invalid privacy policies, illegal processing and sharing of personal data through its participation in the US National Security Agency's PRISM mass surveillance program exposed by Edward Snowden in June 2013. Absent the certification mechanism akin to US Federal Rule of Civil Procedure 23, Mr. Schrems complied with the 'Austrian style class action' structure, actively soliciting claim assignments from consumers throughout the EU through a 'submit-your-claim'-style website (fbclaim.com⁷⁰), with the intent to assert the 25.000 persons who transferred their claims to Schrems (the main plaintiff) in a single proceeding. The Vienna Regional Court found that it had no jurisdiction to hear the case. Against the Facebook's argument that Mr. Schrems' systematic solicitation of claims had shaded into 'professional' territory, in October 2015 the Vienna Court of Appeal issued⁷¹ that he was acting as a consumer, also recognizing 20 out of the 22 claims. The status of the 'class action' was still disputed, but an appeal to the Supreme Court was granted. In September 2016 the Austrian Supreme Court⁷² decided to refer</p>	<p>In its judgement, released in January 2018, the Court of Justice of the European Union⁷³ ruled that, while Mr. Schrems is entitled to bring an individual action against Facebook in Austria (dismissing this way Facebook's claim that they could only be sued in Ireland, being this latter the country where '<i>Facebook Inc.</i>' has its headquarter for all users outside of the US and Canada), he cannot represent other consumers in a class action. The Court relied arguments based on the Brussels I Regulation⁷⁴. Since "an applicant who is not himself a party to the consumer contract in question cannot enjoy the benefit of the jurisdiction relating to consumer contracts", the Court held that the only contract at issue was that between Mr. Schrems' and Facebook. Therefore, individuals who assigned claims to Mr. Schrems could not piggyback on his claim.</p>	Pending case
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⁶⁹ See: http://www.europe-v-facebook.org/sk/PR_LG_en.pdf

⁷⁰ See: <https://www.fbclaim.com/ui/register>

⁷¹ See: http://www.europe-v-facebook.org/PA_OLG_en.pdf

⁷² See: http://www.europe-v-facebook.org/sk/PA_OGH_en.pdf

⁷³ See: <https://curia.europa.eu/jcms/upload/docs/application/pdf/2018-01/cp180007en.pdf>

	<p>the question of the admissibility of a Worldwide or a European wide ‘class action’ against Facebook to the court of Justice of the European Union, in order to understand whether Mr. Schrems was entitled to assert claims assigned to him by consumers who reside in other EU Member States or in non-EU states, against the same defendant and in his home country.</p>		
United States <i>Gabriela Rojas-Lonzano v. Google, Inc.⁷⁵</i> January 2015 - February 2016	<p>In 2007 Google acquired the company ‘reCAPTCHA’, one of the biggest providers of ‘CAPTCHAs’, an acronym for ‘Completely Automated Public Turing test to tell Computers and Humans Apart’. CAPTCHAs are website security features that seek to distinguish humans visiting a website from potentially malicious automated programs (e.g. Web Bots), requiring the user to view a randomly generated and distorted string of alphanumeric characters and enter the characters in an attached form prior to completing a desired action (such as visiting a web page or posting a blog comment). While most CAPTCHA programs present only one word or phrase, Google’s reCAPTCHAs usually require users to transcribe two</p>	<p>The Court granted Google’s motion to dismiss the case for Plaintiff’s failure to state a claim under Federal Rule of Civil Procedure 12(b)(6), which means that the plaintiff’s allegations were not legally sufficient to state a claim on which relief might be granted⁷⁷.</p> <p>Plaintiff’s claims were rejected <i>inter alia</i> on the grounds that “plaintiff has not alleged that she suffered any damages as a result of the alleged misrepresentation [and only alleged] that Google profited</p>	Case dismissed

⁷⁴ Council Regulation 44/2001/EC (2001), *Regulation of 22 December 2000 on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters*, Official Journal L 12/1.

⁷⁵ *Gabriela Rojas- Lonzano v. Google, Inc*, Case n. 15-cv-03751-JSC. Available at: <http://boothsweet.com/wp-content/uploads/2016/02/Google-Order-Granting-Dissmissal.pdf>. Even if the action was dismissed it is interesting to cite and describe it in order to see how American law addresses the argument discussed in paragraph 1.2.

⁷⁷ Google moved to dismiss the case on numerous grounds: (1) Plaintiff’s claims under Massachusetts law were contractually barred by the choice of law provision contained in Google’s Terms of Service, to which Plaintiff agreed; (2) Plaintiff failed to state a claim under either the CLRA (Consumers Legal Remedies Act) or UCL (Unfair Competition Law), including by failing to allege fraud with specificity as required by Federal Rule of Civil Procedure 9(b); (3) the CLRA does not apply to Plaintiff’s claim because reCAPTCHA is software, and thus neither a good nor a service under the statute; finally, (4) Plaintiff’s claims for quasi-contract or unjust enrichment do not exist under California law or are barred by Google’s Terms of Service.

	<p>words: the first one serves the over mentioned security purpose; the second one is a word that, being ink-smudged or written in old calligraphy, could not be correctly translated by the optical character recognition (OCR) software that <i>Google</i> uses within its <i>Google Books</i> service, whose ambitious goal is to digitize all of the world's books. This same crowdsourced decoding method applies also to street names and traffic signs extracted from <i>Street View</i> images in order to improve <i>Google Maps'</i> service, as well as to digitize third parties' archives against payment (e.g. 'The New York Times'⁷⁶).</p> <p>Plaintiff alleged that <i>Google</i> does not tell users that it profits from the reCAPTCHA prompt transcriptions, and that by misrepresenting or omitting that fact, <i>Google</i> extracts free labour from users.</p>	<p>from her allegedly uninformed decision to complete the two-word reCAPTCHA, [where] Google's profit is not plaintiff's damage". Moreover, "Plaintiff has not alleged any facts that plausibly suggest the few seconds it takes to type a second word is something for which a reasonable consumer would expect to receive compensation".</p>	
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Table 2.1 : Google's and Facebook's selected privacy-related cases

Source : Personal elaboration

The case *Maximillian Schrems v. Data Protection Commissioner*⁷⁸, filed one year prior the attempted class action described above, is worth to be reported on account of the changings it caused with regard to EU data protection law's framework, although it was an individual legal action. This case challenged the key issue of whether the EU-US Safe Harbour Decision⁷⁹, stipulated in 2000, ensured adequate protection for European citizens' data transferred from EU to US. In June 2013 Max Schrems lodged a complaint⁸⁰ against 'Facebook Ireland Ltd.' with the Irish Data

⁷⁶ Gugliotta G. (2011), Deciphering Old Texts, One Woozy, Curvy Word at a Time, The New York Times, 28/03/11. URL: <https://www.nytimes.com/2011/03/29/science/29recaptcha.html>

⁷⁸ *Maximillian Schrems v. Data Protection Commissioner*, Case n. C-362/14. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A62014CJ0362>

⁷⁹ Decision 2000/520/EC (2000).

⁸⁰ Available at: <http://www.europe-v-facebook.org/prism/facebook.pdf>. Since 'Facebook Inc.' is the processor that handles the data on behalf of 'Facebook Ireland Ltd', this latter is subject to the Irish Data Protection Act (DPA) and Directive 95/46/EC. In addition, a 'mass access' to personal data without a reasonable and specific suspicion against an individual is illegal under the European Court of Human

Protection Commissioner (DPC). The complaint was aimed at prohibiting Facebook to further transfer data from Ireland to the US, in the light of the revelations made by Edward Snowden concerning the NSA's mass surveillance program, which involved *Facebook Inc.* among other companies. The Irish DPC refused to investigate his claim and Mr. Schrems appealed the decision of the DPC before the Irish High Court, that decided to stay the proceedings and to refer the question of whether national DPAs has competence to investigate the adequacy of data protection in a third country to the CJEU for preliminary ruling. In September 2015 Advocate General Yves Bot issued his opinion⁸¹ on the case, indicating that the Safe Harbour agreement had to be invalidated because it failed to provide the requisite legal protection under EU law. In October 2015, the European Court of Justice issued a judgment⁸² ruling that (1) Member States' DPAs have the right to examine the claim of a person concerning the protection of his rights and freedoms in regard to the processing of personal data relating to him which has been transferred from a Member State to that third country when that person contends that the law and practices in force in the third country do not ensure an adequate level of protection, and (2) the Safe Harbour Decision is declared invalid due to the lack of adequacy. In July 2016 the Commission set up a new political agreement with the US through the adoption of the EU-US Privacy Shield Decision⁸³. More than twenty civil society groups opposed its adoption⁸⁴, stating that it does not comply "with the standards set by the Court of Justice of the European Union (CJEU), including in the recent case invalidating the legal underpinnings of the Safe Harbour Framework". However, the just come into force General Data Protection Regulation (Regulation 2016/679, 2016⁸⁵) has specific requirements for companies that handle EU data in any country, not just the US: data transfer may only occur to countries considered by DPAs as having adequate

Rights (ECHR) and the Charter of Fundamental Rights of the European Union (CFR), of the principles of 'purpose limitation' and the principle of proportionality as defined in the Directive 95/46/EC and the DPA. In summary, since the just mentioned Directive allows for a transfer of personal data to a third country only if an 'adequate level of protection' is guaranteed and the 'Safe Harbour' Decision should be interpreted in line with this proposition, a bulk transfer of personal data to the NSA would therefore be in breach of all the rule listed.

⁸¹

Available

at:

<http://curia.europa.eu/juris/document/document.jsf?text=&docid=168421&pageIndex=0&doclang=en&mode=lst&dir=&occ=first&part=1&cid=326249>

⁸² Available at: <http://curia.europa.eu/juris/document/document.jsf?docid=169195&doclang=EN>

⁸³ Decision 2016/1250/EU (2016).

⁸⁴ See: <https://epic.org/privacy/intl/schrems/Priv-Shield-Coalition-LtrMar2016.pdf>

⁸⁵ For a comprehensive explanation of GDPR novelties and requirements see Bassi *et al.* (2017).

data protection laws. The US is not generally listed as one of those countries. Privacy Shield should therefore help to create the adequate juridical environment needed for US companies to meet the GDPR requirements.

In our previous work (Lucarelli et al. 2017) we had already pointed out how expertise of companies specialized in *Big Data* analytics have been and were likely to be increasingly hired in political leaders' election campaigns. As early as 2012, a 'The Guardian's article was advising that "the re-election team, Obama for America, will be inviting its supporters to log on to the campaign website via *Facebook*, thus allowing the campaign to access their personal data and add it to the central data store - the largest, most detailed and potentially most powerful in the history of political campaigns"⁸⁶. As regards Donald Trump, *Cambridge Analytica*'s recruitment to target key messages to relevant voters was publicly known approximately one year before the data scandal⁸⁷. Indeed, we had also made reference to a work⁸⁸ by Michal Kosinski (computational social scientist and Associate Professor in Organisational Behaviour at the Stanford Graduate School of Business) and David Stillwell (Deputy Director of the Psychometrics Centre at the University of Cambridge), based on a sample of 58.466 volunteers from the United States, obtained through the *myPersonality* Facebook application (devised in 2007, while a student, by Stillwell) which included their *Facebook* profile information, a list of their Likes, psychometric test scores, and survey information. The study demonstrated that the app could be used to « automatically and accurately predict a range of highly sensitive personal attributes including: sexual orientation, ethnicity, religious and political views, personality traits, intelligence, happiness, use of addictive substances, parental separation, age, and gender » (*Ibidem*: 5802). According to 'The Guardian'⁸⁹ the defence and military establishment were the first to notice the relevance of the research: "Boeing, a major US defence contractor,

⁸⁶ Pilkington E. and Michel A. (2012), *Obama, Facebook and the power of friendship: the 2012 data election*, The Guardian, 17/02/12 URL: <https://www.theguardian.com/world/2012/feb/17/obama-digital-data-machine-facebook-election>

⁸⁷ Bright S. (2017), *After Trump, 'big data' firm Cambridge Analytica is now working in Kenya*, BBC News, 03/08/17. URL: <http://www.bbc.com/news/blogs-trending-40792078>

⁸⁸ Kosinski et al. (2013).

⁸⁹ Cadwalladr C. (2018), *The Cambridge Analytica files - 'I made Steve Bannon's psychological warfare tool': meet the data war whistleblower*, The Guardian, 19/03/18. URL: http://davelevy.info/Downloads/cabridgeanalyticafiles%20-the guardian_20180318.pdf

funded Kosinski's PhD and Darpa, the US government's secretive Defence Advanced Research Projects Agency, is cited in at least two academic papers supporting Kosinski's work"⁹⁰. It was only after the publication of the above mentioned work that psychometric profiling publicly disclosed its explosive potential. Christopher Wylie, Cambridge Analytica data breach's whistleblower and former research director of the company, revealed how Cambridge Analytica's first activities were founded on a dataset, whose parent company SCL (*Strategic Communication Laboratories*) bought in 2014 from another company, named *Global Science Research* (GSR) and owned by faculty member at Cambridge University Aleksandr Kogan: "emails reveal Wylie first negotiated with Michal Kosinski to use the *myPersonality* database [...], but when negotiations broke down [...] Aleksandr Kogan, offered a solution that many of his colleagues considered unethical, [offering] to replicate Kosinski and Stilwell's research and cut them out of the deal". Therefore, hundreds of thousands of Facebook users who used the resulting Facebook app, called '*This Is Your Digital Life*', unwittingly gave access on average to 160 other people's profiles each. As a result, tens of millions of persons around the world (over 80 percent in the US⁹¹) had their personal information harvested by Cambridge Analytica which, shut down in early May⁹², self-proclaimed as "the global leader in data-driven campaigning supporting more than 100 [political] campaigns across five continents"⁹³.

Three days after the news entered the public domain, the first of a subsequent waterfall of class actions⁹⁴ was filed in San Jose (California) by Lauren Price⁹⁵, accusing Facebook of unlawful business practice, unfair business practice, and negligence, on behalf of herself and "all persons who registered for Facebook

⁹⁰ *Ibidem*.

⁹¹ Statista (2018), *Number of Facebook user accounts that may have been compromised in the Cambridge Analytica scandal as of April 2018 by country*. URL: <https://www.statista.com/statistics/831815/facebook-user-accounts-affected-cambridge-analytica-by-country/>

⁹² Salinas S. (2018), *Cambridge Analytica is shutting down, says the 'siege of media coverage' drove away clients*, CNBC, 02/05/18. URL: <https://www.cnbc.com/2018/05/02/cambridge-analytica-is-shutting-down-wsj.html>

⁹³ See: <https://ca-political.com/>

⁹⁴ Fontana F. (2018), *Lawsuits Against Facebook Over Data Privacy Issues Are Piling Up*, The Street, 27/05/18. URL: <https://www.thestreet.com/story/14536213/1/everyone-who-is-suing-facebook-for-cambridge-analytica.html>. The article lists 16 lawsuits, the majority of which are class actions, filed in the US within the first two weeks following the scandal.

⁹⁵ *Lauren Price v. Facebook, Inc., and Cambridge Analytica*, Case No. 5:18-cv-01732-HRL. Available at: https://www.scribd.com/document/374558586/2-Facebook-PDF-Classaction#fullscreen&from_embed

accounts in the United States and whose Personal Information was obtained from Facebook by Cambridge Analytica without authorization or in excess of authorization”, namely 50 million circa. A joint class-action lawsuit was filed⁹⁶ on April 10th by lawyers in the US and UK against Facebook, Cambridge Analytica, SCL, and GSR, for violation of the Stored Communication Act, fraud, negligence, and wilful negligence. In early May, a proposed class action was filed⁹⁷ at the Ontario Superior Court of Justice by Jessica Simpson, lead plaintiff on behalf of the more than 600.000 Canadians whose personal data was misused. At the end of May, the Italian non-profit consumer association ‘Altroconsumo’ and partner organisations in Belgium, Spain and Portugal, launched collective actions⁹⁸, requesting a minimum compensation of 200 euros per user. In Italy, the class action has reached more than 26.000 subscribers⁹⁹.

For its part, Facebook does not seem to have suffered from the Cambridge Analytica’s debacle. According to the financial results¹⁰⁰ for the quarter that ended March 31th 2018, both daily and monthly users are up 13 percent year-over-year, mobile made up 91 percent of all ad revenue, up from 89 percent last quarter, net income was of \$4.98 billion (up from \$4.26 billion last quarter), and Average Revenue Per User reached \$5.53, up 30 percent year-over-year. This data shows therefore that not even very big troubles have been able to paralyze Facebook’s growth, although it might be more prudent to wait for the next quarter’s results. In any case, as highlighted in Lucarelli et al. (2017), the fact that users, though completely free to do so, are disinclined to leave a social network populated by much of their friends and acquaintances, and upon which they have built job’s and leisure’s connections, can prevent users from shifting to a competing platform. In the Facebook’s case, voice seems in fact to greatly overcome the exit option, although the company operates in

⁹⁶ Redmond et al v. Facebook, Inc. et al., Case No. 3:18-cv-03642. Available at: https://www.pacermonitor.com/public/case/24850435/Redmond_et_al_v_Facebook,_Inc._et.al

⁹⁷ Nanji S. (2018), Canadian class action launched over Facebook data-scraping scandal, The Star, 02/05/18 URL: <https://www.thestar.com/news/canada/2018/05/02/canadian-class-action-launched-over-facebook-data-scraping-scandal.html>

⁹⁸ Altroconsumo (2018), Scandalo dati. Class action contro Facebook, 30/05/18. URL: <https://www.altroconsumo.it/organizzazione/media-e-press/comunicati/2018/scandalo-dati-class-action-contro-facebook>

⁹⁹ See: <https://www.altroconsumo.it/azioni-collettive/facebook>

¹⁰⁰ Press Release available at: <https://investor.fb.com/investor-news/press-release-details/2018/Facebook-Reports-First-Quarter-2018-Results/default.aspx>

an environment comprised of a theoretically great amount of close and available substitutes. This proves how strong the network effects' factor is in the digital economy.

2.2.2. Movements and class actions against the 'uberisation' of the economy¹⁰¹

In part 1.3 we have seen in detail how the business model developed by Uber has subsequently affected the entire economy. In this part we will have a close look at all the aspects related to the world of work as far as its precariousness and flexibility are concerned - which have been imposed by the so-called platform economy.¹⁰²

This economic model uses new types of employment contracts which are replacing those forms of permanent employment carried out for a single company in the 20th century. The main consequence of this change is that workers not only are now more and more precarious, but also unprotected. Just think of the US economic recovery that led to the creation of 9.4 million new jobs, mostly on-call workers, freelancers, part-time workers. While the number of employees has had a contraction equal to 400,000 jobs (Staglianò 2018: 10).

In light of this, most of the work activities fall into the category of independent workers or all those new types of work through which people earn their incomes outside traditional jobs.¹⁰³ According to a researcher at the McKinsey Institute, the "independent work" (Maniyka et al. 2016: viii) is the type of work characterised by: a high autonomy in its performance; a short working relationship between those who offer and demand work; payment takes place at the end of each individual job. As we will see further on, the debate about this kind of contract is crucial to understand

¹⁰¹ From paragraph 2.2.2. tol 2.2.3. wrting by Giuliani A.

¹⁰² We will use the term of platform economy instead of the more generic gig economy that can be extended to the whole economic system, where the demand and supply of work and the relative execution of temporary jobs are often not paid and do not go through the intermediation of digital platforms. However, there is an exception represented by the hybrid model of Amazon.

¹⁰³ Currently and especially in the Anglo-Saxon language, different names are used to indicate independent work: individual contractor, freelancer, self-employed or consultant. Regardless, it is part of what the International Labor Organization (ILO) indicates as non-standard forms of employment. See also De Stefano (2016).

the problematic nature of the labour market in the platforms economy¹⁰⁴. On the one hand, we have some platforms seen more as simple intermediaries between requesters and providers of work activities, rather than typical employee-employer relationships with all the obligations and duties linked to them. On the other hand, we have other platforms that have the desire to be seen as real employers, since they have so much control on more and more workers in terms of organisation and management of work. Around 15 percent of the independent workers in the United States and the European Union have found work through digital platforms¹⁰⁵. Now we will sum up how the platforms and apps' workers are trying to organise themselves to respond to this 'freedom' that the institutions have left to them. The lack of strict regulation in terms of labor law and a certain flexibility in terms of taxation were initially justified by incentivising technological innovation and releasing energies, in a sort of creative destruction (the Schumpeterian model) in line with the spirit of communication of the 'European Agenda for the collaborative economy'¹⁰⁶.

Firstly, we will have a terminological introduction - important to clarify the complex world of the platforms economy.

Secondly, we will try to show how the process of 'uberisation' is encountering forms of opposition, such as bottom-up mobilisations through class actions and different labor laws - that are pushing the relevant national and international bodies to deal more accurately with the economy of the platforms, as in the case of the European Union.

Although within the debate on digital platforms different terms are used to indicate the different types of precarious, flexible and mostly non-unionized work, we believe it is appropriate to make a general distinction between the two main areas of the 'platform work': crowdwork and on-demand work.¹⁰⁷

¹⁰⁴ Maniyka et al. (2016).

¹⁰⁵ According to the report prepared by Maniyka et al. (2016: viii) between the United States and the European Union (15 member countries considered) the independent workers are 20-30 percent out of 162 million working people.

¹⁰⁶ See URL: http://europa.eu/rapid/press-release_IP-16-2001_en.html

¹⁰⁷ Authors like Florian A. Schmidt (2017) prefer to use the term cloud work instead of crowdwork. That is because workers who complete these activities use only the network. This interpretation seems to overshadow the fact that these jobs are still carried out by workers in a physical place, even when different from the client's. Schmidt (2017).

Crowdwork

It is a system based on platforms that match the demand to the supply (professional or not). Basically this means that people launching a proposal for a service wait for someone to find it interesting. The key elements are the intermediation and organisation of work: 1) who can be in any corner of the world in relation to the place where the customer is located. 2) The users can carry it out in the time it is appropriate to take into account the agreed time to carry it out and in the manner it deems most appropriate. There is no direct human relationship amongst individuals, but only online. In this type of work, individuals perform activities that may have different degrees of complexity and fragmentation of work (recognition of images, texts, audio and video files), but which cannot be performed, at least in their integrity, by algorithms. *Amazon Mechanical Turk* is the best example to clarify what we are talking about: the requester that demands the translation of a text or the recognition of specific images can answer a provider located on the other side of the world. In this way, the role played by the ubiquity of crowd work platforms is extremely important because crowdworkers can be located anywhere in the world.

On-demand Work

This term means that someone has to ask for a service and someone else to satisfy it according to the applicant's ways and times. For its brokerage activity, the platform retains a fee charged on the price determined by the algorithm for each transaction (task), a price that is accepted by both the applicant and the provider. The definitive transaction between the parties takes place only when the activity has ended. In this way, the platforms have been considered free from the constraints of employment relationships with the lenders until now. One of the most difficult aspects of the on-demand work is that every contractor takes not only the ownership of the means by which the work is carried out, but also all the business risks¹⁰⁸. As well as the costs of ordinary and extraordinary maintenance (for example, the delivery riders such as *Deliveroo*, *Foodora*, etc.). Plus, a contractor has not got the same rights that an employee has (such as health insurance, social security and unemployment benefit,

¹⁰⁸ Through the Xchange Leasing programme, *Uber* rented cars to drivers who did not have enough finances to buy a car. However, most of the individuals created a hole in the accounts of *Uber*'s subsidiary. To avoid further problems, *Uber* sold the business to Fair.Com. a company specialised in car rental and sale (Chang 2017).

etc.). Unlike the crowd work, in the on-demand work there is a real and localised relationship between the users and providers. For example, with *Uber* the client meets the driver in a certain city. As well as when using the *Airbnb* platform, the client meets the host in a specific place.

Crowdwork		Work on demand	
Global Service		Local Service	
Sector		Sector	
Human Intelligence Task	Ex. : Amazon Mechanical Turk	Transport	Ex.: Uber, Lyft
		Delivery	Ex.: Foodora, Deliveroo, Uber Eats
		Accommodation	Ex.: AirBnB

Table 2.2 : Work in the Platform Economy
Source : Personal elaboration

In both these types of work, the demand and the supply of particular activities are possible through Internet platforms and / or via apps connected to them. However, much more complex is the legal framework of all these types of work not only between, but also within them. In the crowd work, working conditions can change according to the different platforms used, as well as the methods of acceptance, execution and payment of the work (De Stefano 2016: 3).

In this situation, platforms tend to use strategies to disguise subordinate employment, which means profit and capitalistic valorisation.

Moreover, the concept of flexibility - seen as a free choice of working hours - goes into crisis. In fact, workers are forced to carry out their activities at times that do not allow them a 'satisfactory' social life, as stated by the bio-capitalism theorists (Codeluppi 2008).

As we have already said, on the one hand companies' boundaries are spreading increasingly (as we have largely seen in part 1.3 dedicated to the 'uberisation' of the economy) on the other, for many workers the status of employee is something

unreachable and precariousness is the norm. These workers change their clients, but often they are tied to a single one, so it is difficult for them to be real freelancers. The 'piecework' or 'cognitive piecework' (Felstiner 2011: 147) is one of the biggest job opportunities offered by the platform economy, taking into account that in the contracts particular attention is given to the intellectual property rights that are in the client's hands.

However, the problem of the return of the 'piecework' is the quality rater. This is a form of temporary collaboration that can be prolonged several times but does not go beyond the duration of a year. In short, this rater consists in checking if the algorithm has performed well its functions (such as the correct transcription of the audio files or the right captions of pictures) and if not, correct the error and report it to the algorithm.

The case of the raters also involves the uberisation of the economy: the explosion of the use of temp agencies in global terms.

Just think of Google: because of an error in the evaluation of the algorithm, the user of the well-known search engine instead of watching the British Royal Navy's spot was watching the rantings of a well-known Holocaust denier. In this case, the artificial intelligence was not able to interpret the key words forcing the home of Mountain View to run for cover, with the breakdown of major advertising contracts and the hiring of its 10.000 quality raters full time as a result. Indeed, amongst its approximately 72.000 employees, there were no employees with this qualification. In fact, *Google Quality* raters were recruited through temporary employment companies, amongst which *Leapforce*¹⁰⁹ stood out specialised in intermediation in technological professions (Staglianò 2018: 131). The case of temporary employment agencies - that subcontract the work to raters - leads to a series of problems: 1) In judicial terms, it makes it difficult to understand who the employer really is and who to turn to in case of non-fulfilment. 2) In most cases, these brokerage companies do not have the legal requirements to operate in compliance with the labour law in every country. 3) Last but not least, the tax and social security obligations that these companies must respect.

¹⁰⁹ *Leapforce* was founded by Daren Jackson, a former Google employee and located in Pleasanton, California.

In ongoing debates, it is often emphasised that amongst workers of different temp agencies, there are individuals who would find it very difficult to find an alternative job for health or logistics reasons, so they cannot miss these job opportunities. When they tried to improve work conditions, as in the case of the aforementioned *Leapforce*, these companies' response was to leave the involved employees at home.¹¹⁰

Legislation, Class Action and workers' mobilisations in the platform economy era

Platform economy storytelling 'sells' the fact that in most cases one is forced to take gigs as opportunities. Whether it the rental of part of one's home on *Airbnb* or one's time 'on sale' on *UpWork* or *AMT*, all this is part of this paradigm. However, this business model is more and more often finding counter-tendencies, as evidenced by the striking case of *Uber* in the transport sector.

Legislation and Class Action

For example, in the United States we have cases in which litigations concerning transport platforms such as *Uber* and *Lyft* have ended up having all the possible attention from the competent authorities. In such cases, the district court concluded that these platforms do not act as simple technological intermediaries. The class action brought by 380.000 *Uber* drivers saw the latter succumbing to justice and *Uber* was recognised as an actual transport company organising the activities of drivers through technological tools, and not as a simple intermediary¹¹¹.

¹¹⁰In fact, these workers were offered 26-hour-per-week contracts to avoid not only legal risks, but also health insurance and other related rights. See Newitz A. (2018).

¹¹¹In the US institutions such as the Internal Revenue Service (IRS) and the Department of Labor (DOL), also thanks to the US DOL Employment Workshop promulgated in 2015, they have a whole range of tools helping them determine if a worker is an employee or an independent professional and if the different platforms are to be legally considered as employers. However, many labour law experts insist that in order to clarify the dissimulative approach in terms of work relationships and control over the performance of the various activities carried out by the platforms, it is sufficient to have the national laws on the issue respected according to the 'supremacy of the facts', dear to common law systems, and not on the basis of private agreements (De Stefano, 2016: 16). Another important event, under Obama's Administration, consisted in giving workers the possibility of filing class action against employers. With the verdict of 21st May 2018, the American Supreme Court has recognized that labour lawsuit must be filed individually. See Wolf (2018).

Crossing the ocean, England seems to question *Uber*'s business model as well. All this started with *Uber* being suited by two drivers from the blue London cars: Yaseen Aslam and James Farrar¹¹². Following two incidents involving passengers, the two drivers wanted to take legal action to get justice, but the emblematic aspect of these events is that *Uber* did not want to declare the passengers' personal data. This was an element that emphasised how controlling crucial aspects in the management of the activities provided by *Uber*, such as the passengers' personal information, was not to be directly referred to whom *Uber* itself considers as self-employed. For this reason, the Leigh Day law firm filed a class action suit against *Uber* on the behalf of 25 members of the *General, Municipal, Boilermakers and Allied Trade Union* (GMB), the union that took charge of the legal expenses in which initially Farrar and Aslam also participated. Following, the latter went on with a new union, the *Independent Workers Union of Great Britain* (IWGB)¹¹³. Justice has recognised non only that *Uber* drivers are actual employees, but also that they have the right to minimum wage and paid leave, despite not providing them with any legal protection in case of illegitimate dismissal (protection that instead employees have)¹¹⁴.

Waiting for the verdict in England, the ones questioning *Uber* are not only US and British drivers, this kind of trials being now witnessed in the entire European continent and even beyond.

In Spain, in 2014, an organisation of professional taxi drivers appealed to the Barcelona commercial court to denounce Uber System Spain's unfair competition. The Spanish judge basically asked whether *Uber*'s activities are within the scope of the 2006/12 and 2000/31 EU Directives and the measures of the FEU Treaty concerning the freedom to provide services. The Spanish judge, in addition to calling in the European Court of Justice for the aforementioned rulings, raised the issue of the compatibility between national transport legislation and European rules on the freedom of competition in terms of electronic commerce. In December, 2017 the European Court of Justice ruled that "intermediation service must be regarded as

¹¹² In London there are about 50.000 drivers who use *Uber* apps and about 80 percent of them have a self-employed status.

¹¹³ IWGB is a community based trade union that operates in various sectors, including cleaning and home delivery, and which works to give representativeness to precarious, low-paid workers and immigrants who did not find representation in traditional unions.

¹¹⁴ See: <http://www.bbc.com/news/business-41940018>

forming an integral part of an overall service whose main component is a transport service and, accordingly, must be classified not as 'an information society service' but as 'a service in the field of transport'¹¹⁵.

In this sentence, the Court of Justice (clause 34) has recognised that the European directive on electronic commerce does not apply to this service, in accordance with the existing European directives on internal trade¹¹⁶, underlining that *Uber's* control over drivers is not exercised in the context of an employer/employee relationship, but in that of a relationship based on indirect control based on financial incentives. This control enables a work management that is as efficient as, if not even more effective than, the one based on the formal instructions given by an employer to his employees¹¹⁷.

In Italy, the sentence of the European Court of Justice is in line with the two sentences of the Court of Milan (May 2015 and June 2015) that had demanded the closure of *Uber Pop* for unfair competition to taxi drivers. A conviction added to the block of the classic service of *Uber Black* (the one with driver), also imposed in 2015. After a series of judicial events, the organisations of taxi drivers succeeded in obtaining in April 2017 that the services offered by the *Uber Italy* group would be obscured¹¹⁸. Following this, the Court of Rome appealed against this sentence, leaving the platform active until the final verdict.

As far France is concerned, in 2016 the authorities rejected the civil action filed by the National Union of taxi drivers and the taxi drivers' unions in Marseille and in Provence for illegal taxi service activities. In 2017, a controversy was opened by the *Uber* collaborators for their recognition as 'employed workers', a controversy that

¹¹⁵See: <https://q8fip1kplvr33r3krz5b97d1-wpengine.netdna-ssl.com/wp-content/uploads/2017/12/uber-ecj-press-release.pdf>

¹¹⁶European directives 2006/123 / CE and 2000/31 / EC already mentioned.

¹¹⁷ See:

<http://curia.europa.eu/juris/document/document.jsf;jsessionid=9ea7d2dc30dd65926d2882db4fa8b06090dca25eaaea.e34KaxILc3qMb40Rch0SaxyOa390?text=&docid=190593&pageIndex=0&doclang=EN&mode=lst&dir=&occ=first&part=1&cid=562047>

¹¹⁸ *Uber Black*, *Uber-Lux*, *Uber-Suv*, *Uber-X*, *Uber-XL*, *Uber Select*, *Uber-Va*.

ended with the expansion of social protection to approximately 28.000 *Uber* drivers in France¹¹⁹.

Unionising platform workers

If justice is one of the fundamental tools against the ambivalence of the platforms, it is necessary to underline that a decisive role in this process is linked to a renewal of the trade unions and to new forms and strategies for organising workers. Often, as in the case of *Uber* in England, they are trade unions set up precisely in order to face the new challenges of platform economy, as in the case of the IWGB union. The IWGB is, indeed, a community-based trade union set up to give representativeness to precarious and poorly paid workers, as well as immigrants who were not able to find any representativeness in traditional unions. This trade union, after the victory concerning the recognition obtained for *Uber* drivers, has delayed the lawsuit of the *Deliveroo* workers, demanding the recognition of the status of workers for them as well. At the moment, the Central Arbitration Committee has rejected the demands of *Deliveroo*'s workers, considering them self-employed, but the legal developments of this decision (Johnston and Land-Kazlauskas 2018: 11) are still awaited.

If the IWGB union in England is very combative, in Germany the one providing platform workers with legal representation is the *IG Metal* union. At the moment, *IG Metal* offers legal assistance through the *CrowdWork.org* project to which all platform economy workers can apply. In other European countries, including Italy, however, there is a sort of slowness among traditional trade unions in defending digital labourers' interests, a lack, among other things, witnessed by a disillusionment, especially felt by millennials, towards traditional trade unions. Even the largest Swedish union, *Unionen*, although the number of workers is still relatively small, has been activated through the *FairCrowd.work* project, at the beginning to provide insurance coverage to all gig economy workers. Although in Sweden the number of digital labourers is relatively small, the *Unionen* has decided to play a decisive role in establishing collective negotiations for platform workers (*Ibidem*: 9).

¹¹⁹ French legislation makes the use of the class action particularly complex and difficult to implement. See also: <https://www.latribune.fr/entreprises-finance/services/transport-logistique/uber-debarque-dans-trois-villes-du-sud-de-la-france-790614.html>

In Italy, an important role for the recognition of riders as employees, during the debate on the national collective labour agreement for logistics workers, was played precisely by movements 'from the bottom-up' such as the Riders Union Bologna¹²⁰.

Umbrella Company

Therefore, waiting for the final sentences by the British Supreme Court concerning *Uber* and *Deliveroo*, an alternative to these forms of informal contracts can be found in the United Kingdom: Umbrella company. The Umbrella Company is a compromise solution that has spread in the UK since 1999, when the British government introduced the so-called 'IR35' rules. An Umbrella Company is a company that offers a work relationship, even in a subordinate form, to substantially self-employed workers who already have their own client base (requesters) or who are able to get in touch with different companies through digital platform intermediation. An Umbrella Company, if compared to one-to-one negotiations, offers more protections in terms of wages and social security coverage (Eurofound 2015 :118-120).

Online forums and strikes

An additional form of voice that is spreading is the proliferation of online forums, where the workers of the various platforms discuss working conditions, the quality of the various re-questors and how to arrange further forms of organization.

Other forms of mobilisation are represented by the classic strike consisting in not providing the service: this type of strike mainly involves the platform deliverers, as in the case of *Foodora* in Italy. These workers started striking when they went from being paid per-ride to being paid per piece, in line with what has been previously said¹²¹. These kinds of protests can be found in every country where the platforms are present.

¹²⁰ Bonaddio D. (2018), *Rider, trovato l'accordo: tutele e novità dal CCNL Logistica e Trasporti, Lavoro e diritti*. URL: <https://www.lavoroediritti.com/ccnl/rider-ccnl-logistica-e-trasporti>

¹²¹ According to a *Foodora* rider, the price for each ride was 5.40 euros, an amount that with the piecework contract became of 2.70 euros. See: Alfé C. (2016), *Cosa sappiamo finora della protesta*

As we will see in more detail in part 2.3.3., another alternative to the ‘uberisation’ of the economy is the spread of the platform cooperatives which, on the basis of the values of the historical cooperativism, enable workers to create alternatives to the model of capitalist platforms.

2.2.3. Movements against Amazon and the use of data as a neo-Tayloristic tool to control work

Once taken off the work suits characterising the Fordist model, the platforms workers can now be found in increasingly fragmented activities, where the added value is lower and lower and their interchangeability is extreme. A division of labour based on the hybrid man-machine, where the machine is no longer a mere aid to human labour but becomes an integral part of it. It is no coincidence that in the description that accompanies the licence application for *Amazon Mechanical Turk* (AMT) they mentioned a 'hybrid machine/human computing arrangement'¹²².

The work of the ‘Turks’ brings back again the employment type of piecework, involving repetitive and unpaid tasks (see paragraph 1.3) that are remotely controlled by the algorithms, and this does not only concern AMT. Just think of how *Upwork* controls its workers through *Work Diary*, a specific application enabling the requesters to check if the crowd workers are engaged in their activity or not through screenshots of the computers on which they are working. And if this is not the case, there are penalties such as fines and reduction in the gains. Despite these conditions, at least *Upwork* guarantees the payment of the activity carried out, while *Amazon* allows those who made the order not to pay for the ‘ultimate product’ if they are not satisfied with it.

The case of the ‘Turks’ becomes well-known in 2014, when the AMT workers gave life to a collective action asking for the payment of salaries and better working conditions. So, they decided to send an email directly to *Amazon’s* boss Jeff Bezos.

contro Foodora, Dissapore, 12/10/16. URL: <https://www.dissapore.com/ristoranti/torino-foodora-protestarider/>.

¹²²See:

<http://patft.uspto.gov/netacgi/nphParser?Sect1=PTO1&Sect2=H1OFF&d=PALL&p=1&u=%2Fnetacgi%2FPTO%2Fsrchnum.htm&r=1&f=G&l=50&s1=7,197,459.PN.&OS=PN/7,197,459 & RS = PN / 7,197,459>

Following this email, one of his crowd workers, Manish Bhatia, fascinated by the idea of being part of this hybrid man-machine model, received a reply from Jeff Bezos himself, promising to solve the problems he had underlined.

All this starts when a group of academics, joining all the AMT workers, created *We Are Dynamo*, a platform that enables the Turks to exchange news and organise through forums that led to the success of Bhatia and his colleagues. This step marked an important victory for the movement of the AMT workers, partly because it succeeded in the difficult task of organising the various crowd workers located around the world (Salhei et al. 2015). The success achieved by *Dynamo* was however limited because AMT, in order to avoid an expansion of the movement, put in place a number of procedures, preventing *Dynamo* from continuing its trade union activity.

After this failure, the AMT crowd workers continued to organise themselves through public forums where the Turks exchange information using the same principle as the consumer rating, used by the Turks to give information on the quality of the client. Of course, there are still many Turks who are forced to accept jobs even from clients who are not classified or who do not have a very good reputation, but a first step towards self-organisation is now evident and enables the workers to avoid excessive and unpaid workloads.

Following these experiences, activists and academic researchers have created another initiative to be attentively followed, like that of the *Daemo*. *Daemo* is a platform developed within the Crowd Research Collective of Stanford, which aims to give to the many crowd workers its own platform based on the principle: "A crowdsourcing platform governed by its users: you"¹²³. Several researchers and activists contributed to this project, among them the researcher Michael Bernstein (who had participated in *Dynamo*), Lilly Irani of UC and Kristy Milland, long-time turker and community manager of the TurkerNation forum.

Although the activities that are profitable for Amazon are now more and more intangible, like the *Cloud* computing service (for a detailed explanation see section 1.3), selling goods still represents an important part of its activity, also taking into account the various acquisitions brought to and end by the Bezos' company, like

¹²³ See: <https://www.daemo.org/home>

that of Whole Foods supermarkets. Goods that, from the moment of the click by which one buys them online at the lowest possible price to when they are delivered to the costumer, go through a number of activities in which the logistics sector plays a fundamental role in getting the product received at the lowest price possible in front of the consumer's front door.

With narrow timings for each single operation, all movements, including those for the breaks that employees at various Amazon stores around the world must have, are recorded through devices that are then analysed in order to increase even more the neo-tayloristic division of labour (at least until the workers - in a future that is not too far, as *Uber*'s guru, Kalanick, wishes - will be largely replaced by Artificial Intelligence, robots and drones that deliver goods).

Thus, the data collected by the new technologies make possible what the old industrial enterprise was not able to realise. A total control over the working time and the perfect interchangeability of workers, being them either spending plenty of time behind a screen for *Amazon Mechanical Turk* or responsible for *Amazon* delivery (or any other capitalist platform in the industry)¹²⁴. In this long chain, working conditions are considered by workers as heavy and exhausting, until they are pushed towards their physical limit (Peterson 2018a). This aspect does not only concern workers directly employed by *Amazon*, but also those outside the platform organisation chart. An example of this is represented by the logistics workers with whom temporary agencies provide *Amazon*, often adopting contracts that do not respect the conditions described in the national collective labour agreement (as far as the minimum hourly wage is concerned, see: Sainato 2018). Often also using those cooperative enterprises, which instead of guaranteeing and protecting the workers, have become useful tools to contain transport costs for *Amazon*, betraying to the values of the historical cooperativism¹²⁵. Some drivers say that they must 'perform' at

¹²⁴ Bezos, in a letter sent to shareholders, revealed that the prime clients who pay \$ 99 a year to receive certain products for free in two days and on the same day through Prime Now are around 100 million, while the parcels delivered in 2017 exceeded 5 billions. With the introduction of the Prime program, *Amazon* aimed to encourage customer loyalty, and this also marked *Amazon*'s entry into the consumer loan sector. See: <http://www.businessinsider.fr/us/amazon-prime-member-numbers-revealed-2018-4>

¹²⁵ See also: Del Vecchio G., Carella N. (2017), *Germania, successo delle proteste contro Amazon*, 25/11/17, Dynamopress. URL: <https://www.dynamopress.it/news/germania-successo-delle-proteste-amazon/>

least 200 deliveries per day, a number that can considerably increase during certain periods of the year, such as in the case of holidays (Moretti 2017).

The delivery staff are constantly monitored by *Amazon* through various tools, among which we highlight the handheld package scanners. These tools, nicknamed 'rabbits', enable *Amazon* to check the position of drivers and customers to check the order delivery status through the Map tracking application that *Amazon* provides them with (see Peterson 2018). In this way, *Amazon*, in addition to the omnipresent control of the algorithm, externalises part of the control that is thus gratuitously carried out by customers (in line with what was said in this report on digital labour) through the evaluation mechanism used by all capitalists platforms.

From the power of the consumer to data control

When it comes to reputation value (rating), we mean the evaluation carried out on applications by end users on the quality of the different services offered by the various providers, being them *Uber* drivers, owners of accommodation they found on *Airbnb* or *Amazon* drivers. This is an evaluation tool that has little to do with the vaunted power of consumers but that, on the contrary, is problematic for two reasons:

- 1) The system of assessments sent via app and readable by anyone, instead of offering a democratic and transparent tool concerning the quality of service and of the activity carried out, has a negative impact on those who perform a given service, as a *Uber* driver or a cleaner that we can find on *UpWork*. Through the system of reputation value, the worker's possibility to work in the future is exclusively determined by a judgment that is biased and may depend on various factors that have little or nothing to do with the activity or service offered.
- 2) The second reason, closely related to the first, consists in the fact that, in this way, the customers themselves offer a free amount of data that the various providers can use to safeguard and increase their turnover.

What is sure is that, going back to the logistics workers, working conditions are becoming stricter and stricter. In several countries, an attempt was made to find an agreement to improve working conditions through union activities that have not been very successful. Faced with this situation, *Amazon*'s logistics workers in order

to raise public awareness on this dynamics have started a number of strikes, in Amazon's logistics chains in Italy and Germany. Workers in these countries called a strike on 24th November 2017, on the day of 'Black Friday', trying to boycott sales on the day when globally, many shopping giants such as Amazon offer the biggest discounts on products, Christmas being in sight. This transnational strike was one of the first ones marking platform capitalism, despite not having the success that was hoped, partly linked to the use of temporary workers called by the e-commerce multinational in order to replace the workers on strike. One aspect, that of temporary work, which, together with the fiscal issue, accompanies the development of capitalist platforms. However, Amazon workers have continued to organise new strikes. The latest in the news was the one held on 17th July, which involved several European countries such as Germany, Spain and Poland, for the Prime Day, the day when Amazon provides promotions and discounts. In Germany the strike - in which different unions participated - was accompanied by the 'Amazonstrike' hashtag, which spread through Twitter and was 're-launched' in different languages, leading people to show their solidarity on various social networks and media. In addition to the issue concerning better working conditions, there was also the desire to spread a greater awareness among consumers. The same aim, as we will see further on, that accompanied the founders of the first consumers' cooperative in Rochdale, today inspiring the German *Fairmondo* platform.

2.2.4. Strength and ambiguity of 'resistance practices' and 'counter conducts': Darknet, Tor, and ad blockers¹²⁶

To properly broach the first two subjects under analysis (*Darknet* and *Tor*), it is necessary to make some preliminary clarifications. The first one concerns the distinction between *Surface Web* and *Deep Web*. As explained the computer scientist (Bergman 2001) credited with coining the term, the Deep Web is the portion of the World Wide Web (which in turn is just one of the ways to access

¹²⁶ Written by Rocchi G.

information over the medium of the Internet¹²⁷) that, contrary to the *Surface Web*, has not been crawled and indexed by standard search engines, an operation that requires a page to be static and linked to other pages. On the contrary, *Deep Web* content is presented dynamically in response to a custom query directed at individual websites, but it is still accessible through standard Web browsers (*Ibidem*). The *Deep Web* consists of two categories of data, the first one made up of password and paywall-protected data (like banking accounts, Twitter or Facebook posts, online medical files etc.) whose access is legally protected, while the second is larger and comprised high-quality topical databases, large internal site documents and archived publications, which can be either pay-to-use/subscription-based or publicly available. « *For most users, they may be interacting with part of the Deep Web regularly, but they may be not aware of it. For example, the directory of the US Library of Congress (www.loc.gov) is an online database that resides on the Deep Web* » (Sui et al. 2015: 8). As early as 2001, it was estimated that the *Surface Web* contained nineteen terabytes of information compared to the 7,500 terabytes of information in the *Deep Web*, whose 95 per cent consisted of publicly accessible content (not subjected to fees or subscriptions) (Bergman 2001). The *Dark Web* is instead a subset of the *Deep Web* that has been intentionally hidden and can only be accessed by specialized software. The *Dark Web* is therefore the World Wide Web of *darknets*, which collectively form the so called *Darknet*, defined as a « *decentralized distributed network (lacking a central index) that incorporate privacy, security (encryption), and user anonymity features, with the primary purpose of sharing information with trusted members* » (Wood 2010: 18).

As we will soon see, the *Tor* (acronym for ‘*The Onion Routing*’) project, besides maintaining code that allows anyone to create anonymous *Darknet* websites (the so called ‘*Tor Hidden Services*’¹²⁸, marked by the ‘.onion’ domain and running on server whose IP addresses are hidden to the visiting client and vice versa), provides for the up to now most widespread client-side’s *free software* and anonymity open network, whose main goal is to protect its users against a common form of Internet

¹²⁷ While the Web uses the Hypertext Transfer Protocol (HTTP) to transfer Web pages from a server to a user's browser, the Internet is also used, for instance, for email (which relies on Simple Mail Transfer Protocol), USENET newsgroups (which uses Network News Transfer Protocol), and for FTP (based on Transmission Control Protocol).

¹²⁸ See: <https://www.torproject.org/docs/tor-onion-service.html.en>

surveillance known as ‘traffic analysis’ (Hooks and Miles 2006), which allows cyber-attackers to infer who is talking to whom over a public network by combing four sources of information: activity on the sender’s end, activity on the receiver’s end, the actual data sent and the actual data received (*Ibidem*). Other measures, imposed by courts and Internet service providers with the aim of quelling the distribution of copyrighted or illegal materials but impacting privacy and net neutrality, are *filtering* (whose introduction lines up with the spate of litigations by major recording labels’ firms against file hosting companies) and *traffic shaping* (which entails prioritizing certain traffic flows over other traffic whose potential loss is less disadvantageous) (McManamon and Mtenzi 2010). The term ‘*Darknet*’ was originally coined in the 1970s to designate networks which, for security purposes, were isolated from US Defense Advanced Research Projects Agency (DARPA)’s ARPANET, the so to speak embryonic form from which the Internet was born in 1983¹²⁹. The terminology did not gain public diffusion until 2001, following the publication of an article by four Microsoft security engineers entitled ‘The Darknet and the Future of Content Distribution’ (Biddle et al. 2002), which concluded that there were « no technical impediments to *Darknet-based peer-to-peer file sharing technologies growing in convenience, aggregate bandwidth and efficiency* » (*Ibidem*: 171). When, two years later, *Tor* was finally ready for deployment and its design paper (Dingledine et al. 2004) was presented at the 13th USENIX Security Symposium in Washington D.C. and the ‘*Hidden Services*’ feature was added, *Darknet-based* technologies became accessible to the population at large. But let’s take some steps backward. *Tor* is an implementation of the so-called *Onion Routing* technology, a scheme for anonymous communication over a computer network of connected servers/nodes (called ‘onion routers’) whose transmitted messages are encapsulated in layers of encryption, analogous to layers of an onion: the encrypted message hops randomly from one server to another, each of which ‘peels’ a single layer of encryption, thus discovering the next destination and leaving the client anonymous, because each node along the way knows only which node gave it data and which one it is giving

¹²⁹

WayBack

Machine

(2015),

Darknet.

URL:

<https://web.archive.org/web/20150325025545/http:/darknet.se/about-darknet/>

data to¹³⁰. Not surprisingly, early development of the technology, which began in the mid-1990s, was spearheaded by three military mathematicians and computer systems researchers Paul Syverson, Michael Reed and David Goldschlag, working for the Naval Research Laboratory and funded by the Office of Naval Research (ONR) and DARPA. The original goal of *Onion Routing* wasn't to protect privacy, but rather to allow intelligence and military forces to work online undercover, without fear of being discovered: "Not helping dissidents in repressive countries. Not assisting criminals in covering their electronic tracks. Not helping bit-torrent users avoid MPAA/RIAA prosecution. [...] [But] if those uses were going to give us more cover traffic to better hide what we wanted to use the network for, all the better"¹³¹. In 2002 the project moved into a different phase, with the coming on board of two MIT-educated computer scientists Roger Dingledine and Nick Mathewson. Together with Paul Syverson, they worked on a newer version of Onion Routing until October 2003, when *Tor*'s code was released under the free and open MIT license, the U. Naval Research Lab cut most of its funding and the Electronic Frontier Foundation replaced it until 2005. From that year ahead, the *Tor* project, presently consisting of thousands of volunteer-run nodes and millions of daily users, has still received substantial funding tranches from US government sources (such as the Pentagon and diverse CIA's spin-offs) but also from several foundations as well as tens of thousands individual donors¹³² and volunteers who make non-financial contributions by coding, researching, documenting and, most important of all, running the nodes.

Tools like *Tor*, which received the 2010 FSF/GNU Project Award for Project of Social Benefit¹³³ for enabling "roughly 36 million people around the world to experience freedom of access and expression on the Internet while keeping them in control of their privacy and anonymity", makes it possible both for ordinary Internet users to exercise the right to not have their data analysed or processed by any third party and to escape government censorship in authoritarian regimes, helping also

¹³⁰ For a technical explanation of onion routing see Hooks and Miles (2006), while for a detailed description of how *Tor* works you can visit the project's official website: <https://www.torproject.org/>

¹³¹ Michael Reed (2011), *[tor-talk] Iran cracks down on web dissident technology*, Evernote, 22/03/11. URL: <https://www.evernote.com/shard/s1/sh/96791ee9-98d5-44a0-b0a9-c2a5b3b6ec31/72b5e81135196815a23eb969d080ddfo>

¹³² See: <https://www.torproject.org/about/sponsors.html.en>

¹³³ See: <https://www.fsf.org/news/2010-free-software-awards-announced>

whistleblowers, journalists, bloggers, and especially human rights activists to connect and communicate without fear of being persecuted or imprisoned. However, there are also those who take advantage of this online anonymity to use the *Dark Web* for illegal activities, such as weapons trafficking, terrorism, and illegal financial transactions (Chertoff and Simon 2015). *Silk Road*, an online cryptocurrency marketplace created in 2011 and in every way resembling *eBay* or *Amazon* but for the purchase of illegal drugs, combined technologies used to hide internet user activities (i.e. *Tor*) and technologies that allowed individuals to make purchases with a digital, non-identity-carrying form of cash (i.e. *Bitcoin*) (Barratt and Aldridge 2016).

Another ‘counter-conduct’ not entirely exceptionable from criticisms and shortcomings is that of ad blocking software, which are challenging the sustainability of the major business model on the Internet (i.e. online advertising), to the point that Interactive Advertising Bureau’s CEO has recently characterized *Adblock Plus* (one of the most popular add-on) as an “extortion-based business” that forces publishers to share part of their revenue with the company in order to whitelist the ads they host¹³⁴. Indeed, in 2011, *Eyeo* (*Adblock Plus*’ parent company) started a program called the ‘Acceptable Ads Initiative’¹³⁵, which represents the company’s main source of revenue. Only ads that comply with a set of criteria (not disrupting the user’s natural reading flow, clearly distinguishable from the website’s content, and satisfying given size requirements) are whitelisted, namely allowed to be shown to users of ad-blocking software. While *Eyeo*’s services are provided free of charge to all other participants (roughly 90 percent), large entities like *Google*, *Microsoft*, and *Amazon* have to pay a licensing fee corresponding to 30 percent of the additional revenue created by whitelisting their acceptable ads. With the likely intent of discouraging *Chrome* users from installing more aggressive ad-blocking software, *Google* has recently started to automatically block intrusive ads (around 1 percent of all) within its *Chrome* browser for desktop and *Android*¹³⁶. *Mozilla* had

¹³⁴ Lardinois F. (2016), *Interactive Advertising Bureau CEO: AdBlock Plus is an extortion-based business*, TechCrunch, 09/05/16. URL: <https://techcrunch.com/2016/05/09/interactive-advertising-bureau-ceo-adblock-plus-is-an-extortion-based-business/>

¹³⁵ <https://acceptableads.com/>

¹³⁶ Gibbs S. (2018), *Google turns on default ad blocker within Chrome*, The Guardian, 15/02/18. URL: <https://www.theguardian.com/technology/2018/feb/15/google-adblocker-chrome-browser>

integrated tracking protection back in 2014¹³⁷ and *Opera* added native ad blocking to speed up users' browser experiences in 2016¹³⁸.

Compared to the *Darknet*, ad blockers' diffusion is far more recent: while, as of January 2010, there were 21 million desktop installations worldwide, in early 2017 more than 236 million desktop devices had an installed ad blockers (PageFair 2017). As shown in Image 2.1, Canada, Denmark, and Indonesia are amongst the countries with the highest share of ad block software usage.

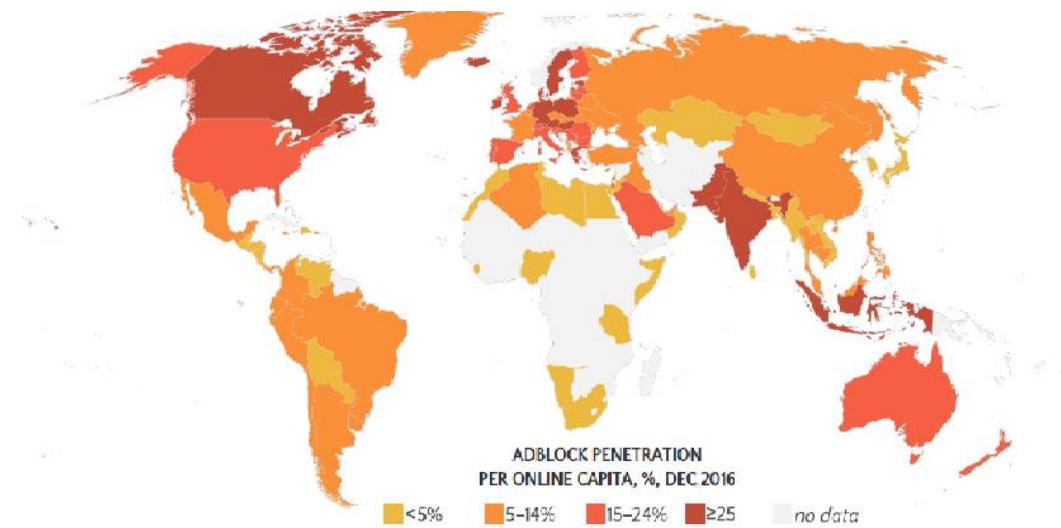


Image 2.1 : Worldwide ad-block penetration per online capita (December 2016)

Source : PageFair (2017)

When using an ad blocker, namely a type of software that is « usually added conveniently as an extension to an Internet browser, [to] prevent any ads from appearing on the browsed pages » (Despotakis and Kannan 2017: 2), users subscribe to one or more manually curated filter lists, consisting of tens of thousands of rules which essentially look for keywords like 'ads', 'banner', or 'click' in the URLs present on a Web page: « The extension periodically retrieves updated version of the lists, [...] »

¹³⁷ Brinkmann M. (2014), Mozilla launches Tracking Protection feature in Firefox Nightly, *ghacks.net*, 10/11/14. URL: <https://www.ghacks.net/2014/11/10/mozilla-launches-tracking-protection-feature-in-firefox-nightly/>

¹³⁸ Bolton G. (2016), Opera Web browser introduces built-in ad-blocker, *The Independent*, 10/03/16. URL: <https://www.independent.co.uk/life-style/gadgets-and-tech/news/operas-native-ad-blocking-a6923391.html>

URL filters are applied to every outgoing request, and requests that match any filter are dropped » (Storey et al. 2017: 5).

Singh and Potdar (2009) explored the main reasons that lead Internet users to employ ad blockers. The first one, due to the fact that online advertisements have become the prime target of malwares as they provide an efficient way to infect a large audience, is security. Along with interruption while surfing the Web, this concern was the leading one also in the PageFair report (2017), amounting to the 30 percent of the survey's sample. A second reason is advertising's impact on the users' psychology, on the grounds that « *users generally visit a website with the intention of getting some useful information but eventually walks away with a part of the content' information and a part of the advertisement's information mixing up in their minds* » (Singh and Potdar 2009: 2). Bandwidth consumption and consequent slow website loading time are other motives given for ad block usage. On touch screen mobile devices, advertisements are perceived even more annoying than on desktops: several reasons like available screen size, the level of intrusiveness and the battery consumption lead users to adopt mobile ad blockers, whose usage overtook its desktop counterpart already in mid-2015 (PageFair 2017). The deceptive nature of some ads, containing misleading or illegal content but designed in a way to trick users into clicking them, is the last reason listed. Curiously, privacy concerns are not cited, while they account for the 6 percent of the *PageFair* sample.

According to *PageFair* and *Adobe* (2015), the cost of ad blockers for publishers in terms of lost revenue was \$21.8 billion in 2015. Ad-financed websites have reacted with three principal measures (Despotakis and Kannan 2017): the adoption of ad block walls, which detect if a visitor is using an ad blocker and refuse to give access to him unless he turns it off; the offering of ad-free or ad-light subscription services through a paywall; a combination of the two, namely either to disable the ad blocker or pay for the ad-free/light version. Authors underline that these responses are likely to fail due to competition reasons: since websites do not generally offer unique content, users simply do not waive ad-blockers' usage and look for similar content elsewhere. This is why a number of publishers have embraced technologies not only for detecting but also for counter-blocking ad blockers. As a way of example, in

August 2016 Facebook announced¹³⁹ an update on its approach to ad blocking, basically starting to design the mark-up of Facebook-powered ads similar to that of regular Newsfeed posts, so that the two could not be discerned by filter-list-based ad blockers such as *Adblock Plus*, based on *EasyList*¹⁴⁰. Exploiting the fact that obfuscation was not without imperfections, two days later *Adblock Plus* added a new filter¹⁴¹ to circumvent Facebook's move. In turn, Facebook updated its markup. After a retreat that lasted a year, in late September 2017 *Adblock Plus* released a particularly strong version of its software¹⁴² able to affect only its desktop site. Nithyanand et al. (2016) found that almost 7 percent of Alexa Top-500 websites use anti-ad blocking scripts, provided by 12 unique domains. In what appears to be a permanent battle between publishers and users, tools are being developed to block anti-ad blocking scripts¹⁴³, while some scholars (Storey et al. 2017) are offering insights into the likely 'end game' of the arms race.

2.3. The way of exit and the commons¹⁴⁴

In this section (paragraph 2.3.1 and following, up to paragraph 2.3.2.4.) on *exit* and self-production forms of *commons* on the Net, we will start with a critical review of the *free software* model and *Wikipedia*. We will then focus, in terms of *exit*, on the alternatives to *Google* and *Facebook*, highlighting the strengths and, at the same time, the weaknesses of the main search engines and the main alternative social networks currently available on the Net. After which we will discuss some experiments in terms of *Open Data* policy that, thanks to a decentralised network architecture and federation, are arising in opposition to the *Cloud computing* and

¹³⁹ Bosworth A. (2016), *A New Way to Control the Ads You See on Facebook, and an Update on Ad Blocking*, Facebook Newsroom, 09/08/16. URL: <https://newsroom.fb.com/news/2016/08/a-new-way-to-control-the-ads-you-see-on-facebook-and-an-update-on-ad-blocking/>

¹⁴⁰ <https://easylist.to/>

¹⁴¹ Williams B. (2016), *FB reblock: ad-blocking community finds workaround to Facebook*, *Adblock Plus*, 11/08/16. URL: <https://adblockplus.org/blog/fb-reblock-ad-blocking-community-finds-workaround-to-facebook>

¹⁴² Sloane G. (2017), *Ad Blocker's successful assault on Facebook Enters its Second Month*, *AdAge*, 31/10/17. URL: <http://adage.com/article/digital/blockrace-adblock/311103/>

¹⁴³ See: <https://github.com/reek/anti-adblock-killer>

¹⁴⁴ From paragraph 2.3. to 2.3.2.4. writing by Brancaccio F. and Vercellone C.

Big Data paradigms. After the analysis of the legal principles governing data management and openness, extending the logic of the *Copyleft*, we will examine in detail the *OpenStreetMap* project, a contribution-based platform that is penetrating the digital policies of some important city administrations, like in Paris. We will finally analyse French project *FramaSoft*, since it is aimed at representing a global alternative to *Google* (and *Facebook*) on the Internet. Our interest in this project is linked to its strong federative approach, which aims to interconnect different devices responding to a *commons-based* logic, and to promote popular education (firstly in schools) in the field of new network technologies.

2.3.1. The ideal type of the commons as production mode: examples of Wikipedia and free software

The examples of *free software* and *Wikipedia* are the two first cases of our research on the alternatives to capitalist platforms, as they reflect the main characteristic features of the *common* as a mode of production. Let us remind them: 1) a horizontal organization of work; 2) democratic and decentralised governance; 3) a democratic idea of technology; 4) forms of *common* ownership of the means of production and, therefore, of the algorithms and data; 5) a production logic oriented towards value creation, accessible according to a non-merchantable logic, or a logic whose social purpose does not pursue any profit, as in the case of platform cooperativism; 6) a coherent way of financing activities and remunerating work that guarantees their sustainability and autonomy. The *Free Software Foundation* was founded in 1985 and *Wikipedia* was launched fifteen years later, in 2001. It is therefore important to dwell on these two paradigmatic cases of the production dynamics characterising IT and digital *commons*, placing them in the framework of the historical evolution of the Web.

2.3.1.1. Free software

The *Free Software Movement* was born as a form of collective response to the motions to privatise software technology and the Internet. It is characterised by two main features: “the preservation of an open and horizontal cooperative model and

the fight against ownership-oriented drifts" (see Vercellone *et al.* 2017: 179). After a first phase, in which the IT revolution of the PC and the Internet is essentially characterised by the proliferation of horizontal forms of self-production based on the logic of gratuitousness, on use value creation and on anonymity, the digital economy oligopolies begin to implement strengthening strategies of intellectual property rights and centralisation of the network. The creation of licences for *Copyleft* before, and *Creative Commons* later, should therefore be conceived as a form of legal creation from the bottom-up of new forms of protection against privatisation, initially embodied by *Microsoft*, which will then be followed by the progressive development and growth of the other oligopolies of the well-known GAFAM: *Google*, *Amazon*, *Facebook*, *Apple*, and *Microsoft*.

The strength of the invention of the *free software* model and of the creativity of multitudes in the network will be the driving force for the transition towards a third phase characterised by two decisive elements.

On the one hand, "The protagonists of the proprietary model become more and more aware of the limits that the closed source and secret logic linked to PPE imply for the innovative power itself. In order to compensate for this impasse, digital and biotechnological capitalism implements strategies that try to recover within it, by imitation or co-optation, the model of *free software commons*" (*Ibidem*).

On the other hand, a number of start-up, like *Google* and *Facebook*, will start developing a profit model based on the ability to bring in the market logic the spontaneity and creativity of the social interactions among the multitudes of the Internet: it will be the starting point for the appearance of the capitalist platforms based on 'merchantable gratuitousness' and sharing economy.

This 'recovery' strategy must be placed within a more general adjustment of the structure and political form of the Web, determined by capitalist platforms. As we have shown in Chapter 1, two main developments have indeed contributed to radically change the decentralised and pluralistic architecture of the pioneers' Internet: 1) the exponential growth of computing power and data processing, as well as the introduction of the Internet on mobile devices; 2) the explosion of the amount of data coming from a more and more increasing number of users connected on the Internet, on social networks and digital platforms.

Faced with this situation, the *free software* model keeps offering us an

organisational form having the typical features of the logic of the *common* as a mode of production: 1) a horizontal and cooperative organisation of work, based on do-cracy (as far as programmers are concerned) and crowdsourcing (as far as the multitude of users is concerned); 2) forms of democratic governance, which prevent stable hierarchical patterns typical of the business model or bureaucratic model of the State from establishing; 3) an open concept of technology, opposite to the one characterising capitalist platforms and based on closed source and on the centralisation of network infrastructures; 4) a legal logic alternative to the proprietary one, as far as the ownership of the means of production and of the algorithms is concerned; 5) a production having social purposes and oriented towards the creation of common goods protected by *Copyleft*, which as such are initially intended to integrate a protected public domain; 6) an alternative way of funding, different from the logic of commodification and profit, despite the vulnerability that this model depending on the free work performed by the commoners has if compared to the big companies of the digital economy, as we have already mentioned in other publications (Vercellone et al. 2017; Vercellone et al. 2015).

In order to understand the innovation brought about by the *free software* technology, it is necessary to take into account the metamorphosis that the private property paradigm has undergone over the last decades. Since the Eighties, with the transition from industrial capitalism to cognitive capitalism, we have witnessed an extension of the proprietary logic that has been particularly incisive in the production of culture, knowledge and information. This process is closely linked with a change in the tangible content of the property itself. Indeed, nowadays, intellectual property tends to unify under the sign of exclusivity the different legal protections for creations and inventions: copyright and patents. Over the last decades, we have witnessed an unbelievable increase in the number of patents, both in the industrial sector and in scientific research, while the pace of innovation has been slowing down.

This process has hit the production of software and computer algorithms. It begins in 1980, when the United States Congress extended the legal protection of copyright to software, which until then had been protected, not without great puzzlement in legal doctrine, by patent law.

The creation of *Copyleft* licenses at first, and *Creative Commons* later on, is to be found in this context, according to a logic that reveals both voice and exit: the invention of alternative productive and legal devices. Their conception proves the creative force of the *IT commons* movement, which saw in law a tool for the creation of new use and sharing conditions, designed from the bottom-up, in order to establish regimes of inalienability.

As lawyer and network theoretician Lawrence Lessig has shown in his work 'Code and other Laws of Cyberspace' (2006), the algorithmic code has its own autonomous legal normativity. The encryption of the code, on which the proprietary model is based, is indeed a form of self-protection of the software used by the companies and preceding the protection traditionally entrusted to state regulations. From this perspective, the proprietary software does not represent a neutral operation but a "political device aimed at transforming social relations while maintaining their power relations" (Vecchi 2017).

For this reason, the *Copyleft* constitutes in legal terms a reversed copyright (Xifaras 2012), which relies on its intrinsic normative ability to write the algorithmic code, in order to achieve a diametrically opposite goal if compared to the intellectual property paradigm: its maximum openness, modifiability and sharing. The *Copyleft* thus fits into the space of normative autonomy gained by intellectual property to use it against its own exclusive logic. It can be defined through the combination of four freedoms: the freedom to use, study, distribute and modify software. As legal expert Xifaras has shown, in addition to these four freedoms there is a very particular power of exclusion: the power to exclude exclusion (Xifaras 2012). It is precisely this paradoxical power that makes *Copyleft* a particularly interesting legal invention. The GPL (General Public License), the first licence created, thus generates an overturning, transforming a monopoly - the copyright - into a possibility of spread and potentially unlimited sharing. *Creative Commons* licences were created following the *Copyleft* in 2002. These licences are the result of the improvement and extension of the *Copyleft* principles to the set of creative works. In the case of a photo, a music track or a book, the CC licenses give the author and not the publisher the right to choose the most appropriate way to reuse their work.

At the beginning, there are six licences resulting from the combination of four

options: attribution; ban on commercial use; sharing under the same conditions; ban on modification.

Creative Commons licences are used today in many activities. First, there is the case of *Wikipedia*, which we will soon analyse. Moreover, millions of musical works, several newspaper and statistics sites use them, and they are widely used in scientific research as well (for example, the case of the CERN in Geneva and of some articles in the magazine 'Nature').

In the end, the *Copyleft* and Creative Commons licences show us how the forms of legal appropriation are always linked to certain practices of social construction and production organisation. The common nature of production, indeed, implies circularity and mutual influence among the cooperative activities of the commoners and the establishment of corresponding legal models.

But we also have to highlight some limits and weaknesses that the *Copyleft* logic has experienced all along its path. The technical-juridical mechanisms of *Copyleft* have proved weak in some cases when faced with the privatising logic of capitalist platforms. Apple, Google, Facebook, Amazon, and Microsoft have started increasingly using open forms of innovation, appropriating parts of code protected by free licence, in order to integrate them into their own proprietary platforms. The most striking case is represented, as we have already seen, by *Android*, acquired in 2005 by Google, and based on the Linux kernel. The giant from Mountain View has split the code, leaving a part of it under the *Copyleft* licence, and making the other part a proprietary code. The very use of *Android* is the subject of a fine recently imposed by the European Union to Google, fined for using its operating system in order to gain a monopoly position in collecting advertising data for mobile telephony (see Vecchi 2017).

To cope with this situation, a constant technical and legal development of licenses is needed in order to strengthen the tools aimed at protecting, under the sign of inalienability, *free software* works. At the same time, there is the problem of the forms of compensation and settlement of the works created in common and then subjugated to privatisation.

An answer, even if partial, has been given by the *CopyFair* licence, also known as 'reinforced reciprocity', created by the P2P Foundation. This licence aims to solve one of the key aspects of *commons*' sustainability and autonomy. As indicated in the

written presentation of the licence, CopyFair is different from the GPL because it tackles not only the regulation of the software's openness, but also the matter of the economic value that it can produce. Anyone can use the licence, but the exchange value produced by its commercial use has to be returned in monetary terms to the common production, by a payment system established by the same licence (see Bauwens 2015; Bauwens and Kostakis 2017).

The Copyfair licence thus remains free for non-profit activities, while it will be sold in case of commercial use and profit. The gains deriving from this license would thus be used to raise a 'mutual aid fund' to support the *commons*' economy. The debate on the proposal of the Copyfair thus represents, together with the one on the collective remuneration for the *free digital labour* performed by Internet prosumers, a fundamental point for the pursuit of a financing model of the *commons*' economy capable of ensuring its autonomy in the face of digital platforms' power. We will go back over these aspects at the end of this report.

2.3.1.2. Wikipedia

Wikipedia is a further and consolidated example of how the logic of the *common* as a mode of production has brought the development of *knowledge commons* to life. It is also a paradigmatic example of the establishment of a 'knowledge intensive community' (see Vercellone et al. 2017).

Wikipedia defines itself as "multilingual, web-based, free encyclopaedia based on a model of openly editable content" (see the entry 'Wikipedia' at: wikipedia.it). The project has been developing for seventeen years, and currently there are about 45 million articles written in 290 different languages. The active editors are about 70 thousand. The project was born on 15th January 2001 thanks to Jimmy Wales and Larry Sanger and it is supported by the *Wikimedia Foundation*, a non-profit organisation founded in 2003 and based in the United States. *Wikipedia* is the largest encyclopaedia ever written in human history. In the global 'Web scene', it is in the top ten most visited Internet sites in the world and, in amount of entries and

'content reliability', it has outdone the *Encyclopaedia Britannica*¹⁴⁵. As far as its users are concerned, the site generates more than 20 billion page views per month. Photos and other non-textual items increased from 12 to 26 million between 2014 and 2015 (Jullien 2017).

Wikipedia responds to a cooperative mode of organisation of work that is very similar to the one of the *Free Software Movement*. Participation in content production is voluntary and determined by the interest of the users (do-cracy) in the project (we would say, quoting Hirschman, that participation requires a high degree of *loyalty*). Moreover, participation is anonymous, and is based on social (interacting with others) or 'moral' reasons (participating in the creation of an encyclopaedia and making knowledge accessible to everyone) (see Jullien 2017).

As far as the project management (the *board of trustees* of the *Wikimedia Foundation*) is concerned, a number of people who are very competent at IT and classifying information (information scientists, communication scholars, documentarians, journalists, computer scientists) (*Ibidem*) gather.

The difference between *free software* and *Wikipedia*, from a technical point of view, is in the way of assembling information. *Wikipedia*, indeed, represents a mode of 'horizontal assemblage': even if an encyclopaedic article was eliminated, the 'good' would still be usable. On the contrary, *free software* operates according to a form of 'vertical assemblage': if a *software* lost a fragment of code, it would probably stop working.

The economic model of *Wikipedia* is based on volunteering, as far as the content production is concerned, and on the donations made by its users for financing its infrastructures, which enable the content production - in particular, the server and the band. The maintenance of production software, servers, and bandwidth cost the

¹⁴⁵ It is interesting to notice that *Wikipedia*, even being a Web portal with its own search engine, is mainly visited by users through the *Google* search engine, which indexes it, in most cases, among the top positions. This is a phenomenon that clearly shows us the presence of strong 'positive externalities' on the Internet. By positive externalities we mean the action of agents having a positive impact on other agents, without this impact being taken into account in the calculation by the agent that generates it. For example, sites that do not respond to market logic post content online that has some positive effects on commercial websites in terms of positive externalities. It is for this reason that *Google*, like many other platform capitalism subjects which, as we have seen, hold an oligopolistic position, is interested in maintaining an ecosystem of sites (see Smyrnaio 2017) of free services and contents. The emblematic case is precisely the *Google* one relating to *Wikipedia* (and, at the same time, funding open source projects like *Firefox*).

Wikimedia Foundation about 21 million dollars last year, out of a total budget of over \$ 50 million (Jullien 2017).

In terms of ownership forms, *Wikipedia* was originally launched under the *GNU Free Documentation License* (GFDL), a licence for the distribution of software documentation and educational material. Since 15th June 2009 *Wikipedia* has switched to *Creative Commons* licence BY-SA 3.0 (CC licenses did not exist at the time when the project was launched). The change of licence was put to the community vote. It is a licence based on what is defined as 'strong Copyleft', as it allows the redistribution, the creation of derivative works and the commercial use of the content, under the condition that the authors' attribution is maintained and that the content remains available under the same licence for its possible re-use. *Wikipedia* material can therefore be incorporated by other sources as long as they use the same licence.

All texts are available under the same licence. A significant percentage of images and sounds in *Wikipedia* is not for free: for example, company logos, song lyrics or copyrighted newspaper photos are used in the encyclopaedia with the claim of *fair use* (but it should be noticed that *fair use*, typical of American doctrine, is not present in all countries' legislative bodies).

The photos of the entries come from *Wikimedia Commons*, where they are uploaded, and the photos are then relinked in the *Wikipedia* entries.

One of the most important aspects of *Wikipedia*, as far as the logic of the common is concerned, lies in its forms of governance, and therefore of cooperation, of work, which ensure the production and reproduction of the *Wikipedia* community and its 'services' .

In this regard, we need to start from a feature concerning the technical innovation that affects the governance of the platform: *Wikipedia* is based on a *Wiki* technology¹⁴⁶, which enables the development of collaborative editing practices. The *Wiki* technology is located halfway between the *Open Source* practices and the principles of 'maximally distributed collaboration' typical of the open-content Web

¹⁴⁶ The term 'wiki'" comes from the Hawaiian language and means 'fast', denoting a particular form of software - like the one of many blogs - enabling to create sites for anyone who subscribes and contributes to the production of its contents. Another platform based on *Wiki* technology, which has recently become known, is *Wikileaks*, founded by Julian Assange, which collects anonymous secret or confidential documents concerning some of the most sensitive issues of international political and journalistic interest.

2.0 (see Ruzé 2013: 190). *Wiki*'s main feature consists in keeping a 'chronology' of the modifications that enables, in case of error, to quickly go back to the previous version. The content of the *Wiki* is organised through 'keywords' and hypertext links within its pages.

Wikipedia is characterised by hypertext links to other Encyclopaedia entries through the so-called *wikilinks* that make it easier to visit the portal. So, its style reminds of the Web 1.0 (or static Web), even though the *MediaWiki* platform¹⁴⁷ technically belongs to the Web 2.0 (or dynamic Web). The *MediaWiki* platform, which represents the base of the Encyclopaedia, enables an *open publishing* process that make it possible, in case of *fake news* or poor content quality, to recover the correct version of an article extremely quickly.

As Dominique Cardon and Julien Levrel have noticed (2009: 54): « *The most radical innovation of Wikipedia undoubtedly consists in its participative writing rather than the mutualisation of monitoring and punishing procedures that enable the community to watch over itself* ».

Wikipedia did not invent participative writing, given that *Indymedia* had already tested the model of open publishing. The real innovation that *Wikipedia* has introduced is a form of collective *governance* of the texts, because every writer also has the task of checking the others' texts (*Ibidem*: 54). We must not therefore limit ourselves to the visible interface of *Wikipedia*, which, as we have said, is based on gratuitous and free access to its contents. The forms of governance ruling the production and reproduction of contents from the inside are just as crucial. Thus, the collective organisation of the *Wikipedia* community is responsible for the production, management and distribution of a common resource - encyclopedic knowledge (*Ibidem*: 55).

In conclusion, however, we have to point out two critical points.

First of all, there are tensions and conflicts about the function of *Wikipedia board*. According to some authors (Cardon and Levrel 2009), *Wikipedia* has showed us the full effectiveness of an entirely 'proceduralized' democracy. In this framework, the participative setting of a number of formal rules would significantly reduce, or at

¹⁴⁷ From the *Wikipedia* page dedicated to *MediaWiki*: "Developed by the *Wikimedia Foundation* for *Wikipedia*, *MediaWiki* is used by all *Wikimedia Foundation* projects and many other *Wiki* websites. It is a Content Management System written in PHP that uses a MySQL or PostgreSQL relational database for data storage. It is *free software* distributed under the *GNU GPL license*".

least mitigate, the conflicts. Although the forms of governance structuring the project are aimed, as we have seen, at the constant decentralisation of the decisions and, therefore, of the distribution of power, hierarchies and conflicts still remain in the definition of *policies*, as well as on writing the content of the single entries. Groups or clusters holding the power tend to appear, even within an ideally horizontal space or platform. Here we are far from thinking that democracy can be fully proceduralized, as some communication theorists would like it to (see firstly Habermas 2013), letting it become a place where conflicts would give way to the setting of rules and formal procedures. On the other hand, in our opinion, the recognition and the positive valorisation of the conflicts within a *common* are fundamental when they enable to reactivate the constituent and regenerative ability of the dynamics and rules constituting the *common*. If the commoners' practice and the setting of corresponding formal rules are linked to each other by a relationship of permanent circularity, the same rules will always have to be verified, and sometimes revoked.

Secondly, a structural limit of *Wikipedia* should also be pointed out: the numerous projects related to it have not yet gained the same power and network economy as the Encyclopaedia. This is because, in our opinion, the *Wikipedia* project should be re-launched, in federative terms, in harmony with other projects nowadays proliferating and presented as an explicit alternative to the Internet giants. An example: as we have seen, the search for *Wikipedia* entries mostly depends on *Google*, strengthening the latter in terms of positive externalities. Doing so, *Google* obviously does not violate any intellectual property rights of the Encyclopaedia, but it strengthens the economic and symbolic value of its search engine, positioning the *Wikipedia* entries among its first results. A privileged connection between *Wikipedia* and alternative search engines, in order to reduce the monopolistic power of *Google* on network searches, should, in our opinion, become a main object of debate and reflection in order to define the future strategy of the Encyclopaedia.

WIKIPEDIA
wikipedia.org

Network economies	Very powerful in terms of the number of users. <i>Wikipedia</i> is one of the ten most visited websites in the world. It is the largest encyclopaedia ever written in human history, with 45 million entries in 291 different languages (including 280 modern languages in use).
Statute and governance	Platform based on the <i>Wiki</i> technology managed by the <i>Wikimedia Foundation</i> . Decentralised multilevel governance based on 'each one's control on each one'. No limits to access. Role of management entrusted to the <i>board of the Foundation</i> .
Economic model	Absence of advertising. Financing through voluntary contributions, self-financing and donations. Volunteering in the production of contents. Budget of the <i>Wikimedia Foundation</i> : about 50 million dollars in 2016.
Work organisation model	Cooperative model of division of labour based on a form of collaborative writing (<i>open publishing</i>), open to all those who subscribe, with different levels of control. The active editors are about 70.000. Like in the <i>free software</i> model, there are leading figures in a project but their authority can be systematically called into question giving rise to the equivalent of a fork.
Property and nature of algorithms	Creative Commons Licence BY-SA 3.0, which protects from the commercial use of the contents, imposing the same licence for the uses derived from the contents of the Encyclopaedia.
Use, property, data access	Gratuitous and free access and use / CC BY-SA 3.0 licence / anonymity but different levels of governance that enable the reliability of the news.

Internal limits and contradictions	<i>Wikipedia</i> has a semi-monopoly of digital encyclopaedic knowledge - but it is accessible to anyone who accepts its <i>policies</i> and governance rules. Part of the images and photos is proprietary because they are taken from other sources imposing intellectual property rights.
Alternative potential common logic	Great potential, but the projects promoted by the <i>Wikipedia Foundation</i> have not had a success comparable to the one of the Encyclopaedia. The community participating in the writing of contents and the platform life is however very limited compared to the number of users.

Table 2.3 : Wikipedia model summary

Source : Personal elaboration

2.3.2. Potential alternatives to the Google and Facebook models: search engines, social networks and experiments on specific functionalities.

In the following sections of the research, we will focus on the critical examination of some of the main digital alternatives to the platform model embodied by *Google* and *Facebook*.

As we have seen in Chapter 1, in the analytical perspective of this research, these two great actors of the Web are classifiable within the same platform category, as far as profit model and work organisation are concerned.

Google and *Facebook* are based, indeed, on the same profit strategy, typical of the 'two-sided' market, which we have defined as 'merchantable gratuitousness'. These platforms offer free services in order to attract the greatest number of users. The main purpose consists in exploiting the data produced by their users, in order to sell them to companies in exchange for customised advertising, processed through algorithms based on predictive calculations. Furthermore, the work organisational model typical of these platforms is divided in two levels: on the one hand, they employ qualified programmers for programming proprietary algorithms (workers very often coming from the world of *free software*); on the other hand, they make

massive use of *free digital labour*, a term used to describe free work, that is unpaid and, in most cases, unknowingly performed by users.

We have also observed - as we have seen in paragraph 1.5 - that the two giants of the Web have considerably contributed to a number of socio-technical transformations giving a centralised pattern to the architecture and the political form of the Internet. Indeed, the 'bottom-up' model of capturing value created by users has been enhanced by the development of technologies such as the *Cloud Computing* and the appearance of powerful *data centre*, with the aim of storing, processing and re-processing the huge amount of data produced, benefiting from a competitive advantage deriving from these new and extremely expensive technologies.

The tendency towards private appropriation of data causes enormous alterations if compared to the decentralised, plural and neutral pluralism of the 'first' Web, encouraging phenomena of concentration of economic and political power. The logic concerning knowledge production and sharing based on use value, which characterised the most of the 'first' Web activities, has been significantly weakened. The *pay-for-use* formula, a trademark of the *Cloud* economic model and the spread of subscription services clearly shows the strategy used by capitalist platforms, tending to convert to the market logic and re-centralise the set of production forms multiplying on the Web and based on the primacy of use value.

Finally, as we have seen, this consolidated trend is extremely problematic in legal and constitutional terms, as far as guaranteeing and protecting fundamental freedoms and user privacy are concerned.

In this situation, a number of digital alternatives have begun to appear. Despite Google's undisputed monopoly in Web content search - which, let us recall it, captures about 80 percent of the search volume - different alternatives try to challenge its dominant position. As we will see, these alternatives are completely acceptable in their technical features (algorithms and network infrastructures) and have interesting profiles in terms of work organisation. However, they still have great weaknesses: for example, their financing models, essentially donation-based, and work organisation, based on voluntary and free contributions by users, do not result in infrastructures solid enough to guarantee their independence from the capture devices used by the great actors of the Web.

Concerning the alternative search engines that will be taken into consideration, the only one that manages to leave a ‘niche dimension’ is *DuckDuckGo*, which however does not fully meet the constitutive requirements of the *common* as a mode of production, representing instead a ‘mixed’ model in both legal (a part of the algorithm code is proprietary while the other is free) and economic terms (the engine adopts an advertising model, though weakened if compared to the one adopted by *Google*, and, at the same time, *crowdsourcing* of platforms such as *Wikipedia*).

Search engine	Company	Launched	Software distribution license	Pages indexed	Daily direct queries	Results count	Advertisements
Ask.com	IAC	1996	Proprietary	Unknown	Unknown	Yes	Yes
Baidu	Baidu	2000	Proprietary	Unknown	Unknown	Yes	Yes
Bing	Microsoft	1998/2009	Proprietary	13.5 billion ^[1]	Unknown	Yes	Yes
DuckDuckGo	DuckDuckGo	2009	Mixed ^[2]	Unknown	21 million ^[3]	No	Optional
Gigablast	Independent	2000	Free	1 billion ^[4]	Unknown	Yes	No
Google Search	Alphabet Inc	1998	Proprietary	40 billion ^[1]	9.022 billion ^[5]	Yes	Yes
YaCy	Independent, Distributed, Peer-to-Peer	2005	Free	1.4 billion ^[6]	0.13 million ^[6]	Yes	No
Yahoo! Search	Yahoo!	1995	Proprietary	10 billion ^[1]	Unknown	Yes	Yes
Yandex Search	Yandex	1997	Proprietary	>2 billion ^[7]	Unknown	Yes	Yes

Table 2.4 : Main search engines
Source : Wikipedia

The other search engines that we will take into account (*YaCy* and *Framabee*) are based, instead, on the legal and economic principles of the *free software* model, but, on the other hand, they are limited to an extremely reduced public and require a good knowledge of computer tools and languages.

As far as social networks are concerned, we will take into account a number of alternatives having first-class technical and legal features in terms of innovation if compared to proprietary social networks. This is the case of *Diaspora*, born following the 15-M Movement appeared in Spain, as a social network other than *Facebook*, or the case of *Mastodon*, in alternative to *Twitter*. These experiments, however, suffer from the same limitations characterising non-proprietary search engines: a non-large number of users and the absence of alternative forms of social validation able to overcome the niche dimension and good exemplary practice, guaranteeing autonomy, extension and durability.

In addition, in the last paragraph, we are going to analyse the alternatives created on the basis of specific functionalities, with regard, first of all, to the *Cloud* model. From this point of view, it seemed useful to focus on the *Open Data* model, showing the presence of valid alternative data management solutions responding to the same legal principles that have characterised the creation of the *Copyleft* and *Creative Commons* licences.

Next, we will examine the *OpenStreetMap* project, which is based on the logic of *Open Data* and represents an alternative to *Google Maps*. Finally, we will focus on the *FramaSoft* project, which is aimed at constituting a global alternative to the *Google* model, and which currently has more than thirty specific applications and functionalities.

Studying these different alternative experiments, some common features have emerged and we can summarise them as follows:

- In terms of network infrastructures, almost all these projects are based on a *decentralisation* strategy affecting interconnected servers, as to encourage the return of 'personal computers' and the self-produced IT model. On this basis, they also want to prefigure an alternative to the *Cloud* model.
- From the point of view of the ownership of the algorithms (the code necessary to make a program work), they are based on the extension of the *Copyleft* logic to the social data produced by the users. Therefore, *Copyleft* affects both the algorithms and the social data produced by the users.
- In terms of protecting privacy, their guideline consists in refusing to use Web user-tracking tools typical of platform capitalism, trying to re-establish standards aimed at protecting the users' privacy and restore conditions of anonymity.
- In terms of economic model, they refuse, in most cases (a part from *DuckDuckGo*), the exploitation of data aimed at encouraging advertising. Their financing model essentially relies on donations and *crowd-funding*. They therefore aim to restore the primacy of both mutual funding centred on users' will and use value on the market logic that has colonised the Web.
- Their organisation of work is participative (*free activity*) and based on *crowdsourcing*.

- As far as their technical conception is concerned, they represent an alternative to the logic of the dominant algorithms, encouraging the conscious use of technical tools and the re-establishment of conditions designed to promote knowledge sharing. The alternative search engines make an effort to overcome the so-called 'filter bubble' produced by *PageRank* of *Google*.¹⁴⁸ In the case of a social network like *Diaspora*, the user is required to preliminarily gain awareness of the problem of the *Cloud* (users have choose where to host their data). In the case of the *FramaSoft* project, a set of popular education initiatives have been created with the aim of teaching new generations a conscious use of network technologies and algorithms.

2.3.2.1. Search engines: proprietary alternatives (*DuckDuckGo* and *Qwant*, and non-proprietary alternatives (*YaCy* and *FramaBee*). A critical review.

2.3.2.1.1. *DuckDuckGo*

DuckDuckGo (from now on 'DDG') is, at the moment, one of the main alternative search engines to *Google*. The search engine created by Gabriel Weinberg in September 2008 is owned by *DuckDuckGo Inc.*, based in Paoli, Pennsylvania.

From a technical point of view, the DDG algorithm aggregates the results obtained by the intertwining of the operations of about fifty search engines, including *Yahoo!* and *Bing*. It also makes use of data from more than 500 sites and generated by crowdsourcing dynamic, as in the case of *Wikipedia*. For this reason, DDG can be defined as a 'metasearch engine': it produces and classifies information by cross-referencing data produced by other search engines.

DDG exclusively operates in a 'private mode', and is it designed to protect users' privacy. To this end, DDG declares that it does not store the user's IP address, their information and Internet history. Cookies are used only when absolutely necessary.

¹⁴⁸ The term 'Filter Bubble' was coined by Internet activist Eli Pariser (2011) in his book *The Filter Bubble: What the Internet Is Hiding from You*. It was also adopted in 2010 by Tim Berners-Lee in *The Guardian*. It refers to one of the effects produced by the algorithms behind *Google* (*PageRank*) and *Facebook* (*EdgeRank*), founded, as is known, on the customisation of the research (previous clicks, searches, geo-location, and so on). According to the author, these types of algorithms enclose the user within an ecosystem made by his own "bubble" of information. Consequently, users would have limited possibilities to access information, receiving only those that are more suitable for their profile and chronology on the Web. In short, according to this point of view, the strength and success of algorithms such as *PageRank*, that is, the customisation of the results of users' searches, at the same time, produces restrictions of their autonomy.

The absence of the main elements of users' identification and traceability, thus, enables the search engine to avoid the formation of 'filter bubbles' in searches. In 2010, the search engine introduced a specific feature for anonymous search via *Tor*. In this way, by the combined use of *Tor* and *DDG*, it is possible to stay anonymous in the Web in an *end-to-end* mode.

From a legal point of view, the algorithm code is of a mixed nature: a part is covered by proprietary licence, while the other part is open.

At the beginning, the project was almost exclusively self-financed and the search engine made use of advertisements only sporadically. Its business model has then evolved, and at the moment it combines both the donations and the gains resulting from advertising. We observe, therefore, that the mixed model concerning the forms of property of the algorithm also corresponds to a mixed model in economic terms.

More precisely, *DuckDuckGo*'s economic model is divided into three levels:

- Advertising. However, it should be noticed that the use of data responds to a logic that is other than that of *Google*, which is based on customised advertising. The advertisements are indeed obtained by correlating them with the keywords typed in by the users in the search engine, without the latter recording their history and other personal information;
- The commissions paid by *Amazon* and *eBay*, when users purchase items on these platforms thanks to researches carried out via *DDG*;
- Users' donations.

In 2014, *Apple*, during the presentation of *iOS 8*, announced the adaptation of *Safari* to *DuckDuckGo* on its mobile devices, in a competitive logic challenging *Google*. In the same year, *Mozilla* also introduced *DuckDuckGo* among the search options in its *Firefox* browser. These partnerships strengthened *DDG*'s network economies without enabling it to make a real quality leap in competitive terms compared to *Google*. Currently, this search engine has about 21 million searches per day, very little compared to the 9.022 billion carried out on *Google*, but it still represents the most used alternative.

<p style="text-align: center;">DuckDuckGo duckduckgo.com</p>	
Network economies	It is one of the most used alternative search engines to <i>Google</i> . It has on average more than 21 million searches a day. It is an optional search engine in both <i>Apple</i> and <i>Mozilla Firefox</i> operating systems.
Statute and governance	The search engine is owned by <i>DuckDuckGo Inc.</i> , a limited liability company. Corporate governance.
Economic model	The economic model is divided into three levels: 1) Advertising, based on the correlation between keywords typed by the user and company advertisements; 2) Commissions on items purchased on <i>eBay</i> and <i>Amazon</i> via <i>DDG</i> ; 3) Donations.
Work organisation model	The work organisation model is of a business type, but the algorithm of the metasearch engine benefits from the activity of 500 crowdsourcing sites, such as <i>Wikipedia</i> .
Property and nature of algorithms	Mixed legal model combining free code and proprietary code. The search algorithm makes it a metasearch engine (intersection and organisation of results produced by other search engines).
Use, property, data access	The main goal of <i>DDG</i> is the protection of the users' privacy and anonymity. The algorithm does not track the user and does not record his IP address. The platform is easy to access and use.
Internal limits and contradictions	It is a mixed model between proprietary logic and non-proprietary logic. We might say that it is a profit model that, however, recovers some principles of the <i>Open Source</i> community, basing its business model on the respect for privacy. For this reason, it is suggested by <i>Apple</i> , in order to promote competition with <i>Google</i> . But, on the other hand, for instance, the use of <i>Wikipedia</i> information in order to sell advertisements is very controversial.

Alternative potential common logic	In order to move closer to a <i>common logic</i> , a transition from a mixed model to a non-proprietary one would be desirable, as well as a form of economic validation less depending on the advertising model and partnerships with big digital oligopolies.
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Table 2.5 : DuckDuckGo model summary
Source : Personal elaboration

2.3.2.1.2. Qwant

Like *DuckDuckGo*, *Qwant* is a search engine characterised by the stated aim of being an alternative to *Google* in terms of protection of user data, refusing to adopt the tracking systems used by the latter. The other feature characterising *Qwant* is its origin: it was realised in France and is presented as a European alternative to *Google*. The search engine was conceived in 2011 by Jean-Manuel Rozan and Eric Leandri, in order "not to compete with *Google*, but to propose something different", and was released in February 2013, after almost two years of development. A second renewed version was published in October 2015, when the *Qwant* company obtained a 25 million euro European Union loan. Since January 2018, the search engine has also been made available in China. Together with the standard search engine, they have also created two sub-variants: *Qwant Mobile* for mobile web browsing and *Qwant Junior*, for children aged 6-13 years and completely advertisement-free.

As far as the economic model is concerned, it should be noticed that, like in the case of *DuckDuckGo*, alongside public financing, *Qwant* keeps using advertisements, even though it refuses, as we have just said, the customised tracking systems and the filter bubble typical of *Google Search*.

The graphical results of the research are distributed in columns based on the chosen category: Web, social, images, news, videos, music, purchases.

Here we can summarise *Qwant's* main features differentiating it from *Google*:

- No cookies
- No search history
- Unbundling of IP addresses and search queries
- Queries encryption (HTTPS)

- Servers in Europe only
- Information Security team
- Data protection officer (DPO)

It should be noticed that, in the case of *Qwant* as well, the same critical issues as the ones we found when analysing *DuckDuckGo* emerge. The search engine, despite its stated intention to be an alternative to *Google*, does not express a constituent capacity as far as property relationships and social validation forms are concerned. The algorithmic code is subject to proprietary licence, even though, in terms of technology concept, it does not reproduce the invasive forms of user-tracking characterising the *Google* model. The same applies to the economic model: one of the main financing forms consists in using advertisements, together with which, however, public funding by the European Union plays a key role.

2.3.2.1.3. YaCy

The YaCy project was founded in 2003 on the initiative of Michael Christ. YaCy is an *Open Source* search engine based on *Peer-to-Peer technology* and aimed at the customised Web or Intranet indexing. YaCy can therefore be used both independently and on a *Peer-to-Peer* network. According to this technology, its indexing and research power increases as the number of users (connected to the same network infrastructure) increases itself.

As stated in the site homepage, the engine is not subject to censorship and it is not possible, due to its technical structure and the legal nature of its algorithm, to track users' behaviour. YaCy is developed in Java computer-programming language according to a fully decentralised architecture: indeed, all YaCy nodes are equivalent and there are no main servers.

The prerequisite for using the search engine consists in installing software distributed under the GNU GPL licence on one's device.

The project's philosophy is noteworthy: the main purpose - stated on the website - is to make access to information gratuitous and, at the same time, effective. On the

page dedicated to the description of its principles and its *policy*¹⁴⁹, it is stated: “The major search engines of the global corporations are closed systems. Their search technology is not transparent and accessible. We go a different way: YaCy is an *open-source, free software* and is completely transparent: anyone can see how information is obtained for the search engine and displayed to the user”.

The main goal of the project, strongly against the logic of the major search engines depending on a centralised infrastructures, is to reintroduce techniques and practices of Web decentralisation, intervening on three levels:

- 1) Individual rights and privacy: *Peer-to-Peer* technology makes it extremely difficult to censor and to track data;
- 2) Ecological impact: while the great Internet actors’ search engines encourage the establishment of data centres, distributed research only requires interconnected personal computers;
- 3) Social dimension: all the users have the same rights and the same visibility in adding content; the individualised relevance of the results of the Web research enables each user to evaluate the quality and importance of the research according from their own rules.

Currently, YaCy, as stated by the promoters of the project, cannot be compared to *Google*: it has succeeded in indexing 1.4 billion documents against 30 trillion pages indexed by *Google*. Its business model is mainly based on donations.

YaCy yacy.net	
Network economies	YaCy has indexed so far 1.4 billion pages, against 30 trillion pages indexed by Google. It is based on <i>Peer-to-Peer</i> technology, which is strengthened by the increase in the number of users.

¹⁴⁹ <https://yacy.net/en/Philosophy.html>

Statute and governance	Created and managed by the YaCy community, a community that makes use of the voluntary work of around 600 contributors. Governance responds to the <i>Free Software Movement's</i> and <i>Wiki's</i> logic.
Economic model	Donations represent almost the only source of funding. The software and the search engine are offered for free and there is no content marketing.
Work model organisation	The work organisation model is horizontal, "contributive" ¹⁵⁰ and open.

¹⁵⁰ Here we prefer to use the adjective contributive rather than the much more used collaborative. The reason for this choice lies in a critical assumption: the forms and modes of 'collaborativity', of digital and other nature, seem to us now absorbed within the framework of the so-called collaborative economy (sharing economy), a real 'horizontal' matrix on which the big digital platforms' vertical and hierarchical logic has been grafted. As far as the sharing economy is concerned, for example, platforms such as Uber or Airbnb would represent its privileged expressions. In the emphasis that studies on the sharing economy give to the circularity and horizontality of the exchanges taking place within these platforms, they forget, or they hide, the main problematic aspects that we have highlighted in the first chapter of this research: the non-recognition of digital work and the externalisation of business costs onto only formally autonomous workers. In the same way, the fact that data tracking and privatisation forms of are in the Internet giants' business models and turnover is often ignored.

The distinction between collaborative economy and contributive economy, referring to the new forms of work organisation and production of network knowledge, has been clarified in recent years by philosopher Bernard Stiegler. According to the author, collaborative economy, resulting from a more general process of network privatisation, has encouraged a progressive proletarianisation of the knowledge society, which would consist in a progressive and more and more general loss of 'savoir-faire' (knowledge of how to make/do), 'savoir vivre' (knowledge of how to live) and theoretical knowledge of the interconnected multitudes. Contributive economy, on the contrary, according to Stiegler, would overcome the traditional distinction between producer and consumer, recovering the original ethos of the Internet (the *free software* matrix and the knowledge communities). If properly recognised and financed, both by public and private actors, the contribution economy could be, to Stiegler's eye, the remedy (in the always ambivalent terms of a pharmakon) for the platforms' excessive power and the expropriation of knowledge and social data. Indeed, it would be based on a reinvention of solidarity models operating beyond the national welfare state, on the revaluation of work beyond employment (*emploi*), and on the reconfiguration of the '*puissance publique*' starting from the 'local' level. On these points, see the entry '*économie contributive*' written by Bernard Stiegler and Franck Cormerais for the *Dictionnaire des biens communs* (2018), as well as the entry '*économie de la contribution*' in the *Vocabulaire* by Ars Industrialis (<http://arsindustrialis.org/vocabulaire-economie-de-la-contribution>). However, the widespread interchangeability of the two terms has to be taken into account, even in critical debate. Indeed, it is common to find the adjective collaborative used in terms of explicit criticism of the sharing economy. This is, for example, the case of the *Manifeste pour une véritable économie collaborative. Vers une société des communs*, written by Michel Bauwens and Vasilis Kostakis (2017).

Properties and nature of algorithms	The algorithm is non-proprietary (Open Source) with an open code that can be modified by anyone. The architecture is decentralised and is based on the connection of individual devices, as opposed to the centralized data centre model.
Use, property, data access	Peer-to-Peer model: free access, equivalence between the connected nodes, maximum data sharing. Invisible barriers determined by a certain level of computer knowledge.
Internal limits and contradictions	As the project promoters observe, since there are no central servers and since the YaCy network is open to all, according to the ethos of the Peer-to-Peer, it is possible to insert inaccurate search results or search results deriving from commercial strategies.
Alternative potential common logic	Close to the logic of the <i>common</i> , in particular for the use of Peer-to-Peer technology that should be strengthened and perfected.

Table 2.6 : YaCy model summary
Source : Personal elaboration

2.3.2.1.4. *Framabee*

Framabee is a search engine designed by the *FramaSoft* association, as part of the Internet 'degooglisation' project (the project will be analysed in paragraph 2.2.2.4). Like in *DuckDuckGo*, its algorithm technically makes *Framabee* a metasearch engine¹⁵¹. However, unlike the first, it is entirely based on a non-proprietary legal logic.

FramaBee does not record any personal information deriving from the search carried out by the user (identity, Internet history, location), and does not share any data with third parties. Here we can find another difference with *DuckDuckGo* that, instead, as we have seen, links the keywords to the advertisements. Nevertheless,

¹⁵¹ As we have already seen, a metasearch engine is an algorithm that groups results from other search engines.

the two engines somehow converge: indeed, *FramaBee* makes use of a *DuckDuckGo* API to speed up its search.

FramaBee is part of *Searx*, free software to which the *FramaSoft* association has made some adjustments. In this way, the results produced - as its website states - are much more relevant than the ones in the classic search engines, because the algorithm proposes a mix of results deriving from Web indexing and from the different communicating nodes. Moreover, the *Framasoft* algorithm avoids the rise of the "filter bubble" phenomenon by not recording data concerning geo-location, age, sex, previous searches, and so on.

FramaBee is one of the pillars of the *FramaSoft* project that we are going to analyse in paragraph 2.3.2.4.

2.3.2.2. Social networks and their 'similar': *Diaspora* and *Mastodon*

Before looking at the principles and operating modes of the alternative social networks, it is useful to try to place them within the socio-technical evolutions of the World Wide Web.

The originary World Wide Web represents a first model of digital network based on freedom, gratuity and sharing.

There are four types of networks: *digital networks*; *informational networks*; *alternative social network* (and this is the case of *Diaspora*); *techno-political networks* (such as the *Decidim* platform) (see Barandiarian et al. 2017).

Let us briefly focus on these four types of networks:

- *Digital networks*, like *Indymedia*, were based on an exchange of information that was independent from the mass media and from mainstream social and political information. *Indymedia* is a participative political and social information network fed by independent activists and journalists, which is organised in nodes distributed all over the world (in nations, regions and cities). It was born between the 1990s and the first decades of the 21st century, adopting from the very beginning a strongly 'political' connotation that accompanies the development of the 'anti-globalisation' movement: indeed, the USA *Indymedia* project is launched during the counter-

summit of Seattle in 1999 and finds its maximum visibility in the streets of Genoa in 2001.

- *Informational networks*, such as *Facebook* and *Twitter*, usher in the Web 2.0 and are based on data appropriation and extraction. Manuel Castells defines informational capitalism as a new stage of capitalism in which information production and appropriation become fundamental in economic value creation (Castells 2014). In this sense, we can say that *Facebook* and *Twitter* were inspired by *Indymedia*, in that they take advantage of the polycentric network model of *Indymedia* and exploit it in a profit logic. To do this, they extend the network beyond the narrow perimeters of 'media activism' and involve each aspect of daily life: we can say that on *Facebook* the 'private' becomes 'public', but in the opposite direction to the 1968 feminist slogan 'the private is political'.
- *Alternative social networks* to *Facebook* and *Twitter*, such as *n-1*, spread with the *indignados 15-M* movement in Spain in 2011 (or such as *Diaspora*, conceived in 2010). However, it should be noticed that, during the cycle called *Occupy*,¹⁵² not only alternative networks are conceived but, at the same time, we also see an implementation of the political use of the main social networks, such as *Twitter* and *Facebook*. During the Spanish *Acampadas*, *Twitter* saw a surge of registrations and interactions in Spain. The same happened in Tunisia and Egypt or during the wave of protests that took place between the end of 2010 and the beginning of 2011. We can, therefore, say that during the expansion phases of social movements there was a double 'politicisation' of social networks: on the one hand, alternative social networks, such as *Diaspora*, were born and were not able to spread but on a small scale, and yet they represented the 'prototypes' of an alternative network paradigm inspired by common-based principles; on the other hand, a 'from-the-bottom' use of the same official social networks, which were thus crossed by 'emotional flows' of a political nature (see Toret 2015, Granjon 2018).
- Finally, *techno-political networks* (*Decidim* representing their emerging model). They aim to encourage citizens' direct participation and to directly affect (beyond the mediation of representation) the decisions to be taken by public actors and

¹⁵² Referring to the first protest occupation of *Occupy Wall Street* in Zuccotti Park in New York, begun on 17th September 2011.

institutions. Next to the techno-political networks, we find the alternative platforms linked to the so-called 'platform cooperativism'. The latter develop on the ground of mutualism, solidarity, self-organisation of work and production - and they are the main subject of our report. One of the challenges of a common-based model consists in *connecting* and *integrating* these two 'types' of platforms, or we could also say 'techno-political networks' and 'cooperative platforms', thus intertwining 'political' democracy and 'economic' democracy in the redesign of urban and metropolitan space as an alternative to the *Smart City* model.

2.3.2.2.1. Diaspora

Born in 2010, *Diaspora* is characterised by two main innovative features:

- It is an *open source* social network and regulated by the AGPL;
- It represents an alternative management model, based on decentralisation and on a conscious use of user data;

The project was conceived in 2010 by four students at the University of New York and is still being developed today. Since November 2011, more than 200.0000 users have registered connecting to the bigger (larger) server, to which one has to add the users connected to the decentralised servers around the world. Overall, registered users are around 1 million today.

The *Diaspora* software is managed by the *Diaspora Inc.* - a commercial company, which is not exclusively owned by a single person or entity, due to the mechanism of decentralisation of the servers on which it is based. Basically, thanks to the '*pods*' mechanism, on the one hand, and the licensed *Open Source*, on the other hand, the ownership of the platform, as well as the data produced therein, is fragmented in network nodes.

Diaspora developers say that the basis of the disseminated design of the project prevents any big company from controlling *Diaspora*. *Diaspora* guarantees that it will never sell users' social life to advertisers, and that they will never have to watch their back you before speaking.

In the platform *policy*, it is specified that it is not subjectable to business acquires or to any commercial activities such as advertising.

Diaspora's primary objective consists in the pursuit of three principles:

- Freedom;
- The protection of users' privacy (taken individually or collectively organised);
- Decentralisation.

Let us look at these principles in more detail.

1) The principle of freedom is expressed in different statements:

'Be who you want to be': most social networks (first and foremost *Facebook*) force users to use their real identity. *Diaspora*, in line with the originary philosophy of the Internet, enables instead to choose one's identity and interaction and sharing modes.

'Be creative': *Diaspora*'s architecture does not limit interaction (in the face of the increasing limitations introduced by big social networks such as *Facebook* and *Twitter*, through the implementation of censorship and greater strictness in the interaction modes).

'Free as the wind': the software is completely free (meaning using free licence), so one can change the source codes according to both the improvement of the social network as a whole and one's personal needs for interaction in the network.

2) Privacy, in turn, is divided into different operating modes:

'Manage your data': the main social networks use users' personal data to make profit, analysing their interactions and posted contents in order to promote forms of 'targeted advertising'. *Diaspora* uses data only for connecting and sharing with other people. Each '*pod*' is managed according to governance rules defining the data access level. At the same time, only the single users can choose the '*pods*' they want to interact with.

'Host it yourself': the single users can choose where to save their data by selecting the '*pod*' they prefer or creating their own *pod* on their computer.

'Choose your audience': The relationship between what is 'public' (meaning 'shared') and what is 'private' is chosen by the single user thanks to a number of modulations that are much wider and more flexible than those offered by social networks like *Facebook*.

3) Finally, the principle of *decentralisation*:

It is a crucial point concerning data management and introducing a platform governance mode that interconnects the 'tangible' domain (meaning the spatial, geographical location of its data) and the intangible one (content management of the data themselves).

It is exactly what makes *Diaspora* a case of primary interest for the purposes of our research. Indeed, data are not recorded on huge central servers owned by a single organisation, as it happens for social networks such as *Twitter* and *Facebook*, but, on the contrary, on decentralised and independently managed servers - called in the *Diaspora* language 'pods'. It is the user who chooses which 'pod' to register at (so, where in the world he/she wants to 'locate' his/her data) and how to connect to the worldwide *Diaspora* community.

The platform uses two different images to show us the difference between it and big platforms like *Facebook*.

The first image (Image 2.2) represents the functioning of a social network based on a big server centralistic and 'monistic' model.

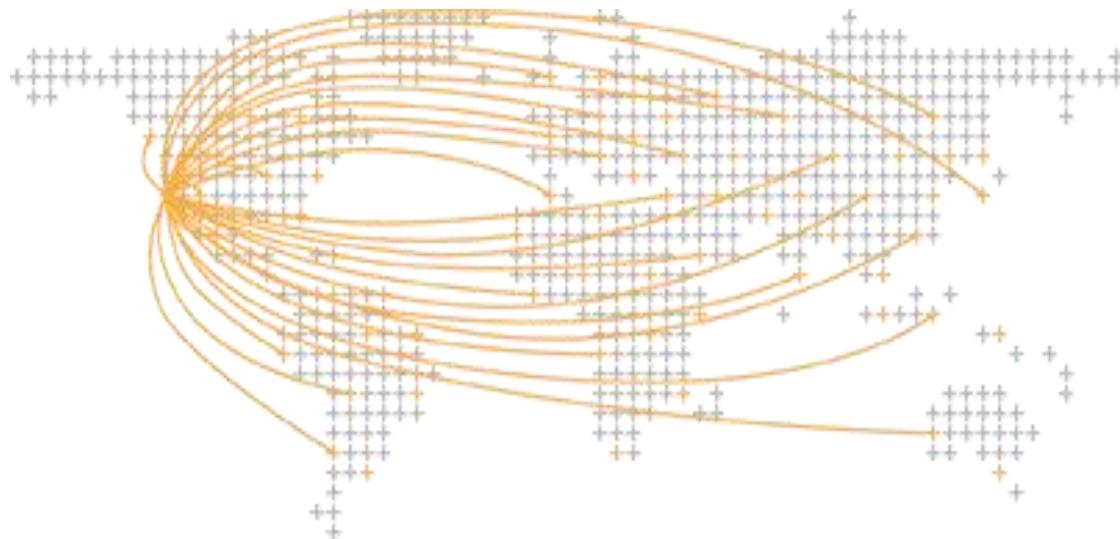


Image 2.2 : Centralised social network
Source : Diaspora¹⁵³

¹⁵³ <https://diasporafoundation.org/about>

As you can see, all the nodes of the network depend on a server installed in one specific place (in this case, as in most cases, in the United States). This model is called 'bottleneck' and is owned by a single company (see *Facebook*, *Twitter*) which stores - that is, appropriates - all user data. In the *Diaspora* platform website, they clarify about this model: "Information can be lost or stolen, and like in any bottleneck system, any problem with the central servers can make the entire network very slow or completely unusable. It is even easier for governments to 'eavesdrop'".¹⁵⁴

Instead, the mechanism of the decentralised *pods*, characterising the case of *Diaspora*, is represented in the second image (2.3).

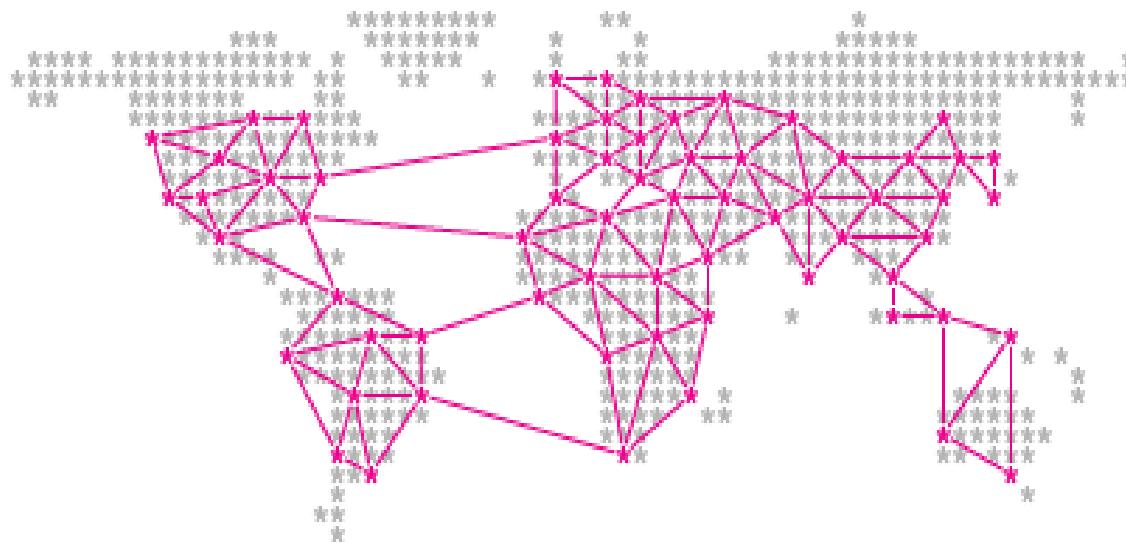


Image 2.3 : Decentralised social network

Source : Diaspora¹⁵⁵

So, *Diaspora* is an actual network, without any central base. It is based on the dissemination of servers (*pods*) all over the world, each of which contains data belonging to those who have decided to register at them. This reminds of the image of the rhizome proposed by Deleuze and Guattari in *Mille Plateaux* (1980) as opposed to the 'tree' model, that is hierarchical, or of the one proposed by Luciano Ferrari Bravo (2001) in his entry about *Federalism*, where the intertwining of the federation-form and the network-form gives rise to a process of "non-centralised

¹⁵⁴ *Ibidem*.

¹⁵⁵ *Ibidem*.

concentration of power" (and information). Indeed, these '*pods*' communicate with each other uninterrupted. Thus, you can register at any *pod* and freely communicate with your contacts, wherever they are in the network.

Unlike social networks like *Facebook* and *Twitter*, before registering, one has to pick a '*pod*', that is, to choose where to store their personal data. The choice of a '*pod*' is therefore one of the most important decisions made when entering *Diaspora*, aimed at making the user aware of the problem concerning data.

Finally, let us examine the different possibilities in choosing the *pods*. First of all, if one has a good level of technical knowledge of IT, the *pod* can be configured on one's computer as a server. Access to the *pod* is allowed for personal use only; otherwise, one can edit other community members' access to one's *pod*. By incessantly modulating rights concerning data property, access and usage, they create a decentralised model which is exactly the opposite of the centralized model of the big social networks.

Next to the personal *pod*, still requiring a certain level of technical knowledge, there are the '*open pods*' provided by *Diaspora*. When choosing the latter, *Diaspora* invites the user to consider different features:

- *Location of the server*: one can choose the geographical location of the *pod*. A *pod* closer to where one lives helps improve data access speed; or one can choose a *pod* in a country having good data security policies.
- *Pod size*: one can also choose the size of the *pod*, according to each one's needs in terms of data collection.
- *Software version*: one can choose a *pod* kept in a state of constant updating, or set the version one prefers.

DIASPORA
joindiaspora.com

Network economies	Despite its great technical potential, deriving from its decentralised and disseminated pod-based structure, <i>Diaspora</i> is still weak in terms of network economy and the number of active users is extremely limited. About 9 years after its appearance, the number of its users is around 1 million, but the active ones are 667,000. After a first boom in terms of registrations, the number of platform users is still too low, mostly made up of specialists who animate the free online communities.
Statute and governance	The project is managed by the <i>Diaspora Foundation</i> . Its internal management does not respond to the centralised logic typical of the business model.
Economic model	It is an entirely non-profit project. Absence of advertising. Financing via voluntary contributions, self-financing and donations. Volunteering in the production of contents.
Work organisation model	Cooperative and decentralised model of division of labour based on the distribution of network nodes and on the modifiability of the source code.
Property and nature of algorithms	GNU-AGPL-3.0 Licence.
Use, property and data access	<i>Diaspora</i> guarantees access, use and informed management of data. Unlike <i>Facebook</i> and <i>Twitter</i> , the first thing that the user has to do is choose the geographical location of the pod in which to store their data.

Internal limits and contradictions	The limits, most of all, derive from the project's weakness in terms of expansive ability and network economy. As pointed out in the opening of this paragraph, <i>Diaspora</i> has apparently borne the negative consequences of the quasi-monopoly of big social networks like Facebook, concerning to the affective potential of the interconnected multitudes.
Alternative potential common logic	<i>Diaspora</i> could re-launch its project and give greater strength and importance to its policy in terms of user data protection. At this precise moment in history, a re-launch of <i>Diaspora</i> could be facilitated by the recent scandals in terms of violation of <i>privacy</i> and illicit appropriation of social data of users who have invested in Facebook. It is clear that the dissemination of tools such as <i>Diaspora</i> , which implies a greater digital culture and an awareness on the conscious management of data, should be accompanied by a campaign aimed at promoting a new digital culture, starting from schools (and this is what the <i>FramaSoft</i> federative project wants to realise, in a perspective of popular education - a project that we will analyse later on).

Table 2.7 : *Diaspora* model summary

Source : Personal elaboration

2.3.2.2. *Mastodon*

Mastodon is a project that presents itself as an alternative, in terms of *exit*, to Twitter. *Mastodon* proposes a system that could give back to the users their ability to master the social network: the *Federation*. It was conceived by German programmer Eugen Rochko in 2017, and a few months after its appearance, its subscribers significantly increased (about 40.000 in a few months). However, this rapid first influx of users has also shown the weakness of its originary technical configuration. The server was temporarily closed because the unexpected number of registrations exceeded its computational capabilities.

Having the same philosophy as *Diaspora*, the project is shown as a decentralised alternative to commercial platforms. The core of the project consists, indeed, in a

free and *Open Source* social network. It is composed of a federation of independent instances connecting to each other without passing through a central authority.

Several nodes immediately federated in the network, while the originary node of the network, *mastodon.social*, is hosted by the creator of the software. In France, in particular, the project has rapidly spread, counting 150,000 subscribers at the beginning of April 2017, thanks to *Framapiaf* federation, a *FramaSoft* instance, and *mamor.f*, an instance of the '*Quadrature du Net*'. Two French newspapers participate in the network: '*Le Monde*' and '*Le Télégramme*'. And also in Japan they counted the same number of members during the same period (beginning of April 2017).

Since mid-April 2017, the network has experienced a strong growth: 152.000 on 12th April 2017, 306.000 on 16th April 2017. On 1st December 2017, the network reached one million subscribers¹⁵⁶.

The program does not use advertising for funding purposes. Donations are the main source of funding for the project.

In technical terms, unlike *Twitter* (at the beginning, 140 characters and since 8th November 2017, 280 characters), *Mastodon* offers 500 characters.

The *Mastodon* server is offered under free licence: its code and its API are available. Its licence is AGPL-3.0.

2.3.2.3. Functionality and Cloud: Open Data and OpenStreetMap

In Chapter 1, we examined the new forms of algorithmic calculation based on *Big Data* (*data mining* and *data extraction*), placing them within the 'three headed' system representing the new centralised paradigm of the Internet (see paragraph 1.5).

We have shown how *Big Data* represent a source of fundamental economic value for the profit model and strategies characterising capitalist platforms (see Gambetta [ed.] 2018, Mancarella 2018). From this analysis, two major problems have emerged: on the one hand, in economic terms, the algorithms based on predictive calculus are

¹⁵⁶ [https://fr.wikipedia.org/wiki/Mastodon_\(réseau_social\)](https://fr.wikipedia.org/wiki/Mastodon_(réseau_social))

decisively contributing to further strengthening the market logic within the Internet, to the detriment of those forms of production, exchange and sharing of knowledge and information based on the primacy of use value and gratuitousness; on the other hand, in legal terms, the intertwining of the molecular operations of *data extraction* and the centralised *Cloud computing* technologies raise serious concerns related to socially produced data property and security - which results in the frequent risk of violating Internet users' fundamental freedoms. The recent international case of *Cambridge Analytica*, also involving *Facebook*, is the most striking example of a looming structural problem in the new Internet paradigm, based on the extractive logic of capitalist platforms. Please, let us clarify that by the expression '*extractive logic*', here, we refer not only to the analogy between the new *Big Data* 'oil' and the extraction of natural raw materials, but also the risk of their overexploitation leading to what we might call, paraphrasing the famous expression by Hardin, an emblematic case of the '*tragedy of commons*', generated by the short-sighted pursuit of the mere profit.

In this section, we will deal with some of the arising alternatives in terms of data access, custody, management and sharing, and their protection as a common good. We will focus first on *Open Data*, which are one of the most innovative solutions proposed in order to introduce forms of data regulation and protection, free of any appropriative and private logic.

The sources of *Open Data* production are manifold. They come not only from the administrative activities and service activities of public institutions, but also directly from the users' local communities: urban services, administrative activities, monitoring initiatives and local mapping of the territory, consultation and direct participation of citizens. All these activities feed an increasing number of information concerning urban governance policies.

Secondly, we will take into account a particularly innovative experimentation, and of '*bottom-up*' nature, in terms of *Open Data*: it is the *OpenStreetMap* application, founded on a public database based on the contribution of geographic data, and which is an effective alternative to *Google Maps* and proprietary GPS services. Thirdly and finally, we will focus on the *FramaSoft* project, which aims to represent a global alternative to the *Google* model and the *Cloud* logic.

2.3.2.3.1. Open Data

It is precisely the digitisation of the administrative and service activities of public institutions, and of local institutions in particular, that has made way to legal data regulation. Hence the definition of *Open Data*, a term used to identify the set of institutional policies (*Open Data Policy*) and legal measures aimed at regulating data openness: « *At the beginning, Open Data concerns public data, or, in other words, data produced by public bodies, and in particular by those ones responsible for a mission concerning the public service* » (Clément-Fontaine 2016: 114). If the originary concept is restricted to data of an institutional nature, it has then extended to two other categories of data: data produced by the private sector, but having public relevance, and data produced by communities of citizens (*Ibidem*), who lie at the heart of the management of metropolitan flows.

Open Data thus bring together two levels: municipal administrations' need to meet the demands of 'democratic transparency', and the possibility for citizens to have an authority as far as the control and the guidance of these activities are concerned.

In France, leading European Union country in terms of *Open Data*¹⁵⁷, for example, some important municipalities of 'the Hexagon' have digitised their data since 2010. This is the case of cities such as Paris, Nantes, Strasbourg, Bordeaux and Montpellier. These cities have chosen in particular some important sectors of urban life to be subject to the *Open Data* regulation: transport, parking, public markets, school canteen menus, urban traffic management. The following year, the French government created the *Etalab* project, with the aim of developing an access portal for regulating data access. Finally, in 2016 the French parliament approved the '*loi pour la République numérique*' (the Digital Republic Law), which introduces a progressive data openness policy not only for municipal, departmental and regional administrations, but also for companies on which the public sector relies as far as some essential services are concerned.

In a more general perspective, it should be noticed that in terms of *Open Data* there

¹⁵⁷ France is the third country in the world ranking of open government data, after Australia and Taiwan, and at the same position as the United Kingdom. At the moment, there are more than forty countries in the world that have chosen to adopt the *Open Data*, including most of the countries of Latin America, China, South Korea, Russia, India and New Zealand (Priol 2017).

are two trends facing each other (Priol 2017: 70).

The first is the Anglo-Saxon one, which insists on the principle of transparency for guaranteeing the balance of power. According to this point of view, *Open Data* represent a means that public administrations have to show to the citizens the 'accountability' of their political choices. Thus the *Open Data* can be conceived as a means of guaranteeing information access and the quality of information held by the counter-powers (see Meszaros et al. 2015).

The second trend is, instead, typical of the French political culture and emphasises the participation of the citizens, but, at the same time, it considers the principle of transparency as a unilateral act referring to public administrations¹⁵⁸. In this second case, priority is given to the re-use of *Open Data* in order to facilitate the work of the administration, on the one hand, and, on the other, to create new economic activities.

More in detail, the administrations' *Open data* are based on three principles: a) knowledge; b) transparency; c) innovation.

- a) The principle of *knowledge* refers to the need to give to the citizens the possibility to access a maximum of data and information on a certain territory about several issues. The administrations are required, therefore, to publish online data used by institutional services, in rough and anonymously. The anonymous and unprocessed data should enable the emergence of new expressions and new knowledge, not conditioned by procedures of preliminary data processing.
- b) The principle of *transparency* in public action refers to the need to create the conditions for making citizens aware of how public money is spent. It is the case of the application 'Where does my money go?'¹⁵⁹ in the United Kingdom, based on the principle of *Open Spending*.
- c) The principle of *innovation*, instead, aims to facilitate data reuse by calling on the collective intelligence of the citizens. It is a matter of encouraging the

¹⁵⁸ Referring to Article 14 of the 1789 'Declaration of the Rights of Man and the Citizen', which states: "Every citizen has a right, by himself or by his representatives, to decide concerning the necessity of the public contribution, to consent to it freely, to look after the employment of it, and to determine the quantity, the distribution, the collection and the duration". And Article 15 states: "The society has a right to demand from any public agent an account for his administration".

¹⁵⁹ <http://app.wheredoesmymoneygo.org>

multiple actors of the territory to appropriate the data made available to them in order to create useful services. It is in this context that, for example, the creation of geographic data management services can be integrated into city databases, like in the case of *OpenStreetMap*, which will be analysed later in Chapter 2.

However, it should be noticed that the definition of these principles is not sufficient to guarantee the data protection against the Internet oligopolies' tendency to appropriate them.

For this reason, alongside these principles, the type of legal licence adopted by a single administration is fundamental. Indeed, our main interest consists in understanding what kind of legal conditions can guarantee a correspondence between the *Open Data* policy and the logic of the *common* founded on the inalienability of data.

In this sense, an answer comes from the *free software* community.

On 7th and 8th December 2007, in Sebastopol, north of San Francisco, 30 researchers and representatives of the *free software* movement came together with the aim of establishing principles and regulatory forms so that public data could become common goods. Among them, lawyer Lawrence Lessig, creator of *Creative Commons* licenses, and Tim O'Reilly, one of the Web 2.0 inventors.

They defined eight legal principles (Table 2.8) describing the full openness of public data (Priolo 2017: 69). The data have to be: complete; rough (meaning unprocessed); updated and accessible to all; they have to enable an authorised data processing; they require no preliminary registration (and, therefore, there is no access discrimination); they have to adopt a non-proprietary format and a free licence (no copyright).

COMPLETE	All public data is made available. Public data is data that is not subject to valid privacy, security or privilege limitations. While non-electronic information resources, such as physical artifacts, are not subject to the Open Government Data principles, it is always encouraged that such resources be made available electronically to the extent feasible.
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PRIMARY	Data is as collected at the source, with the highest possible level of granularity, not in aggregate or modified forms. If an entity chooses to transform data by aggregation or transcoding for use on an Internet site built for end users, it still has an obligation to make the full-resolution information available in bulk for others to build their own sites with and to preserve the data for posterity.
TIMELY	Data is made available as quickly as necessary to preserve the value of the data.
ACCESSIBLE	Data is available to the widest range of users for the widest range of purposes. Data must be made available on the Internet so as to accommodate the widest practical range of users and uses. This means considering how choices in data preparation and publication affect access to the disabled and how it may impact users of a variety of software and hardware platforms. Data must be published with current industry standard protocols and formats, as well as alternative protocols and formats when industry standards impose burdens on wide reuse of the data. Data is not accessible if it can be retrieved only through navigating web forms, or if automated tools are not permitted to access it because of a robots.txt file, other policy, or technological restrictions.
MACHINE PROCESSABLE	Data is reasonably structured to allow automated processing. The ability for data to be widely used requires that the data be properly encoded. Free-form text is not a substitute for tabular and normalized records. Images of text are not a substitute for the text itself. Sufficient documentation on the data format and meanings of normalized data items must be available to users of the data
NON-DISCRIMINATORY	Data is available to anyone, with no requirement of registration. Anonymous access to the data must be allowed for public data, including access through anonymous proxies. Data should not be hidden behind 'walled gardens'.
NON-PROPRIETARY	Data is available in a format over which no entity has exclusive control. Proprietary formats add unnecessary restrictions over who can use the data, how it can be used and shared, and whether the data will be usable in the future. While some proprietary formats are nearly ubiquitous, it is nevertheless not acceptable to use only proprietary formats. Likewise, the relevant non-proprietary formats may not reach a wide audience. In these cases, it may be necessary to make the data available in multiple formats.

LICENSE-FREE	<p>Data is not subject to any copyright, patent, trademark or trade secret regulation. Reasonable privacy, security and privilege restrictions may be allowed.</p> <p>Because government information is a mix of public records, personal information, copyrighted work, and other non-open data, it is important to be clear about what data is available and what licensing, terms of service, and legal restrictions apply. Data for which no restrictions apply should be marked clearly as being in the public domain.</p>
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Table 2.8 : 8 Principles of Open Government Data

Source : OpenGovData¹⁶⁰

The choice of a certain type of licence is a crucial factor in establishing the orientation of a public institution in terms of data. As far as data collection and publication are concerned, there is the same issue as the one that the *Free Software Movement* tackled in the creation of the *Copyleft* for software. How to escape the trap of the *res nullius* - the things of nobody that anybody can freely appropriate? To give an example: is Google authorised to use the local *Open Data* produced and published by a local community in order to improve its *Google Map* (maps, tourist information, transport information, and so on) and, therefore, make profit from it?

With the 2016 law on the *République numérique*, the French parliament intervened to limit the range of licences used by public administrations. However, it gives the possibility to use them for marketing purposes. But local communities using *Open Data* have a great alternative in front of them.

On the one hand, they can adopt the OBDL licence (Open Database Licence), which obliges those who reuse the data to leave the reused data open for later re-use. This licence is sometimes presented as an 'Anti-Google' licence (Plantin and Valentin 2013: 90), for the simple reason that Google refuses to use the data of this licence requiring it not to privatise its later reuse.¹⁶¹

Nevertheless, local administrations can, otherwise, resort to the Etalab 'open licence'¹⁶², which authorises any later reuse, including reuse for commercial purposes, only requiring to mention the original licence. This licence was directly

¹⁶⁰ <https://opengovdata.org>

¹⁶¹ The OBDL license provided the basis, as we are going to see shortly, for the *OpenStreetMap* application.

¹⁶² <https://www.etalab.gouv.fr/licence-ouverte-open-licence>

conceived and made available by the French government, because, according to them, its simple usage and the range of possibilities given by it enable its more rapid spread in order to standardise the model of the local *Open Data*.

In our opinion, this second licence is extremely fragile, and easily subjectable to privatisation processes involving data produced by administrations, and by citizens as well.

Indeed, despite the close proximity of these two licences, they bring with them two radically different approaches. The philosophy of the first (ODBL) focuses on sharing, trying to prevent *Open Data* from being 'privatised', and is directly inspired by the common goods movement, with conditions similar to the *Copyleft* ones. The second one, behind its 'libertarian' ethos, requires to minimise the constraints, so that they can be completely eliminated, thus leaving free the capitalist initiative aiming at an exclusive property for profit purposes. (Meszaros et al. 2015: 29). Finally, we find in the comparison between these two licences the same difference that separates, in law, the *res nullius* from the *res communis*: while the former can be freely appropriated, because it is nobody's property, the latter is subject to a legal protection regime aimed at ensuring its inalienability and sharing in the framework of a protected public domain.

2.3.2.3.2. OpenStreetMap

OpenStreetMap (OSP) is one of the flagship projects in the *Open Data* experimentation based on a 'bottom-up' logic. It was founded in 2004 by Steve Coast (the *OpenStreetMap Foundation* was created in 2006). In 2017, members were more than 4 million.

OSP is a collaborative project aimed at creating free content maps, directly inspired by the founding principles, the governance rules and the contributive logic of *Wikipedia*. The project aims at the global collection of geographical data, with the main purpose of creating interactive maps. Three features represent the strengths of the project: a) an interactive map; b) relatively simple conditions of use; c) the organisation of users in local communities.

There are three ways to participate in the creation of the maps (Plantin and Valentin 2013: 90):

- Creating geographical tracks (points, lines) through the different technical supports equipped with GPS and integrating them into the database;
- Copying in the OSM database free geo-localised data coming from other sources (such as the *Yahoo* and *Bing* aerial maps, as well as those produced by the municipal administrations);
- Organising collective surveys of the territory, in order to keep the maps up-to-date.

These three operating modes contribute, therefore, to the constant updating of a geo-located database, organised according to a tag system. Like in the case of *Wikipedia*, the page where the map is accessible highlights a label enabling to edit the data, and the project provides a revision history showing the changes (history and log). Maps are created using data recorded by handheld GPS devices, aerial photographs and other free sources.

One of the strengths of OSM is represented by the fact that it is used by multiple territorial actors: public institutions (as in the case of the cities of Paris and Montpellier) and communities of citizens. The community-based structure of OSM enables multiple territorial actors interested in public data to meet, letting administrations set up an ecosystem of actors suitable for the dynamism of the *Open Data*.

Technically, OSM is therefore a database of open geographical data that is based on the active participation of its users, in contrast to similar applications based on GIS (*Geographic Information System*) technology or API (*Application Programming Interface*) maps. The main goal is to make such data accessible under free licence, while preventing them from being re-used for commercial purposes. OSM is therefore a proper alternative to *Google Maps*, a map based on API technology whose database is ruled by a proprietary logic. The difference is not only technical, but it also concerns the social purposes of the two applications. Google uses its map to consolidate its hegemonic position in the platform Web, primarily because geo-localised data enables it to improve its services and its indexing system through the *PageRank* algorithm. OSM, instead, proposes to set up a public database, which is implemented by users' activities and whose data are reusable by anyone, in compliance with the licence restrictions.

Google's programming interface for *Google Maps* is the API, a data library that single H2020-ICT-2016-1 DECODE D2.4 Data driven disruptive commons-based models

users can access and query in order to load a map on their web page, and to customise it in terms of size, zoom, location, and so on. Furthermore, it gives them the possibility to integrate their own data and those produced by other APIs. After creating *Google Earth* in 2004, Google released *Google Maps* in 2005¹⁶³, and it quickly became the leading application in the creation of geographic applications. Technically, its diffusion has been also encouraged by the emergence of new programming languages enabling to realise dynamic online applications, such as *JavaScript*, and at the same time, by the spread of GPS and mobile technologies. Both *Google Maps* and OSM are among those tools for processing geographical data that have encouraged the emergence of the 'neo-geography' (Plantin and Valentin 2013: 87). Using this term we want to describe the tendency to overcome the GIS technologies, monopolised by geographic professionals, and the transition to maps introduced in the interactive ecosystem of the Web 2.0.

But there is a fundamental difference between the two systems: *Google Maps* - which since 2017 has integrated some functions of a previous interactive application, *Google Maps Makers* - is contributive only as long as data are inbound. Indeed, the data introduced within its database by its users become property of Google, which prevents third parties from reusing it¹⁶⁴.

What expresses the peculiarity and strength of OSM is, therefore, the fact that users' data are protected under the Open Database Licence (ODBL). The data contained in the database can be freely used for any purpose with the only constraint to mention the source and, above all, to use the same licence for any work deriving from OSM data. Anyone can contribute, enriching or correcting the data. The cartography contained in the tables and the documentation are instead provided under *Creative*

¹⁶³ The story of *Google Maps* is emblematic of the predatory practices put in place by Google in order to strengthen its monopolistic power: a few weeks after the release of *Google Maps*, Paul Rademacher, at the time programmer at Dreamworks, decided to hack the application, extracting advertisements of flats for rent in San Francisco city from a site and adapting them to *Google Maps*. Its application, thus, gives way for the mass use of maps to geo-locate third-party data (in this case, rental advertisements), the real cornerstone of Web 2.0. Until then, online mapping was used for the only purpose of seeking an address or looking for directions, but from that moment on Google would understand the potential of the use of maps in interactive terms in creating new applications (and new forms of enhancement). So, instead of suing Paul Rademacher for hacking its platform, violating intellectual property rights, the company prefers another path and hires him. (see Plantin and Valentin 2013: 88).

¹⁶⁴ In particular, *Google Maps* currently includes the following 'editing functions': adding a missing place; editing information about a place; sharing more details about a place; moderating changes; displaying the status of the changes; editing road sections. See: <https://support.google.com/mapmaker/answer/7195127?hl=en>

Commons licence.

The ODBL, indeed, enables to:

- *Share*: copy, distribute and reuse the database;
- *Create*: introduce new information in the database.
- *Adapt*: edit, transform and develop the database.

The license requires to:

- *Attribute*: it is necessary to specify the authorship of the database for public use each single time and each time a database deriving from the original one is used. For any use or distribution of the database, or for any work deriving from it, one has to clearly state the licence under which it is issued and to maintain any copyright for the original database.
- *Share-alike*: If the database is shared in an edited version, or if further works based on its edited version are produced, it is compulsory to distribute this version of the edited database according to the ODBL.
- *Keep Open*: the database itself (or its edited version) can also be redistributed through technological devices restricting its use (for example through forms of *Digital Rights Management*) as long as an open version is always available without these restrictions.

OpenStreetMap openstreetmap.org	
Network economies	4 million subscribers (still weak if compared to Google Map). In 2006, Yahoo allowed OpenStreetMap to use its aerial orthophotos as a further basis for the creation of maps. Its network economy is strengthened by the adoption of the platform by some important European municipalities, such as the Parisian one.
Statute	<i>OpenStreetMap Community</i> . Project propelled by the <i>OpenStreetMap Foundation</i> .

Economic model	The economic model is essentially based on donations and on contributors' voluntary work, in line with the ethos of <i>free software</i> communities.
Work organisation model	Cooperative model of division of labour based on the principles of the contributive economy. The technical process and the political philosophy of <i>OSM</i> is very similar to that of <i>Wikipedia</i> .
Property and nature of algorithms	Open Database Licence (ODBL), an 'open data storage licence' similar to the canonical <i>Copyleft</i> model. The database is provided under this licence, while the cartography contained in the tables and the documentation are provided under a <i>Creative Commons</i> licence.
Use, property, data access	Gratuitous and free / CC BY-SA 3.0 license / anonymity but different levels of governance guarantee the reliability of information.
Internal limits and contradictions	A powerful 'bottom up' model of contributive work that brings together the potential of <i>free software</i> and that of <i>Wikipedia</i> , but still fragile if compared to the financial power and network economies of <i>Google Maps</i> .
Alternative potential common logic	A clear form of <i>common-based economy</i> that could find a sustainable logic within the framework of the developing neo-municipalism and of a federation of the <i>commons</i> alternative to the proprietary and centralised logic of the <i>Smart Cities</i> .

Table 2.9 : OpenStreetMap model summary

Source : Personal elaboration

2.3.2.4. 'Tous ensemble!': the *FramaSoft* project as a prefiguration of a federative model

The *Framasoft* project is relevant to our research because, despite being limited to a national geographical framework (France), it aims to provide a global alternative in the Web dominated by *Google* and by *Cloud computing* technologies. The project aims not only to develop a wide range of applications and services based on the *free software* logic, but also to promote their spread among a wider public, an audience that is not limited to the community of free and self-produced IT experts.

From the point of view of its statute and its legal form, *FramaSoft* is a non-profit organisation, aimed at promoting popular education in the *free software* field, officially based in Lyon (it belongs to the category of the non-profit French organisations ruled by the 'loi 1901', whose nature of 'general interest' authorises the reduction in the tax burden).

Its first project - the '*Framalibre*' yearbook - dates back to 2001. As stated in the article 2 of its statute: "The organisation's goal is the spread and the promotion of free culture, in general, and of *free software*, in particular"¹⁶⁵.

In order to respect the Internet users' 'fundamental freedoms' - as stated in the presentation of the project - the conscious choice of legal contracts relating to the *free software* legal licences is fundamental. The organisation, therefore, starts from the awareness of the close correlation between the choice of the most appropriate legal logic protecting computer creations from private appropriation, on the one hand, and the 'technical' mastery of the same digital instrument, on the other. The latter consideration shows us how law and IT, as jurist Lawrence Lessig (2006) has already observed in his famous formula - 'Code is law' - are two closely intertwined aspects, and how both contribute to establish certain coexistence rules and the normativity in the Web.

The organisation aims to promote the spread of the 'free' culture and *free software* culture by developing its initiatives around three main objectives:

- The spread of *free software*;
- The offer of free cultural creations, such as blogs, translations, publishing

¹⁶⁵ The organisation's statute is available at the following address: <https://soutenir.framasoft.org/sites/default/files/statuts-FramaSoft-2015-v8.pdf>; for the internal regulations see: <https://soutenir.framasoft.org/sites/default/files/reglement-interieur-2015-v6c.pdf>

houses;

- The offer of 'free' services (based on the same principles of the *Free Software Movement*): at the moment, there are more than 30 services in the framework of the 'Internet de-googlisation'.

The *FramaSoft* Card¹⁶⁶, the actual manifesto of the organisation, sets four key objectives:

- 1) 'For a free Internet', respecting the *free software* principles and working openly against the privatisation nowadays witnessed on the Web. For any application made available, *FramaSoft* commits to have it licensed under the *Copyleft* licence. The Charter directly refers to the *Free Software Foundation* website, and in particular to the page describing the difference between the '*libertarian*' *Open Source* ethos and the *free software* ethos, based on the non-appropriation logic of the of the *common*.¹⁶⁷
- 2) 'For a decentralised Internet', which proposes an alternative model compared the to *Cloud*- based service solutions offered by the big Internet companies. The *FramaSoft* project starts, indeed, from the awareness that the decentralisation of the Web, on the one hand, and its gratuitousness, on the other, are the material circumstances under which it is possible to guarantee equality in terms of Internet access, and application and service access.
- 3) 'For an ethical Internet', based on single users' sharing and independence. These principles turn into the guarantee of the absence of the *a priori* content censorship and control over the users; in opposition to requests not legally authorised to access user data; in the absence of discrimination; in the refusal to commercialise personal data. On the other hand, users accept the principle of sharing their data in the framework of a contributive application.
- 4) *For a solidarity-based Internet*, meaning based on donations made by the users and on the user-oriented availability of *FramaSoft* employees' work. As the Charter states: "the proposed economic model is based on energy

¹⁶⁶ <https://framasoft.org/nav/html/charte.html>

¹⁶⁷ <https://www.gnu.org/philosophy/free-sw.fr.html>

and cost ‘mutualisation’. If the services are free, this does not mean that they cost nothing. If a large number of people financially support *FramaSoft* for maintaining its services, a much larger number will be able to use and improve them”¹⁶⁸.

In compliance with the objectives of popular education, *FramaSoft* spreads as much knowledge as possible in order to promote *free software* usage and to train users to install free online services. As the project creators say: “Sharing technical and cognitive resources makes the Internet a common good, available to everybody and owned by nobody” (*Ibidem*).

As far as the project’s internal governance is concerned, the organisation wants to stay ‘human’: indeed, it is composed of less than 40 members, among which less than ten are permanent. The statute includes a General Manager and a Chief Executive Officer (Pierre-Yves Gosset), as well as 4 co-chairmen (Benjamin Jean, Sandra Guigonis, Christelle Thomas, Fredéric Urbain).

The organisation has hired eight paid workers who guarantee the permanence of the project and its promotional initiatives and popular education activities. However, the actual innovation introduced in terms applications and services offered comes from the multitude of experienced and qualified workers who voluntarily and gratuitously edit and improve the programme codes. On the page dedicated to the ‘*Bénévolat Valorisé*’ (Promoted Volunteerism)¹⁶⁹, anyone contributing to the project can register anonymously in order to record, in their activity history, their personal contribution to the project’s improvement. In most cases, it is qualified computing, aimed at developing an application, but it also includes tasks of a cultural nature, such as translating pages, writing articles on blogs, improving system administration, as well as participating in activities contributing to the promotion of popular education.

The economic model, therefore, is based on both this contributive form of work organisation and on donations and *crowdfunding* campaigns.

The following table helps us understand the evolution of the project and its coordination:

¹⁶⁸ See: <https://framasoft.org/nav/html/charte.html>

¹⁶⁹ <https://soutenir.framasoft.org/benevolat>

- 16 years of existence, 1 organisation, 35 employees and and 7 permanent members
- > 1 network, 4,000,000 visits per month
- > 27 servers, 48 virtual machines, and ± 90 deployed applications
- > 54 online projects, including 32 'De-googlising' Internet services
- > 673 free resources in the directory
- 2,148 blog articles
- > 20,000 'framadate' polls created each month
- 41,806 registered members on the *Framasphère* social network
- > 200,000 pads hosted in the servers
- > 156,530 people using *Framalistes* (4,000,000 visits)
- > 100 interventions per year for all types of audiences

Table 2.10 : FramaSoft in figures
Source : FramaSoft¹⁷⁰

One of the pillars of the project is *FramaCloud*. It is an alternative to the *Cloud* model and the centralisation of the Net. The project is accompanied by the motto 'Grow your own garden', which summarises the desire to push the users (individuals, companies, organisations, schools) to go back to self-produced IT, hosting their data on their own server (*auto-hosting*). There is also a guide providing, in an extremely pedagogical way, the instructions needed to install a server at one's place (otherwise, a mutualistic hosting service is also offered). Technically, it is necessary to connect a computer (present in the house) to one's modem, making it one's own server. All data (such as emails, for example) will be hosted on your server. *FramaSoft* encourages the use of old-fashioned computers for the installation of a home server, specifying another crucial aspect: the energy consumption is minimal if compared

¹⁷⁰ <https://soutenir.framasoft.org>

to that required in *Cloud computing* technologies.

The advantages of this technology, as stated in the *FramaSoft* guide, are:

- Data stay on your computer;
- Private life is respected;
- Customisation of services;
- Low energy consumption and, therefore, respect for the natural environment;
- It enables to increase users' awareness of how to use their devices.

We are, then, witnessing the defence of 'self-produced' IT against *Cloud Computing* technologies aiming to make it useless and obsolete. It is a typical position of the *Free Software Movement* that we already met in Chapter 1, when we showed Stallman's criticisms of the *Cloud* model.

However, the project admits that there are also some drawbacks. In particular:

- It takes a long time (and we add, a good level of technical knowledge) to create one's own server;
- The bandwidth is limited, so the performance of the auto-*Cloud* service will be lower than the one offered by the big *Cloud* servers;
- The users take personal responsibility for the security of their data. If this is one of the strengths of the project, in case of insufficient mastery of the machine use, the result could be the opposite.

This project is divided into various pillars outlining a *federation* of different *common* technologies that could, when fully productive at least, challenge the economic supremacy of the digital economy and *data industry* giants. Let us mention only a few of them:

- *NextCloud*, which aims to be an alternative to the *DropBox* model, one of the most popular *Cloud storage* models, but also *Microsoft SkyDrive* and *GoogleDrive*. *NextCloud*, therefore, gives the possibility to store your documents on the *FramaSoft Cloud* by connecting with different devices (*personal computers, smartphones, tablets*). *NextCloud* software is used with *FramaDrive* (a document storage service) and *FramaAgenda* (a service for managing agendas, contacts and to-do lists). To do so, it needs *free software* such as *Linux Debian Jessie*.
- *Wallabag* is a delayed reading application: if one is interested in a webpage, but wants to read it later, one can save it in their 'wallabag' (both on their

personal computers and on other devices). The software needed is *Linux Debian Stretch*.

- *Framabee* which, as we have seen (see 2.2.2.1.4), is a metasearch engine working with a *Searx* operating system.
- Another important project promoted by *FramaSoft* is *PeerTube*, which is an alternative to *YouTube*. It is presented as a "Federated video-streaming platform using (BitTorrent) directly in the web browser with WebTorrent"¹⁷¹. Also this case is mainly characterised by a federative and decentralised logic: the videos uploaded on the platform can be hosted on the users' own servers thanks to the free software.
- Finally, *FramaCarte*,¹⁷² which is one of the French instances related to *OpenStreetMap*.

To sum up, if these devices were added to those deriving from other well-established technical experimentations in a federative logic, it would be possible to conceive a model enabling to bring together a network economy power that would be similar, in terms of extension, to that of the *Big Data industry* companies. And it should be noticed that the various features of the *FramaSoft* project already are interconnected instances and nodes with other applications, which we have considered in this chapter, such as *Diaspora*, *Mastodon* and *OpenStreetMap*.

In this sense, the *FramaSoft* project brilliantly shows us the way for creating a genuine alternative to platform capitalism, which, if further enhanced on a European scale, would make the *common*, not an *enclave* or a niche sector, but a model that could potentially achieve a hegemonic position. This federative logic, as we will better see in the conclusions, could find a first main support in terms of funding and of both social and territorial 'anchorage' in the framework of the current neo-municipalist experiences developing on a European scale, from Naples to Barcelona.

¹⁷¹ See its Wiki page: <http://peertube.1312.media/videos/watch/cbab7806-2d95-4e93-bb78-b4812eee09d8>

¹⁷² <https://framacarte.org/it/>

2.3.3. The platform cooperatives' approach between the historical legacy of the cooperative movement and innovation: a critical analysis¹⁷³

This section of the report focuses on alternative systems to the major multinational actors of platform capitalism; in particular, we are going to concentrate on 'platform cooperatives', thus referring to models of platforms whose property is 'democratic' (Scholz 2016).

But before analysing platform cooperativism, we think it is necessary to draw the reader's attention to the history of the cooperative movement.

The long history of the cooperative movement is a complex route along which human solidarity has self-organised in order to give practical answers to the different issues arisen during the never-ending economic, social and cultural development of society.

There are several authors who have analysed the phenomenon of cooperativism and who have highlighted the main features of a model that has lived for centuries and which could be a reference point in terms of a sustainable development in the face of the challenges represented by climate change, enduring economic crisis and the following economic inequalities characterising the 21st century.

From utopian socialism to Rochdale society of equitable pioneers

From a theoretical point of view, in order to find an organisational model based on cooperation and shared property, we should refer - being as careful as possible - to Plato and to the model developed in his *Republic*.

All Western philosophical thought has significantly depended on the Platonic model, and, from the 17th century on, it has given life - thanks to the avant-garde work of Thomas Moore and his epigones - to the utopian thought.

Although these utopias were opposed to each other, what they all had in common was the recognition of the central role of social cooperation - and this marked the European thought, going from the Renaissance to the Enlightenment up to meet

¹⁷³ Written by Giuliani A.

the ideals of the emerging Labour Movement (Scrpanti and Zamagni 1998: 143).

With the advent of the industrial revolution and the political changes that characterised the end of the 18th century and the first half of the 19th century, the countries where the cooperative movement was best known were England and France. The technological discoveries, the strong changes in lifestyles imposed to more and more numerous rural populations who had become industrial sub-proletariat, gave way to create tools enabling the subaltern classes to cope with these difficulties. The worker organisations or mutual aid societies were groundbreaking and anticipated the cooperative societies as they are conceived nowadays.¹⁷⁴

In England, although a first cooperative mill is known to have appeared in the far 1760, followed by the first cooperative bakery, the experimentation of production cooperatives is due to Robert Owen (1771-1858). Owen was convinced that the human condition could be improved by changing the living conditions of the individuals. To do this, Owen believed that it was necessary to reorganise the economic system through 'enlightened cooperation'¹⁷⁵ based on the *common property of the goods produced*. After a number of failed experiments, Owen suggested that workers employed in capitalist factories set up consumer cooperatives with a peculiar characteristic: the capitalisation of the company's dividends (instead of paying them to consumers), as it is the case for the owners of capitalistic enterprises. These principles formed the basis for what is now considered to be the world's first successful consumer cooperative: the *Rochdale Society of Equitable Pioneers* established on 21st December 1844 in Toad Lane, in the town of Rochdale, near Manchester. The cooperative was founded by 28 individuals, most of them workers, weavers and carpenters, according to the above-mentioned Owenian ideas. The founding members of the cooperative had no previous experience in the commercial field, but they were driven by a strong sense of solidarity, by goodwill

¹⁷⁴ The foundational characteristics of these companies are represented by freedom of association between individuals or agencies, the possibility for members to directly meet their needs, common ownership enterprise besides the management democratically controlled by the members, independence from political power.

¹⁷⁵ Part of the literature attributes to Owen (in 1844) the first use of the term 'cooperation' in opposition to capitalist competition (Draperi 2012: 1). Other authors point out that the term cooperation (conceived in mutualistic terms) appears in 1856 and it was used by Victor Aimé Huber (1800-1869). See Salsi 2013: 33.

and non-profit approach (which explains why they used the adjective *equitable* in the name of the cooperative). All these aims were considered necessary by the upright pioneers in order to alleviate the poor conditions of that part of the society significantly damaged by the economic crisis in the 1840s. The cooperative was precisely founded on the rejection of the traditional business model based on profit, adopting new organisational rules known as 'Rochdale Cooperative Principles'. Simple rules that were published in the 'Pioneers' annual almanac' and that were fundamental for the spread of the cooperative movement, which we can summarise in:

- 1) The importance of voluntary and open membership for anyone wishing to become a member of the cooperative, including freedom of movement.
- 2) The democratic member control of the cooperative economic management exercised by the members who elected the board of directors.
- 3) Common property for the members who are compensated for the funds invested at a fixed interest rate.
- 4) Benefiting in proportion to the amount of purchases made by each member.
- 5) The autonomy and independence of the cooperative through mutualistic devices controlled by the members.
- 6) Contributing to educational and cultural activities for the community through the use of the benefits obtained by the cooperative.
- 7) Cash transactions in order to avoid indebtedness, guaranteeing the simplicity and the transparency of the commercial transactions.

The success of the Rochdale 'store'¹⁷⁶ was, therefore, due to the open and democratic nature of the cooperative, the possibility to sell the goods at the best price possible, to finance the investments using the surpluses and to allocate any residual benefit, not in proportion to the shares held, as in the companies based on the distribution of dividends, but on the basis of the purchases made by each member at the cooperative (the so-called rebate) (Holyoake 2017: 30). An aspect, the latter, that consists in providing the members with a return of a part of an amount already paid,

¹⁷⁶ The term 'store' was chosen by the founders to distinguish their commercial activities from the traditional 'shop'.

rewarding the loyalty they proved to the cooperative.

Very soon, the Rochdale 'store' witnessed an increase in the number of members and its turnover increased as well, enabling the store to lower its prices and to even offer products that until then had not been affordable for the members of the cooperative.

Of course, the difficulties were numerous but the cooperative had a significant role in shaping a new generation of consumers and in making them aware that an alternative way to consume and manage business was possible, as *FairMondo* and *FairCoop* are trying to do today, outlining the path to a federative model, which still represents the greatest challenge of platform cooperatives, provided that they do not make the same mistakes (what Scholz does not understand when he provides the example of the Italian cooperatives as a model).

In any case, after two centuries, the fundamental principles that have characterised the Rochdale's experience are still a reference model for the entire cooperative movement.

In the second half of the 19th century, a controversial debate characterised the cooperative movements throughout Europe. The supporters of production cooperatives, according to whom the alternative to industrial capital had to be developed on the same level as the supply of goods and services, to the supporters of consumer cooperatives. The latter claimed a cooperative management based on 'consumer sovereignty', as to say the fact that consumers, having all the same needs, would represent their general interest, while the producers would instead represent the interest of corporate interests.¹⁷⁷ In the end, the idea supported by the theoreticians of consumer cooperatives will win and will be characterised by the appearance of the *International Co-operative Alliance* (ICA) in 1895 (still existing nowadays).

We can observe, however, that this opposition has lost much of its relevance in the platform capitalism era, when the distinction between production and consumption,

¹⁷⁷ Here we are referring to an old debate, deriving from the thought of classical economists. It focuses again on Saint-Simon's thought, who, openly breaking with economic liberalism, foreshadowed the advent of a new producer society - where producers intended the workers in the broadest sense of the term - and the former were aimed at improving as much as possible the existence of the poorer class as quickly as possible. (Petitfils 1977: 62).

worker and consumer, has been more and more weakened and the main figure has become that of the *prosumer*.

There is no doubt, however, that during the Industrial Age the cooperative sector that spread the most was the one of consumer cooperatives, and this, indeed, pushed the cooperative movement to found the Co-Operative Party in 1917. This step was necessary to counteract to the conservative parties that wanted to limit the cooperative movement, which were under pressure from the protests by the capitalist commercial enterprises that considered anti-competitive the legislation on cooperatives (Adams 1987: 55).

But after World War II the founding principles that had driven the cooperative movement underwent a radical change. Just think of what happened to the *Cooperatives Wholesale Society* that over the years has diversified its sectors, extending to cooperative credit, and that, then, in the second half of the 20th century became a giant in the insurance field.

The French cooperative movement and the social economy

In France, the path of cooperative thought owes much to the philosophy of utopian socialists such as Saint-Simon (1760-1825), Charles Fourier (1772-1837) and Pierre Joseph Proudhon (1809-1865). Saint-Simon, starting from the criticism of the waste and imperfection of the capitalist system, advocated a socialist society where the producers, conceived as workers, technicians, scientists and entrepreneurs - the 'industrialists' as Saint-Simon used to define them - would be able to achieve an improvement in the living conditions of workers. Fourier, on the other hand, was convinced that men were able to organise their society in a harmonious way. To do so, work should be organised in small communities in order to limit the great capitalist industry and limit the waste and parasitism typical of the capitalist system as a whole. Proudhon strongly criticised the innate statism and consumerism of capitalism. His ideal society was based on the freedom and on the ability of the individuals to organise artisan and industrial cooperatives, thus restructuring the entire economic system (Scrpanti and Zamagni 1998: 146-148) and this is one of the reasons why he remains still today one of the reference points for the current

literature on *commons* (Dardot and Laval 2014; Borrits 2018).

The development of the cooperative thought will then find further stimulus at about the end of the 19th century with Charles Gide (1847-1932), one of the major supporters of the French cooperativism and social economy. The principles that inspired him are the same that had characterised, on a *micro* level, the Rochdale cooperative: one had to try to combine them on a *macro* level, outlining a cooperative and federative path capable of covering all three sectors of the economy. The commercial one was to be covered by the consumer cooperatives; the manufacturing one by the production cooperatives; and, finally, the agricultural sector by means of land ownership. This would have produced a *république coopérative*, as to say a *integral cooperative system*, characterised by democratic participation of the citizens, capable of overcoming the spasmodic innate pursuit of profit typical of the capitalist system, but without abolishing the market system (Desroche 1991: 146-147). We have here an important theoretical and historical precedent of what we now call neo-municipalist perspective, a perspective capable of integrating commons and platform cooperatives in order to create a viable alternative to the *Smart City*.

To go back to the historical cooperative thought, we also want to recall Georges Fauquet (1873-1953), one of the major theoreticians of the 20th century cooperativism, to whom we owe the theory of cooperation as a 'third sector' to be added to the public and capitalist ones (*Ibidem*: 221), a definition that today is mostly an economy of the *common* (or *commons*).

After the strong increase that characterised the period between the two centuries, consumer cooperatives experienced a progressive slowdown. In 2016, the *Fédération nationale des coopératives de consommation* boasted about 37 member companies, with 900.000 members and a turnover of € 1.3 billion¹⁷⁸.

Development of cooperative banking in Germany: Franz Schulze-Delitzsch and Friedrich Wilhelm Raiffeisen (1818)

In Germany the spread of the cooperative thought is mainly linked to Franz Hermann Schulze-Delitzsch (1808-1883) and Friedrich Wilhelm Raiffeisen (1818-1888), considered the founding fathers of cooperative banking. The former is considered to

¹⁷⁸ Coop FR (2018), *Panorama Sectoriel Des Entreprises Coopératives*, 2018. URL: http://www.fncc.coop/docs/coopfr_panorama_2018_web.pdf.

be the founder of German and European artisan cooperation and cooperative banking. Schulze-Delitzsch is the man to whom we owe the establishment of the two carpenters' and shoemakers' cooperatives for the purchase of raw materials in 1849. The key points of these cooperative enterprises were linked to the unlimited liability of the members guaranteed by the company's equity financed by profit allocation. He was a fervent supporter of a decentralised economy and was against state aid.

Raiffeisen, unlike Schulze-Delitzsch, was not opposed to state funding.

As for the production cooperatives, the three countries that initially experienced a certain spread of these types of cooperatives, even though in different ways, were France, England and Germany. While in France it mainly was a 'from-above' process, linked to public funding limiting its development, in England and Germany the establishment of these cooperatives represented a 'from-the-bottom-up' process. It proved to be a resilient model capable of evolving beyond any favourable political circumstance.

The development of the Italian cooperative movement

In Italy, the cooperative thought developed slightly later and in smaller size, mainly because of the political problems deriving from the unification of the country.

As for the cooperative banking, the model developed by Raiffeisen was a great success thanks to the contribution of L. Luzzati (1841-1827) and L. Wollemborg (1859-1932): indeed, it found its first application in the establishment of the first cooperative bank in Lodi in 1862. However, the same dualism characterising the industrial development of the North and the regression of the South of the country also affected the development dynamic of the cooperative system. In the 20th century, the Italian economic conditions improved thanks to a virtuous growth, which also benefited the cooperative movement. Indeed, the *Italian Federation of Mutual Aid Societies* dates back to 1901, and Italian cooperatives went from the 3.800 counted in 1902 to 7.429 before World War I, among which: 2.408 belonging to the consumer sector, 3.022 to the production and labour one, 1.143 to the agricultural one, 105 to insurance sector. In 1921, there were 25,000 cooperatives and more than 2 million members. Unfortunately, with the advent of fascism, as in Germany with Nazism,

there was a downsizing of the cooperative movement.¹⁷⁹ In the first post-war period, cooperativism came back again also because of the enthusiasm deriving from its full recognition in the Republican Constitution.

The crisis of cooperativism, between new models and alternatives to platform capitalism¹⁸⁰

Unfortunately, over time, the cooperative model has experienced an identity crisis characterised by a shift in the centrality of mutuality and the importance of shareholders in the management of the company towards more and more capitalistic organisational structures, thus differentiating members and employees, keeping profits and social guarantees only for the former, and acquiring, as in the case of *Mondragón Corporación Cooperativa* (MCC), companies without giving them the status of cooperative (Borrits 2018).

In the face of this evolution of the cooperative system towards a closed and inward-looking model, the new Cooperativism 2.0, as we are going to see, tries to reproduce an open model that eliminates the most critical points of the historical cooperativism.

With the crisis that characterised the Fordist development model, the industrial society and the changes produced by the new technologies, the same 20th century cooperative model went into crisis. However, this does not mean that the values of the cooperative thought (such as the Rochdale principles) are no longer good. However, it is necessary to rethink the development model to follow, taking into account the tools that new technologies offer to a multitude of citizens to face the new challenges of the current socio-economic changes.

The same legislative and fiscal motivations that characterised the development of the 20th century cooperative system have lost their objectives or even became antithetical to them. Just think of the role that cooperative enterprises have played in the companies' (as well as the state's) service externalisation process in order to reduce their costs, to the detriment of working conditions and workers' wages. One

¹⁷⁹ See: http://www.infocooperazione.it/storia_coop.aspx

¹⁸⁰ Written by Vattimo P. and Giuliani A.

example: the use of cooperatives in the logistics sector has enabled the spread of capitalist platforms such as *Amazon*.

And it is also necessary to rethink how to overcome one of the major limits of historical cooperation linked to the difficulty of accessing capital (the German cooperative banking system went in this direction) and to promote tools such as 'basic income guarantee' (Vercellone 2013), enabling citizens to play an active role in the new cooperative models. This is not a matter of theorising abstract models but rather of putting into practice cooperative models capable of facing the challenges posed by the production mode of platform capitalism. It is in these terms of analysis and criticism, indeed, that the topic of 'platform cooperatives' is increasingly becoming more and more present. In particular, when we talk about platform cooperatives, we have to ask: what would it need to create an alternative to capitalist platforms capable of equally distributing the product of labour and of providing guarantees for the social production system? Is a coalition of workers, artists, cooperatives, trade unionists and labour lawyers capable of transforming the platforms of the capitalist multinationals into something different, combining social justice for workers and respect for user privacy? The social mobilisation for new privacy policies or for a salary and more decorous rights is important, but, as Scholz suggests (2016), it is difficult to repair what one does not possess. For this reason, cooperative models based on the *common* could be a part of the solution to the questions we are asking.

In the contributive economy and the sharing economy, the conflict is not due to the clash between liberalisation and corporatism, as the case '*Uber vs. taxi drivers*' in France or in Italy would apparently show, but it is about the working conditions observed starting from the new financing processes of the ongoing economy, where all the productive activities are not transformed into goods to be exchanged and valued.

Indeed, in the US, where the model of the *sharing economy* has reached a considerable level, in both occupational and financial terms, there are more and more complaints on the precariousness of the work carried out by the platform capitalism. It is no coincidence that the Federal Court of San Francisco has explicitly

stated that *Uber* drivers are de-facto employees and not 'self-entrepreneurs' (Ciccarelli 2016).

The actually existing *sharing economy*, as observed by R. Ciccarelli (2016) is a production model that does not look like the capitalism that we have known so far, but it impoverishes labour, calling into question, on the one hand, the value of remuneration - 51 percent of the Americans earn less than \$ 30.000 a year, while 76 percent cannot accumulate any savings¹⁸¹; in the decade 2000-2010 the average income of Americans decreased by 7 percent (Nadeau 2012) - and, on the other hand, Welfare and income support systems that are increasingly reduced in terms of public expenditure.

The return to archaic forms of remuneration on *Amazon Mechanical Turk* is systematically practised and employers can even refuse to pay for a properly performed task. It is the general structure of the platform that systematically legitimises the 'theft of others' work', as defined by Scholz (2016).

The *uberisation* of the economy opens up to a change in capitalism, at the same time allowing a totally alternative reconfiguration of capitalism itself. One of the alternatives to platform capitalism has been defined by T. Scholz as 'platform cooperativism'. Platform cooperativism has a focus on mutualism and the contributory economy, giving renewed energy to these principles. These are, indeed, re-defined according to the potential of the 21st century Network (Ciccarelli, 2016).

The attempt that we are trying to make is to « *think of a way in which the Internet can adopt different forms of property and governance, and of how, as a result of this process, solidarity may emerge stronger* » (Scholz 2016: 17).

Scholz (*Ibidem*: 18), mentioning the data collected on the global cooperative movement by M. Kelly (2012), notices that social economy is considerably growing, and that the labour power used in cooperatives is, in absolute terms, greater than that used by all the digital multinationals together. However, critics of the cooperative model keep repeating that the cooperative model itself does not work. And this is because these cooperatives are under the same market pressure as

¹⁸¹ Johnson A. (2013), *76% of Americans are living paycheck-to-paycheck*, 24/06/13, CNN. URL: <https://money.cnn.com/2013/06/24/pf/emergency-savings/index.html>

capitalist companies. Scholz concedes that cooperatives face market competition, « *but in the light of 20/30 percent profit that companies like Uber make, an cooperative-platform-based approach could consist in offering services at a lower price. They could work with a 10 percent margin, which would result in a social benefit for female workers* » (*Ibidem*: 22).

Cooperativism, as we have seen, has historically been an important tool of economic power used by the most marginalised social groups. Cooperatives, no matter how small they are, can autonomously and directly take the function of 'self-managed ethical alternatives' compared to capitalist companies; they can intervene on the organisation of work and become a business model based on democratic forms of self-management.

Platform cooperativism, thus, gives the possibility of an alternative society, as it was for the early cooperativism. Scholz, in particular, together with many other scholars and activists, attempting to formalise this alternative, proposes to divide into three parts the action that platform cooperatives have to take in structuring themselves.

- The first concerns the cloning of the technological heart of the capitalist platforms (*Uber*, *TaskRabbit*, *Airbnb*, etc.) in order to make use of this technology (starting from adopt a different proprietary model) and to break down the non-functional *sharing economy* system concentrating the benefits of value creation only in a few individuals (the capitalists). It is for this reason that platform cooperativism brings into being the issue of a structural change in society and the redefinition of property rights. No longer exclusive property, but *common* property. We notice, however, that on this point, the proposal of a simple cloning of the platform algorithm seems naive. Algorithms, like any technology, are not a socially neutral facts, but have to be re-thought according to all the variables making up the *common* as a mode of production.

- In the second part, it has to be understood that platform cooperativism has to do with solidarity, which today is totally absent from the dominant neoliberal economic system. The platform property has to be directly and independently managed by creative organisations, based in cities, which are called to redesign the functions of

municipalism (Festa 2016), and by various other forms of cooperatives, multi-stakeholders and producers.

- In the third and last part, the platform cooperativism focuses on the reformulation of two categories: innovation and effectiveness. The main goal is to create an economic system capable of offering widespread social welfare, and not profit extraction for the few.

The so-called platform cooperatives potentially bring with them significant ecological, social and political changes and define an emerging economy. We will describe below some of the models of platform cooperativism that have already existed for several years. Sometimes, it is a matter of experimentation or of consolidated and structured experiences that have in common the fact of promoting systems of values alternative to those of the mode of production of platform capitalism.

2.3.3.1. Alternatives to Uber, Deliveroo, Airbnb: BackFeed, LibreTaxi, La'Zooz, Smart, CoopCycle, Guest-to-Guest, Airbnb¹⁸²

Different alternatives have been developed in the context of the 'uberisation' of the economy. We have selected two potential alternative models for each of the most representative company of this highly disruptive and poorly regulated new sector of the economy.

In choosing from the ever greater pool of alternative experimentations, in four out of six cases (*LibreTaxi*, *La'Zooz*, *Fairbnb*, and *Coopcycle*) we have privileged those that, although not yet very widespread or in a still precocious stage of development, seem to show great potentialities in terms of their adherence to the traits of the *common* as a mode of production, recalled in this chapter at paragraph 2.3.1. While all of these experiences build - or are committed to build - on Free/Libre Open Source Software and their legal status is either of cooperative or non-profit nature, they greatly differ with respect to their models' economic sustainability, labour organisation, and data management policy. With respect to this last point, *Fairbnb* and *La'Zooz* (the first

¹⁸² Written by Rocchi G.

one keen on experimenting DECODE technology and the second one based on blockchain) appear to be the most sensitive about privacy-related issues.

Regarding *GuestToGuest* and *SMart*, on the contrary, this last aspect is quite neglected, since they both run on proprietary software and their data management follows mainstream logics. However, while the former, despite offering a cost-efficient and rather popular substitute to classic short term house rental services, lacks of the totality of the traits characterising a *common*. Conversely *SMart*, a platform cooperative and an international network providing secured contractual solutions for freelancers of any kind, can be considered the most articulated and complete alternative to the ‘uberisation’ of the economy in Europe. This is why we will linger on its evolution through the time in the final part of this paragraph.

LIBRETAXI libretaxi.org	
Network Economies	Free and open source Arizona-based application connecting passengers and drivers and available for all devices. Since it was launched in 2016, the app (which can be used to find rides across the globe) has grown to 20.000 users. The highest use so far is in Taiwan, Iran, and Russia.
Statute and Governance	Non-profit organization.
Economic Sustainability	The service is absolutely free: <i>Libretaxi</i> does not charge drivers and cut their earnings, like <i>Uber</i> does. The financial model will be based on donations. “We are not looking to make a lot of money, and we are not going to be a middleman between passengers and drivers” ¹⁸³ .
Labour Organization	Currently, <i>Libretaxi</i> is a simple app that can be downloaded and used on the messaging platform <i>Telegram</i> . Riders and drivers are directly connected and negotiate prices before the ride is confirmed and independently of <i>LibreTaxi</i> , paying fares only in cash.

¹⁸³ Coca N. (2017), Q&A: *LibreTaxi*’s Roman Pushkin on Why He Made a Free, Open-Source Alternative to *Uber* and *Lyft*, Shareable, 22/03/17. URL: <https://www.shareable.net/blog/qa-libretaxis-roman-pushkin-on-why-he-made-a-free-open-source-alternative-to-uber-and-lyft>

Algorithms' Property	Open source software connected with <i>Telegram</i> messaging app ¹⁸⁴ .
Data Access, Use and Property	<i>LibreTaxi</i> is free and open-source software under the AGPLv3 license.
Internal Contradictions and Limits	Being <i>LibreTaxi</i> freely adoptable by any person, it risks to operate at the edge of legality: "In many Latino Communities across the US, there are people who are not eligible to work, so they can't drive for <i>Uber</i> " ¹⁸⁵ . No drivers/passengers rating is provided yet, and not even insurance cover and social security benefit. Nevertheless, the safety of passengers seems to be guaranteed by <i>LibreTaxi</i> 's targeting methods: "We are targeting [...] people who already know who their passengers are, who their drivers are, and we hope that <i>LibreTaxi</i> can help their own community" ¹⁸⁶ . Anyway, it seems quite far from a commons-oriented model, rather representing a specific technological tool that facilitates the connection between its users without retrieving any fee.
Opportunities Towards a Commons-Oriented Model	The aim of <i>LibreTaxi</i> is not to compete with <i>Uber</i> directly. Five are the main, remarkable differences with the worldwide most used ride-hailing app: <ul style="list-style-type: none"> - <i>LibreTaxi</i> is free for drivers; - Anyone can register, and anyone can become a driver in just one minute; - There's no built-in payment system; - There is no middleman able to determine prices and 'deactivate' drivers; - Source code is open.

Table 2.11 : LibreTaxi model summary

Source : Personal elaboration

¹⁸⁴ <https://github.com/ro31337/libretaxi>

¹⁸⁵ Coca (2017).

¹⁸⁶ *Ibidem*.

LA'ZOOZ

lazooz.org

Network Economies	Founded in Israel in 2013, <i>La'Zooz</i> (meaning 'to move' in Hebrew) is a decentralized, community-run, ride-sharing decentralized application. It is housed on the Bitcoin Blockchain and it functions on its own crypto tokens, called 'Zooz'. <i>La'Zooz</i> 's goal is to reach a critical mass of users that, after creating a big enough social transportation network, will eventually lead to the activation of a real-time ridesharing service on a meaningful global scale and rewarded through Zooz tokens. "Real-time means that no preplanning is involved in these shared rides, as prospective passengers will simply request rides to their destinations on the spot, and be picked up a few minutes later by a driver who is passing by along at least a portion of their route". There are plans also to create "a multi-hop solution, in which a rider switches between several vehicles on the way to his or her destination" ¹⁸⁷ . <i>La'Zooz</i> DApp has been tested in Israel for some months in 2015 and, even though still in its 'road mining' phase (see 'labour organization' box), the project's home page declares that the community is growing every day.
Statute and Governance	The non-profit legal organization <i>La'Zooz Mine The Gap LTD</i> (LMTG) is registered in Israel and acts as "Representative" of the community. Therefore, LMTG carries out administration of the services and activities for and on behalf of the community as a whole, in accordance with any instructions decided upon by the <i>La'Zooz</i> community. <i>La'Zooz</i> community's members have been contributing to the project at different levels and for different time spans since 2013. The community has created a reputation system where each member holds a certain 'weight', which represents the trust and power the community decided to give him/her. Therefore, people whom the community appreciates have more decision making power. Weights are updated once a month by new voting rounds and the results are calculated using a 'smart algorithm': 75 per cent of the new weight is determined by the old one, while 25 per cent by the new vote. Likewise, every month the community gathers to vote on the Zooz reward for members' contributions. Prior to vote, each member makes the community aware what s/he did in the past month and how much time s/he had put into the project.

¹⁸⁷ La'Zooz, Collaborative White Paper, June 1st 2015. URL: <https://www.weusecoins.com/assets/pdf/library/LaZooz%20Blockchain%20Taxi%20Whitepaper.pdf>

Economic Model	Using the same technology underlying the blockchain-based virtual currency <i>Bitcoin</i> , <i>La'Zooz</i> network would exist on the phones and computers of its community of users, rather than on any central server. The decentralized digital coin Zooz is used to remunerate people who participate in <i>La'Zooz</i> , being them developers or users, in accordance with their contributions' weigh. A contribution can be anything, starting from designing a website to writing a code or promoting <i>La'Zooz</i> on social networks.
Work organisation model	The project is still in its first phase of development, focused on creating a critical mass of users. Early adopters ('Road Miners') can install the <i>La'Zooz</i> mining app which will let them win 'Road Zooz' tokens by 'Proof-of-Movement' (PoM), namely by simply driving with it in the background, sharing this way valuable location data with the community. As you drive, you earn Zooz tokens in proportion to the number of kilometres you drive. <i>La'Zooz</i> algorithms monitor the number of active users and, as soon as a critical mass of users is detected in a specific geographical area (the critical mass is determined for each area separately), real-time ride-sharing service will be enabled for that specific area and users. From that moment ahead, 'Road Zooz' tokens are usable to reward drivers for sharing a ride. Furthermore, since the usability of the app increases as it grows closer to a critical mass, users are rewarded with Zooz tokens when spreading the application to new users. As already said, people can earn Zooz tokens by simply contributing somehow to the project.
Algorithms' property	Open Source software ¹⁸⁸ .
Data Access, Use and Property	<i>La'Zooz</i> founders affirmed in 2015: "All this data will sit on a blockchain - on many, many servers, not one. For that we need a programmable blockchain, which <i>Ethereum</i> is building, and we are waiting for that to go live in a couple of months. Then we will gradually decentralize everything. [...] Whenever a rider and a driver are matched, only the part of the information that is necessary and public will be available between them" ¹⁸⁹ .
Internal Contradiction	Five years after its foundation, <i>La'Zooz</i> is still in the 'mining' stage. The major challenge seems therefore to have a critical

¹⁸⁸ See: <https://github.com/lazooz>

¹⁸⁹ Schneider N. (2015), *La'Zooz: The Decentralized, Crypto-Alternative to Uber*, Shareable, 26/01/15. URL: <https://www.shareable.net/blog/lazooz-the-decentralized-crypto-alternative-to-uber>

s and Limits	mass of users in place, in the absence of which the network will be marked out by underserved geographic areas, too long waiting times, and poor reputation, leading eventually to fewer and fewer people joining the project.
Opportunities Towards a Commons-Oriented Model	Being decentralized, <i>La'Zooz</i> does not belong to anyone but to the network of users, who share its values, risks, earnings and can decide together the policy regulating it. The <i>La'Zooz</i> team has stipulated in its by-laws to be contractually bound with a set of agreements to its community of users, in a way that its board of directors is obliged to operate only as instructed by the community's decision making processes. Furthermore, the project also aims at contributing to solve the economic and environmental problems deriving from the current wasteful, time consuming, and unsustainable private transportation system. Being conceived as a ride-sharing (rather than a ride-hailing) app, its envisaged service makes it possible to increase the number of people occupying the same ride, rather than splitting them across a multitude of vehicles. <i>La'Zooz</i> also tries to bring back a real meaning to the term 'sharing', highlighting the social benefit which can arise from meeting like-minded new people.

Table 2.12 : *La'Zooz* model summary

Source : Personal elaboration

GUESTTOGUEST guesttogguest.fr	
Network Economies	Founded in France 2011, <i>GuestToGuest</i> is the world's leading home exchange website, alternative to <i>Airbnb</i> . 187 countries. More than 400.000 homes. +10.000 new homes per month. It acquired US-based international home swapping company <i>Home Exchange</i> ¹⁹⁰ in 2017 and whose business model is based on a fixed membership fee through the payment of which members can swap their homes with others' for a year. The two brands remained separate and continued to function within their respective targeted spaces and membership base.
Statute and Governance	'Société par Actions Simplifiée' (Joint-Stock Company).

¹⁹⁰ See: <https://www.homeexchange.com/en/>

Economic Model	<p>Registration is free. Members earn '<i>GuestPoints</i>' for allowing people to stay at their home. These points can be used to stay at others' homes. Exchanges can be reciprocal or non-reciprocal.</p> <p>The company earns a 3.5 percent commission of any security deposit posted by Guests. The deposit is an optional security precaution. Every time a home is registered on <i>GuestToGuest</i>, a deposit amount is suggested, taking into account the home's size and comforts. This amount can be changed by the Host. Once the host has approved the exchange, the guest will be required to insert his card details. In the event of damages, either the two parties reach an agreement concerning the deposit and the amount to be paid, or the entire amount of the deposit will be charged in the 30 days after the end of the exchange and transferred to a special account until a decision is made, whether negotiated or judicial.</p> <p>'Service Plus' is instead another recently introduced service which, at a cost of € 10 per night regardless of the number of travellers and a fixed € 500 deposit, guarantees several coverages to both Guests and Hosts.</p> <p>In July 2015 the company raised nearly € 1 million from existing investors.</p>
Work organisation model	For-profit company with roughly 50 employees and a classic corporate management.
Algorithms' Property	<p>'Verification' is a service <i>GuestToGuest</i> provides to confirm the identities and addresses of members. Verification serves as a badge of confidence and security within <i>GuestToGuest</i> community. Becoming a verified member benefits by taking the profile to the top of search results and maximizes chances of finding an exchange.</p>
Data Access, Use and Property	<p><i>GuestToGuest</i> collects data that users transmit deliberately in order to benefit from the service, additional categories of information (e.g. proof of identity, publications, friends lists and other social interactions), and automatically collected data (e.g. Information arising from the use of <i>GuestToGuest</i> services or concerning the equipment to access the platform, such as IP address, Internet browser, and operating system version). Among the purposes for which data is used are also included profiling operations. Data is stored in servers located in Europe but, since some of <i>GuestToGuest</i> subsidiaries and service providers are located in the US, information can be processed and transferred over there prior verification that</p>

	the recipient offers appropriate guarantees.
Internal Contradictions and Limits	It is an example of B2C. It seems more an aggregation of individuals who get to satisfy a specific need (vacation) with minimum monetary exchanges, rather than a commons.
Opportunities Towards a Commons-Oriented Model	It is interesting the ability to diffuse a common desire for low-cost travelling around the world - thanks to home exchange.

Table 2.13 : GuestToGuest model summary

Source : Personal elaboration

FAIRBNB¹⁹¹ fairbnb.coop	
Network Economies	<p><i>FairBnB</i> is a project and a movement of activists, coders, researchers and creatives that was born in 2016 in Amsterdam, Barcelona, Bologna and Venice in response to the need, perceived especially in large urban centres marked by high levels of tourism flows and gentrification phenomena, to co-create a viable market-based solution for short-term accommodation rentals, alternative to the <i>Airbnb</i>'s model. While the latter implies the exposure of lots of personal details in order to increase the trustworthiness between users, <i>Fairbnb</i> is committed to transparency, accountability in personal data use, co-ownership and added value for the neighbourhoods. An alpha version of the platform is due to be launched in November 2018 in numerous locations which are part of <i>Fairbnb</i>'s network, namely Amsterdam, Athens, Barcelona, Bologna, Venice, Madrid, and Oporto. An improved version is planned to be released in April 2018. Besides building the platform, <i>Fairbnb</i>'s team is activating cities' local nodes in order to find, suggest, or even manage the social projects to which part of the revenue generated will be intended. <i>Fairbnb</i> also collaborates with some universities in the Netherlands in order to constantly deepen and update research on community needs and technology advancement. A functionality to enable the pre-registration of accommodations or social projects - which is addressed not only to people living in these towns but also</p>

¹⁹¹ Realized with the contribution of *Fairbnb*'s co-founder Indré Leonavičiūtė, interviewed on September 7th 2018.

	everywhere else in the world - has been recently introduced: once the platform will be operative and a good concentration of requests in a given location is detected, the service will be activated as soon as possible.
Statute and Governance	<i>Fairbnb</i> is operated by a cooperative that, in compliance with local and regional legislation, will be collectively owned and governed by the community that use it and is impacted by its use, namely Hosts, Guests, and neighbours. <i>Fairbnb's</i> headquarters will be based in Bologna.
Economic Model	In order to be socially beneficial and economically independent, <i>Fairbnb</i> will be based on a non-extractive business model compliant with local and regional short-term rental legislation. Part of the commission on transactions (applied only to Guests/Travellers) is retained to finance the management and maintenance of the platform while the rest is reinvested to support social projects in the Hosts' own neighbourhoods or elsewhere (global/regional projects), chosen by Travellers at the time of reservation. Also Hosts will be able to voluntarily help Guests increase their donation. The requirements a project should have to get funded, as well as the criteria that every Host should be following in order to offer its house/B&B/Hotel/camping on <i>Fairbnb</i> , are among the themes that are being debated in the recently introduced platform forum ¹⁹² . The idea is that of including not only projects aimed at solving gentrification issues, but also various social initiatives such as converting an old warehouse to a cultural space that would become a new place to gather for the locals, or opening a new kindergarten that would solve the need for it in that area. Whether or not a part of a Guest's donation to a global project will be allocated to the neighbourhood where the reservation is done is one among the central questions under discussion, since this is fundamental to the respect of the principle of value redistribution to welcoming neighbourhoods. <i>Fairbnb's</i> social network ¹⁹³ , aimed at giving a space to "people interested in organizing grassroots activities and activism, networking and a lighter and less committed involvement in the project" has also been freshly launched.

¹⁹² See: <http://forum.fairbnb.coop/>

¹⁹³ See: <https://social.fairbnb.coop/>

Work organisation model	Cooperative organizational structure. Everybody who becomes a worker of <i>Fairbnb</i> Cooperative (i.e. developers, Hosts, Guests, non-profit legal entities, concierge service providers booked by Hosts) has a right to participate in decision-making processes with regard to the platform's organization and improvement. There will be different membership options, each of which allowing a different level of participation and involvement in <i>Fairbnb</i> 's activities.
Algorithms' Property	<i>Fairbnb</i> will adopt a Free-Libre/Open Source Software (FLOSS) license.
Data Access, Use and Property	<i>Fairbnb</i> , which has collaborated with Waag for over one year, will likely adopt DECODE's privacy-aware technology, depending also on the success of one of the two Amsterdam-based pilots (i.e. the 'Holiday Rental Register' pilot). This will allow <i>Fairbnb</i> 's users to set their bookings securely using the DECODE wallet, without <i>Fairbnb</i> seeing any personal data but only aggregated and anonymized data, and only if data subjects decide to share it. In addition to this, <i>Fairbnb</i> will be accountable to guarantee a balance with the privacy and security needs of platform members, incorporating community-based mechanisms in order to build trust and grow reputation among the platform members instead of exposing too much sensitive private data. Moreover, Hosts will be able to offer only one property on <i>Fairbnb</i> , regardless of the (more or less permissive) holiday rental rules of the city where the platform is launched.
Internal Contradictions and Limits	<i>Fairbnb</i> seems to represent a remarkable and valid alternative to centralized short term rental platforms such as <i>Airbnb</i> . This will be proved once the project will overtake the current preliminary development stage, reaching a mature set-up.
Opportunities Towards a Commons-Oriented Model	The purpose of <i>Fairbnb</i> is to bring sustainable travel experience and add up to the welfare of neighbourhoods and cities where it operates. To do that, the highest possible number of locals (whether or not they are members of <i>Fairbnb</i>) should be informed and enabled to participate in the debate around the selection-process of projects. This would consist, firstly, in collectively deciding about the criteria a project should honour to be eligible; secondly, in pre-selecting the projects according to the resulting criteria; and finally, in voting the projects that will be finally included among the 'fundable' ones. Since the success of a project with such a vision should also be in the interest of local authorities, their collaboration and support, hitherto fruitful, can play a decisive

	role in increasing the participation level. This might be done leveraging existing weekly/monthly neighbourhood's assemblies or establishing recursive <i>Fairbnb</i> -focused gatherings, publicized with City Council channels and resources. Another option may be that of adopting a municipality-promoted Free Open-Source participatory democracy platform, such as <i>Decidim</i> ¹⁹⁴ .
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Table 2.14 : *Fairbnb* model summary

Source : Personal elaboration

COOPCYCLE coopcycle.org	
Network Economies	CoopCycle is an open-source software reserved for the management of worker-owned food-delivery coops born in 2016 in France, alternative to food-tech platforms like <i>Deliveroo</i> and <i>Foodora</i> .
Statute and Governance	Currently, CoopCycle is managed by an 'association loi de 1901' ¹⁹⁵ . It is composed of about fifteen founding members and is enriched week after week with new contributors. The first CoopCycle-based co-op, <i>Molenbike</i> ¹⁹⁶ , has been founded by a group of former employees of <i>Deliveroo</i> and <i>TakeEatEasy</i> and began operating in Brussels in response to the decision made in January 2018 by <i>Deliveroo</i> 's managers to interrupt its collaboration with <i>SMart</i> , which guaranteed to the couriers to work under contracts as salaried employees.
Economic Model	The goal is to finance the software thanks to a contribution, which gives rights to use the software and to administer it.
Work organisation model	Cooperative organizational structure. The software belongs to its users (couriers, shop owners) and its contributors (developers). As for the former, couriers benefit from a stable income and social security protection, shop owners have a say in the pricing of the service, and they both have the right to take part in the technical and commercial decisions made by

¹⁹⁴ See: <https://decidim.org/> . For a comprehensive description of *Decidim*'s functionalities see Barandiaran and Romero (2017). A brief *Decidim*'s portrait is given in the fact-sheets relating to the DDDC and *Citizen Sensing* pilots, which will run in Barcelona in the framework of the DECODE project. They are available in Appendix A, along with those about Amsterdam-based pilots.

¹⁹⁵ See: https://fr.wikipedia.org/wiki/Association_loi_de_1901

¹⁹⁶ See: <http://www.molenbike.be/>

	the local the co-op running the platform. With regard to the latter, each local co-op should remit a contribution (instead of the fee retrieved by traditional food-tech companies) to finance their work.
Algorithms' Property	The code is licensed under the Peer Production License ¹⁹⁷ . This means that the software can be used provided that the beneficiary is a worker-owned business or worker-owned collective, and that all financial gain, surplus, profits and benefits produced are distributed among the worker-owners. Therefore, any use by a company whose ownership and governance is private and whose purpose is to generate profit from the work of waged employees is prohibited by this license.
Data Access, Use and Property	Not available information. <i>CoopCycle</i> is currently running on standard web technologies but the use of blockchain is not ruled out.
Internal Contradictions and Limits	<i>Coopcycle</i> seems more an aggregation of cooperatives working together to sell to markets, than a <i>commons</i> . The explicit vision is: "Cooperatives that are ran locally, united internationally, in order to compete with global platforms. Pool our resources, including the software as a mean of production, to get economy of scale" ¹⁹⁸ .
Opportunities Towards a Commons-Oriented Model	<i>Coopcycle</i> aims at creating a federation of worker-owned cooperatives in Europe, which will use, own and manage the software. The main idea is to decentralize this kind of service and to allow couriers to own the platform they are working for. In each city, couriers are encouraged to organize into co-ops, and to run their very own version of the software. Precise information about data management and use will be probably released in a close future.

Table 2.15 : CoopCycle model summary

Source : Personal elaboration

SMart: the most extensive alternative to the ‘uberisation’ of the economy¹⁹⁹

SMart is a social purpose cooperative society providing independent workers with legal, economic and social coverage within a mutualistic secure framework, in

¹⁹⁷ See: <https://github.com/coopcycle>

¹⁹⁸ See: <https://coopcycle.org/en/>

¹⁹⁹ Written by Puletti F.

order to enable them develop their own business. Appeared in Brussels in 1998, *SMart* (acronym corresponding to 'Mutual Society for Artists', in French: 'Société Mutuelle pour Artistes') is a project of mutualistic experimentation and collective entrepreneurship.

Characterised by its associative origins and its early client base composed of artists and entertainers, the cooperative has gradually opened up to other professional profiles in the field of culture and creative industries, and finally to the entire sector, becoming in the last decade one of the most important operators in Europe as far freelance work is concerned. Its mission is to promote forms of protection and mutualism for self-employed workers by using, on the one hand, already existing legal devices and, on the other hand, by inventing specific devices that are suitable for their needs. This is why the *SMart* experience, in the framework of the present research, is a hybrid between *voice* and *exit*.

SMart was developed according to a number of aspects characterising the condition of freelance work: the desire of self-employed workers to gain visibility as separate subjects from the world of business; the inadequacy (or even the lack) of insurance coverage in case of illness, accident or prolonged inactivity in many European legislations; the considerably asymmetric relationships with the employers, the weak or insufficient legal protection in the event of conflicts in the workplace, an excessive burden of taxation, the sharp fall in wages following the 2008 crisis,

a number of issues which, as the research shows, are worsened by the advent of *on demand* platforms in work and service intermediation.

SMart enables first and foremost freelance workers who join the cooperative to work having the status of employees by giving different contract opportunities. This mechanism allows them to access social protection (retirement, health insurance, unemployment insurance) and the taxation system prescribed by several European legislations for the category of 'employees'. For example, it allows these workers to obtain unemployment benefits during periods of inactivity, covering them in a way that would otherwise be impossible.

But *SMart*'s mutualistic practice is not limited to this, it also consists in new forms of protection for self-employment. An example is the wage guarantee fund of the cooperative. This makes it possible for these workers to be paid in advance reducing in this way any non-payment or late payment, even in the event of the employer's bankruptcy. The cooperative also ensures the sharing of a number of services such as: usual 'general services' typical of independent work, (billing, social and tax declaration, management, and so on), customised training to according to one's different professional needs and, finally, a customised support service.

In recent years, moreover, the means of production themselves have been partially shared (workspaces, machines, tools, software, hardware, and so on), as well as the investments.

To cite just a few examples concerning shared workspaces, it should be recalled that *SMart* has contributed to the emergence of several co-working spaces and/or 'third places'²⁰⁰. Many of its offices now reside in such locations. Speaking only of Brussels²⁰¹, the centre of the cooperative's activities, we can mention the KOP co-working area, the Brussels Art Factory workshops, and finally the LaValée centre. The construction of these collective spaces allows *SMart* to oppose some of the trends inherent in the 'domestication'²⁰² of workspaces typical of post-Fordist work. These spaces rely on the dynamics of sharing the costs of production, the proximity effect between workers and the projects' cross-fertilisation.

As a company shared by all its members, *SMart* also pools:

- Its legal identity, and therefore its corporate responsibility, used by each member with customers, suppliers, employees and the government;
- The risks that any economic activity has (social risks, accidents, civil, commercial, financial liability, and so on).

²⁰⁰ See: Ray Oldenburg (1989), *The Great Good Place*, Paragon House: New York.

²⁰¹ See: *Smart Rapport d'activité 2017 Perspectives 2018*, p. 37. URL : <https://smartbe.be/wp-content/uploads/2018/06/Rapport-dactivite-2017-web.pdf>

²⁰² 'Domestication' refers to the encroachment of work activities into all areas of private life. See: Bologna S. and Fumagalli A. (1997), *Il lavoro autonomo di seconda generazione. Scenari del postfordismo in Italia*. Feltrinelli: Milano. Or: Sergio Bologna (2018), *Ten Parameters for Defining a Self-employed Workers Statute*, in *The rise of the European Self-Employed Workforce*. Mimesis International: Milano.

SMart devices work remarkably well in Belgium where, thanks to a 20-year experience, the cooperative can count on the weight of about 90.000 users/partners (23.000 resulting active members during the past year for a total number of 667.840 actual working days)²⁰³. Since 2009, *SMart* has also been introduced in France, and between 2012 and 2014, its offices have then opened in Sweden, Spain, Italy, the Netherlands, Austria, Germany, Hungary²⁰⁴. While writing this report, *SMart* is present in 9 European countries, in more than 40 cities and has 120.000 users/members, 80.000 contractors and 153 million invoices issued in 2016, excluding VAT.

SMart is mainly financed by:

- Contributions by its members; a single percentage (per country) of the amounts billed to customers by autonomous economic activities: 6.5 percent for Belgium, Sweden, the Netherlands and France, 7 percent for Germany, 7.5 percent for Spain, 8.5 percent for France, Italy and Hungary;
- This amount paid by the customers represents the cost of the commercial, social, fiscal security of their transactions and the 'ethical added value' that *SMart* brings them.

For years in the social and mutualistic economy field, *SMart* went in 2017, guided by new CEO Sandrino Graceffa, from being a non-profit organisation to being a social purpose cooperative society. In order to get prepared for this change *SMart* has launched a huge participatory project called 'SMart in Progress'. Several workshops for outlining the cooperative project has been held. In-depth topics are those relating to: the mode of governance, the economic model, the tools to be developed in order to meet the changing needs of its members.

As a cooperative, *SMart* is today projected towards a completely original path: the invention of a new form of shared enterprise combining the economic needs and social goals that motivate its action. Its statutory choice involved no capital increase, the asset being managed as collective property. The internal governance

²⁰³ *SMart Rapport d'activité 2017 Perspectives 2018*, p. 19. URL: <https://smartbe.be/wp-content/uploads/2018/06/Rapport-dactivite-2017-web.pdf>.

²⁰⁴ *Ibidem*: 74.

of the cooperative responds to a common-based logic and it is ensured by an annual general assembly electing its board of directors.

Therefore, *SMart* tries to recreate a collective dimension around highly individualised and fragmented professional paths. In this sense, *SMart* seeks to represent a counterweight to work precariousness mechanisms, such as those found in many on-demand platforms.

It is interesting, in this sense, to mention the role that *SMart* was able to play when it got interested in the working conditions of deliverers of *food-tech* platforms in Belgium.

Between 2014 and 2016, indeed, some members of *Smart* working in the artistic and creative field had began to invoice, at the same time, services provided by *Deliveroo* and *Take it Easy* deliverers as additional income. The number of deliverers contractualised via *SMart* and working on these platforms has grown so much to make *SMart* become an employer of deliverers capable of having a certain bargaining power with these companies. This is when *SMart* started a negotiation with these platforms, leading to one of the first commercial agreements related to the *food-tech* domain, signed by *Deliveroo* and *Take it Easy* in July 2016. This agreement involved an hourly payment respecting the legal minimums, a guarantee of remuneration of at least 3 hours per day, the payment for the use of a personal telephone, the covering of 50 percent of labour costs concerning technical interventions to the deliverers' bike, a road safety training for each new deliverer.

This agreement was broken only a year later, when *Deliveroo* announced its willingness to stop all collaboration with deliverers employed by *SMart*²⁰⁵. However, it still represents important evidence of where a *freelance* work coalition, within the framework of a common project, can lead, when the aim is not only that of creating an alternative economic project (*exit*), but also that of claiming one's own rights (*voice*) within the traditional labour market. Actions of this type, belonging to

²⁰⁵ See: Jehin A. (2018), *Coursiers à vélo et Deliveroo : les enseignements d'un combat social*, June 2018, https://smartbe.be/wp-content/uploads/2018/07/06-2018-deliveroo_final.pdf; Charon P. (2018), *Digital Platforms, Collective Mobilization, Innovation and Social Responsibility*, Study and Dossier, June 18, For Solidarity - PLS and UP Group, p. 30, <http://www.pourlasolidarite.eu/en/publication/digital-platforms-collective-mobilization-innovation-and-social-responsibility>.

a wide range of similar practices²⁰⁶, radically reconfigure the fundamental pillars of trade union action, namely: organizational forms of the labour force, bargaining practices and claims for equal income distribution. This show us once again a one-to-one correspondence between *exit* and *voice* practices.

SMART smart-eu.org	
Network Economies	<i>SMart</i> (Société Mutuelle des Artistes) is a platform co-op founded in Belgium in 1998 aimed at creating a legally secured framework for all freelancers. Its founders later decided to invest part of the resources in the development of an international network of cooperatives, expanding in France, Sweden, Spain, Italy, Germany, Austria, The Netherlands, Hungary, with a total of roughly 120.000 members at the time of writing.
Statute and Governance	The legal form is that of a cooperative society with a mutualistic and non-profit purpose, carrying out in a stable and main way an economic activity whose aim is to produce and exchange goods and services of social utility, mainly but not exclusively in the sectors of research and supply of cultural services, in particular of art, creativity, and culture.
Economic Model	<i>SMart</i> takes care of all the main administrative, fiscal, and social security burdens tied to the management of its members' creative projects as well as of the necessary insurance cover: work accidents, theft abroad, civil liability, etc. To become a <i>SMart</i> 's member (namely a <i>SMart</i> 's employee), a once in a lifetime € 50 registration fee is needed. To cover management costs <i>SMart</i> withholds a fixed 8.5 percent fee of the agreed compensation between the <i>SMart</i> 's employee and the client, net of VAT. The co-op's statute provides for the creation of a 'Mutual Guarantee Fund', whose task is to assure the punctuality of payments to the co-op's members. The fund is financed with two percent of the turnover achieved by the cooperative.
Work organisation model	Cooperative organizational structure. <i>SMart</i> 's governing bodies are the board of directors, the auditor, the ethics committee, and the scientific committee. Members

²⁰⁶ See: De Nicola A. and Quattrocchi B. (2016).

	participate in formal decision-making at the Annual General Assembly ²⁰⁷ in the framework of the ' <i>SMart In Progress</i> ' ²⁰⁸ collective process, started in 2015 and allowing members, clients, and partners to meet each other, reflect and exchange ideas around the project and its evolution, through several initiatives (workshops, local meetings, blog, and writings).
Algorithms' Property	Proprietary software.
Data Access, Use and Property	Not available information.
Internal Contradictions and Limits	The main shortcoming of <i>SMart</i> , given its Europe-wide diffusion ambition, is doubtless the fact that it does not release its software's code under a FLOSS licence, which is a hallmark of a commons-oriented economic model.
Opportunities Towards a Commons-Oriented Model	The openness of <i>SMart</i> 's underlying technology to the general public would represent a great opportunity for both the improvement of <i>SMart</i> 's source code, the growth of other similar and even superior initiatives, and generally the creation of valuable synergies for the constitution of a federation of commons-based platform cooperatives around Europe and beyond.

Table 2.16 : *SMart model summary*

Source : Personal elaboration

2.3.3.2. Platform cooperatives alternative to Amazon in the field of consumption and large-scale distribution: Fairmondo, FairMarket (FairCoop)²⁰⁹

Amazon, in the light of what we have already stated in paragraph 1.4, represents today one of the main oligopolistic Internet actors. We can say that it embodies a new *regulatory mode* as far as the flows of logistics and distribution are concerned, a regulatory mode that tends to become the major one, consisting of a multitude of

²⁰⁷ The first one took place in June 2017. Members voted on the approval of the 2016 societal balance-sheet, the annual activity report, the creation of four working groups (ethics committee, economic and financial transparency, representation of *SMart* and improvement of IT tools), and elected the new *SMart*'s board of directors. All information available at: <http://smartbe.be/fr/la-cooperative-en-pratique/assemblee-generale-ordinaire-2017/>

²⁰⁸ See: <http://smartbe.be/fr/smart-progress/>

²⁰⁹ Written by Vattimo P.

specific and different modes of production and distribution of goods and services that are connected through regulations, scientific models and technologies. The resulting system is characterised by « *a set of rules enclosed in a coherent entirety of scientific knowledge, engineering techniques, technologies, production processes, product features, problem defining modes - all rooted in the institutions and infrastructure of the network and of the company* » (van der Ploeg 2008: 15).

In this paragraph, we will focus on two cooperative models alternative to that of Amazon, which have arisen from the need to develop a cooperative model opposed to the capitalist platform model of e-commerce logistics and distribution, of which Amazon is certainly the most representative.

We also have to add that the Amazon model was structured on the basis of a logic partly reconfiguring the *agribusiness* and agro-industry business models²¹⁰. Indeed, it is no coincidence that the alternatives here taken into consideration arise and establish themselves moving precisely from the need to create exchange models useful for the movement of primary commodities, and that they are based on diametrically opposite principles to those of Amazon.

We will analyse, in particular, the cases of *Fairmondo* and *FairMarket (FairCoop)*. These experiments are indeed aimed at questioning and challenging the Amazon model, based on the control over large-scale distribution, with the precise and declared intention to structure a mutual cooperative model overthrowing the organisation of logistics prevailing today, in order to promote a short-distance supply

²¹⁰ We define the agribusiness as the result deriving from the process of modernisation of the Agriculture, in which production, carried out as efficiently as possible, it is fully integrated in commercial strategies typical of the way of capitalism. The agricultural sector, and the multiple production activities connected to it, have been affected for years by significant economic transformations, at the centre of which the agro-industrial enterprise is. There are three aspects characterising this process: a) the establishment of an integrated agri-food sector, in the sense that food businesses tend to control the entire production cycle, from production to processing and marketing; b) integration with other manufacturing sectors, the production of agricultural machinery, fertilizers and pesticides ; c) a third aspect concerns the concentration of financial resources and the centralisation of the strategic management of the company in a single organisational and decision-making structure, formed precisely by the agro-industrial enterprise. Emblematic examples of the complexity achieved by the agro-industrial system are the cases of food multinationals such as *Nestlé*, *Unilever* and *Danone*, whose interests range from plantations to farms, from cars to fertilizers, from mineral water to detergents, transport, banks, and so on. From the analysis of the three cases examined, we can notice a 'tertiarisation' of the agro-industrial sector that tends to consolidate the positions achieved by making substantial investments in the marketing field, but above all in that of research and development activities. It is no coincidence that the agro-industry multinationals are at the forefront in both agronomic and zoo-technical research and in the field of biotechnology research.

chain²¹¹.

Graphically, 'agri-food' multinationals are characterised by this type of structure (Image 2.4) which shows how they are de facto owners of an oligopoly practised in terms of power towards all the other social actors involved in the production and distribution of goods.

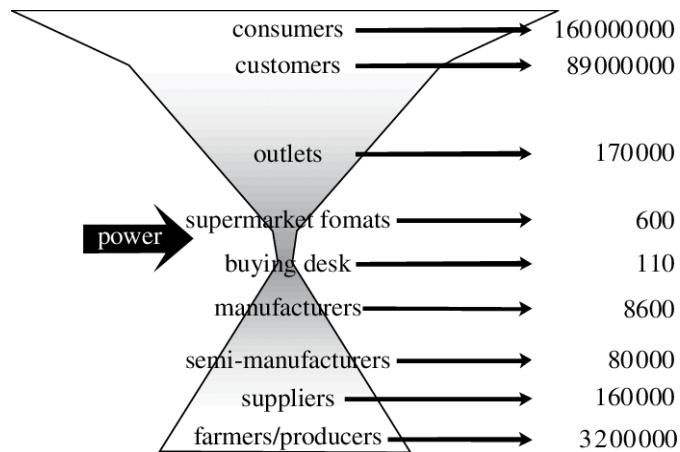


Image 2.4 : The hourglass of the multinational agri-food system:
the concentration of power and the main actors of the agri-food system
Source : Grievink (2003)

As we can see, in terms of supply of goods and services, we have a considerable number of producers who do not directly meet the high consumer demand for goods and services. This relationship is mediated by a small number of

²¹¹ The logic of the so-called 'km0' starts from of 'food sovereignty' assumption, which is defined as "the right of peoples, countries and unions of states to decide their agricultural and food policy, without [food coming from other countries. It also means the right of farmers to produce food and the right of consumers to decide about what they eat, who produces it and how they produce it... And the recognition of the rights of women, who play an important role in agricultural and food production" (Via Campesina, 2003). Food sovereignty aims to eliminate the abuses of the multinational agro-industry on us of all (farmers, engaged in production and consumers, to whom access to the market must be guaranteed), promoting a local practice of the demand/supply scheme in order to: i) blow up the monopolies/ oligopolies; ii) avoid capital gains; iii) intervene on the points of the agri-food system, above all to remove the causes of the failures of the global market currently in use. The main causes of a market failure are to be found in: a) when there is market power (eg the monopoly, is the cause of market failure, the monopolist could fix the P> Cmg); b) externalities, both negative and positive (e.g. of positive externality is education, for which private benefits do not correspond to social costs and benefits, negative externality is for example pollution. Externalities exist because there are no proper assignments of property rights); c) the existence of public action (and the so-called public goods), characterised by non-rivalry and non-exclusivity, which do not depend on those who offer them, therefore it does not mean that they are produced by the state, and everyone can consume them, even at the same time; d) information asymmetries.

multinationals, having a power of control and governance over both producers and consumers: this determines, as Raj Patel notices (2011: 15, 16, 17), a *bottleneck* system. In detail, the graph collects data concerning the production, distribution and consumption of primary goods in the Netherlands, Germany, France, the United Kingdom, Austria and Belgium. These data, as Grievink (2003) points out, have to be observed taking into account a possible margin of error, since the presence of informal economies is not quantified (the research methodology used to draw the *hourglass* we are looking at only considers the data offered from the formal market economy collected by national statistical institutes).

As far as the level of power is concerned, the emblematic data to be shown concerns the concentration that is determined in terms of sellers and buyers. This is determined by the fact that:

The shipping, processing and long distance delivery procedures require huge capital: in short, you have to be rich if you want to get involved. It is also a game of economies of scale, that is, the bigger a company is, the more it moves transport and logistics, the less expensive it will be to stay in the market. Moreover, there are no international family-owned distributors. The 'small fish' will be eaten by the giants of the distribution. When the number of companies controlling the stages from the producer to the consumer is reduced, companies have market power both on the people who grow food and on the people who eat it (Patel 2007: 16).

It is then clear that the big transport and logistics multinationals are playing a major role today and it is in this direction that, not by chance, a large part *Amazon's* business policy is oriented.

As far as it is concerned, *Amazon*, respecting the market logic just analysed, further attacks the market. Indeed, in our view, the platform founded by Jeff Bezos apparently aims to act as a monopoly owner;²¹² this allows us to observe *Amazon* in a mirror image, from the perspective of the concentration of power, according to the model taken into account in our *agribusiness* analysis (Image 2.5 - The data reported only concern the European market)

²¹² We have already extensively described in paragraph 1.4 The hybrid model of Amazon: Work and Big Data in the 'monstrous' e-commerce what we are underlining (in particular, see: "This explains *Amazon's* choice to adopt a growth policy through which the realisation of short-term profits is deliberately sacrificed to the advantage of a strategy aimed at gaining an enduring monopoly position").

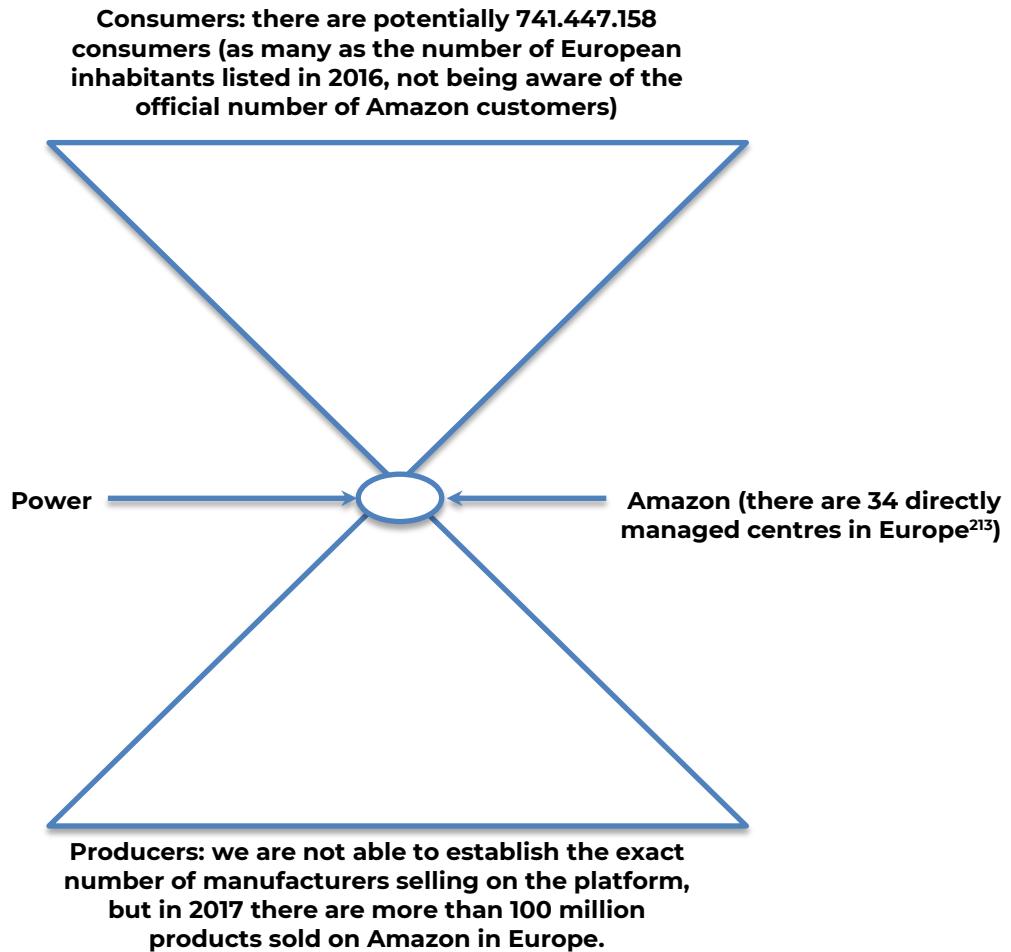


Image 2.5 : Amazon's Hourglass²¹⁴

Source : Personal elaboration

It is evident that all participants pay the intermediary. To better grasp Amazon's company policy, it is sufficient to shed light on the ethos of Jeff Bezos, CEO of Amazon, who during a meeting with a group of publishers stated that "Amazon should approach the publishers as a cheetah chasing gazelles".²¹⁵

In the light of this, it is difficult to establish immediately viable alternatives to the Amazon Empire. Nevertheless, for years we have been witnessing a proliferation of

²¹³ Source: https://it.wikipedia.org/wiki/Amazon.com#Sedi_e_collaborazioni

²¹⁴ Please note the symmetry with respect to the previous graph, which is why we highlight that the capitalist model of e-commerce platforms seems partly developed from the logic of the business models of agribusiness and agro-industry.

²¹⁵ Streitfeld D. (2013), A New Book Portrays Amazon as Bully, The New York Times, 10/22/13 URL: <https://bits.blogs.nytimes.com/2013/10/22/a-new-book-portrays-amazon-as-bully/>.

initiatives oriented in this direction. As E. Armando and A. Murgia (2017) observe, there is a multitude of subjectivities « *among those who work with technologies, those who produce them, those who observe them or simply dive into them [...], those [who] keep on being engaged in attempts of social transformation [...], those who leverage the possibilities of collaborative organisation in important areas of economic processes. These attempts not only question the boundaries between work, products and activities, as they have been conceived so far, and the value attributed to them, but extend all the way up to touch institutions that must seem untouchable, such as money and finance* » (2017: 8).

In analysing some of the most significant experiences (able, in our opinion, to give us back a properly *positive social tension*), first we will try to provide an interpretation of alternative models starting from some characterisations of these experiences and, then, offer a general model of cooperativism capable of challenging platform capitalism. All this in the awareness that the experiences on which we will focus are only a part of the large world of possible alternatives to the Amazon model.

Fairmondo

The project was born and structured in Germany in 2012. Fairmondo interfaces as a decentralised ‘online market’ owned by its users, and it certainly represents one of the most well-known platform cooperative aiming to challenge the capitalist platforms based on e-commerce logistics and distribution; paraphrasing T. Scholz we can define it as the « *co-op version of Amazon* » (2017: 55).

Its main goal consists in creating a platform able to federate the productive experiences that in recent years have become established starting from the progresses that the ‘fair trade’ has made²¹⁶; the logic driving the establishment of Fairmondo is ‘expansive’, indeed, its other declared goal is to create a global online market, whose property would definitely be the users²¹⁷.

The cooperative currently has just over 2.000 members who have invested over

²¹⁶ "A form of trade that should guarantee the producer and his employees a fair price, also ensuring the safeguard of the territory. It is against the maximization of profit made by large organised supply chains and big producers. The typical feature of this trade consists in selling products directly to the end customer, eliminating any chain of intermediaries. "(See: Wikipedia: https://it.wikipedia.org/wiki/Commercio_equo_e_solidale)

²¹⁷ See: https://www.fairmondo.de/ueber_uns

600.000 euros in ownership shares. On *Fairmondo* anyone can buy and sell anything, provided that the products offered are not illegal and that do not contrast with the ethical values of the cooperative. The fundamental values are fairness and the promotion of responsible consumption. The fairness of the products is evaluated on the basis of shared criteria, which can be discussed and improved by the cooperative members, as well as by users using the platform. The platform offers the possibility to purchase products that are not necessarily related to the fair trade production cycle, such as books. Indeed, more than two million titles are currently available on the *Fairmondo* platform.

The main aim is to become an alternative to the big e-commerce actors, still remaining faithful to the values of cooperativism 2.0, meaning by this "the result of our attempt to develop a fair business model and, at the same time, an economically sustainable business model. '2.0' stands for the attempt to define a cooperative legal form capable of retaining in itself the positive dynamic business models of the start-ups acting on the Internet"²¹⁸.

The *Fairmondo* cooperative model is defined according to ten useful characteristics and to the willingness of the co-operators to create, in a sustainable way, a fairer economy:

1. Basic principles - declared in the cooperative statute;
2. Consistent responsibility for all the parties involved;
3. Consistent transparency;
4. Independence from any particular short-term interest;
5. Distribution of profits towards many;
6. Consideration of the fundamental principles by the FAIR Share Point System;
7. Automatic integration of users within the FAIR Share Point System;
8. Democratic integration of staff within the company;
9. Consistent use of the 'magic of the crowd';
10. Open Source & Open Innovation.

This model has represented a main subject in debates among the *Fairmondo* co-operators. They do not think that the debate is over and declare to be ready to

²¹⁸ See: <http://info.fairmondo.de/geno20/>

accept any constructive criticism and new ideas and suggestions.

FAIRMONDO fairmondo.de	
Network economies	<i>Fairmondo</i> aims to promote the exchange of goods and services belonging the 'fair trade' cycle. The platform is managed by a multi-constituent cooperative. The <i>Fairmondo</i> experience, after establishing on the German market, opened up to the United Kingdom.
Statute and governance	The promoters of <i>Fairmondo</i> consider fundamental the democratic ethos at the basis of the proprietary principles and the control of the platform. Indeed, among its main objectives, there is, in an ongoing phase, that of going beyond the classic status of cooperatives to reach the approach of 'Cooperativism 2.0'. The general principles of the founding charter of the cooperative can only be changed if 90 percent of the members agree with the changes proposed.
Economic model	The general internal economy principle is that of the fair distribution of any profits produced by the cooperative. The profits produced by the cooperative are distributed as widely as possible, preventing members from accumulating more than their fair share.
Work organization model	The cooperative workers have a differentiated salary according to the level of job performance, but never beyond the pay ratio defined from 1 to 7, from the lowest to the highest salary.
Properties and nature algorithms	Open Source: The cooperative is committed to promoting the open source and the innovation of these tools. The code used for online market platforms is published under a license that guarantees full openness. The code is located on <i>Github</i> .
Usage, ownership, data access	The source code of the market software is public. Of course, this does not mean that users' personal data are disclosed. The servers on which the marketplace and the blog operate are located exclusively in Germany and are therefore subject to German data protection rules.
Internal limits and contradictions	The most obvious limit is the one concerning logistics. It is not clear, although transparency is one of the strengths of the <i>Fairmondo</i> cooperative, what kind of relationship there is between the platform and the companies that deal with the delivery of goods purchased on the platform.

Alternative potential Common logic	<p>The aim of the 'internationalization' process project is to build five distinct national nodes and then to establish a global organisation capable of overcoming national experiences. The global organisation will be controlled in a sustainable way and in co-ownership by local cooperatives. And this in order to ensure that all the nodes respect the <i>Fairmondo</i> principles, facilitate support, cooperation and exchange between local nodes. The long-term goal is to create a real multinational cooperative of solidarity, within which the local teams will be called to play a leading role in federating the structure. All the local cooperatives will be members and co-owners of the global organisation, which will be in turn a cooperative, while the latter would own the brand and provide the necessary infrastructure. This will be one of the main priorities of <i>Fairmondo</i> in 2018.</p> <p><i>Fairmondo</i> is a good example of platform cooperativism, which is defined by Scholz as when software is not proprietary but regulated by a common logic: property is collective, there is transparency and 'democratic governance'. The organisation's vision is similar to that of the role of non-profit associations and is outlined in the common-based production ecosystem.</p>
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Table 2.17 : Fairmondo model summary
Source : Personal elaboration

FairMarket (FairCoop)

Faircoop wants to give a social embodiment to a 'vast ecosystem' based on a 'active participation' process. Its general goal is to contribute to a transition to a new model of society, reducing as much as possible economic and social inequalities among individuals and, at the same time, contributing to a new global wellbeing.

In addition to the alternative to the e-commerce model organised on the *FairMarket* platform²¹⁹, the cooperative has different functional tools for the creation of an ecosystem alternative to that of platform capitalism. From the general site²²⁰, we can access, indeed, a number of specific sections of the ecosystem that the cooperative is intended to implement. In particular:

- There are different links to specific sections dedicated to the local nodes of the

²¹⁹ https://market.fair.coop/it_IT/shops

²²⁰ <https://fair.coop/en/>

cooperative²²¹;

- There is the *Freedomcoop* site, a platform developed to promote self-employment and collective billing²²²;
- There are then the links to the documentation describing the logic of the crypto-currency with which the cooperative is provided²²³;
- Finally, there is the banking website that the cooperative is creating²²⁴.

The governance of the cooperative structure is essentially based on two pillars:

- The one of the 'Global work areas', which aim to structure, organise, administer and develop information and technology for the global network. More specifically, the global area deals with:

- 1) Management of the common cooperative asset
- 2) Communication.
- 3) Circular economy
- 4) Technology and development
- 5) Welcoming - education - support for initiatives emerging on local nodes.

- The one of the 'Work area of local nodes' referring to both work in the network and that on a given territory. The purpose of this area is to develop the concrete network on the territory, with its own specific strategies and job prospects.

Some goals of the work of local nodes are:

- 1) To encourage circular economy (support to traders);
- 2) To promote *FairCoop* tools;
- 3) To manage an Point of Exchange (POE);
- 4) To promote *FairCoop* values and practices in local projects;
- 5) To create specific local projects within the *FairCoop* ecosystem.

Each Global and Local Work Area is total independent in making decisions through the assembly model. There is no reason to be allowed by the centre. The issues concerning the whole activity of the cooperative and the entire reference community, are chosen in the general assembly through the method of consent.

The assembly is arranged through the *Telegram*²²⁵ and *Loomio* applications.²²⁶

²²¹ <https://fair.coop/docs/how-to-create-local-nodes/>

²²² https://translate.google.com/translate?hl=it&prev=_t&sl=it&tl=en&u=http://freedomcoop.eu/

²²³ <https://fair-coin.org/de/node/152> and <https://fair-coin.org/en/create-value>

²²⁴ <https://bankofthecommons.coop/>

²²⁵ <https://web.telegram.org>

All the Global and Local Work Areas are autonomously organised in groups and sub-groups according to the emerging needs. To become part of a group and to participate in the life of the cooperative one has just to contact the 'welcoming group' and get in touch with the cooperative, which sort the application for participation according to the principles of interest or competence of those who request to participate in the cooperative.

FAIRCOOP fair.coop	
Network economies	<p><i>FairCoop</i> was founded in September 2014 and established as an open, global, autonomous and self-managed cooperative. Anyone can become a promoter and participate with their own individual skills in the growth of the movement.</p> <p><i>FairCoop</i>, driven by the awareness that a fairer monetary system is to be considered a key element for its path, has been proposing since its foundation to promote and implement <i>FairCoin</i> as a <i>crypto-currency</i> on which to base its action of redistribution of resources and for the construction of a new global economic system.</p>
Statute and governance	<p>The cooperative organisation and governance model is inspired by the principle of 'thinking globally and acting locally'.</p> <p>The governance of the co-operative is based on two pillars: a) The 'Global work areas' are those which aim to structure, organise, administer and develop information and technology for the global network; b) The 'Work area of local nodes' refer to both work in the network and that in the reference area. The aim is to develop a real network on the territory, with its specific strategies and job prospects.</p>
Economic model	<p>One of the priorities of <i>FairCoop</i> is the creation of a new global economic system based on cooperation, ethics, solidarity and justice in economic relationships.</p> <p>To do so, it is essential to have a strategy. From this point of view, the cooperative's policy is to implement <i>Faircoin</i>, a <i>crypto-currency</i> that the cooperative has chosen to use to financially support its economic system.</p>

²²⁶ <https://www.loomio.org>

Work organisation model	The internal workers of the cooperative are paid in <i>FairCoin</i> according to the level of work performed. All decisions concerning the remuneration of the members are shared in the internal economy group on <i>FairNetwork</i> . All transactions can be tracked and verified on the <i>FairCoin</i> block-chain.
Property and nature of algorithms	The entire property of the cooperative, including the platforms that it has implemented, is redistributed among the members. Everyone can apply to join the online cooperative.
Usage, property, data access	The technology on which the cooperative activity is based is the one offered by the blockchain. In particular, the <i>FairChain</i> block-chain enables anyone to start their own energy-efficient blockchain for various uses. For example, a social currency or a mass investment campaign can be implemented thanks to this technology.
Internal limits and contradictions	Among the most evident limits we point out that it is not easy to understand the role of the founding members of the cooperative, both on the global level and on the local level. Although the cooperative presents itself as characterised by an ethic of openness, sometimes the concentration of already formalised communities of co-operators causes a certain resistance to clearly provide the short-term objectives on which they are working. This makes it difficult to involve other individuals.

Table 2.18 : FairCoop model summary

Source : Personal elaboration

3. Conclusion: from platform capitalism to commons-based models. Proposals for a transition project²²⁷

At the beginning, the Internet was apparently basically working as a non-market space for knowledge sharing, ruled by governance principles that were very close to the *common-based* principles:

- The well-known Net neutrality which, in its fullest sense, had not only to guarantee equal treatment at any bit rate, but also to forbid to look into bit streams, examine their contents, track them, edit them and appropriate them;
- A free and decentralised infrastructure based on open and non-proprietary technical protocols encouraging bottom-up exchange, cooperation and innovation forms, alternative to both the hierarchical logic of the company and that of the bureaucratic state;
- Finally, the rise of the information revolution of the Internet has changed not only the way in which people produce goods, but also the nature of the goods themselves. Their dematerialisation - together with the spread of knowledge - has triggered, in the sense of neoclassical theory, a formidable extension of the field of the collective goods (which are non-rivalrous, non-excludable by price and often reproducible at zero marginal cost), to the detriment of the field of the so-called private goods (rivalrous and easily excludable by price).

Therefore, until the mid nineties, the dynamics of capitalism, and first of all Microsoft - the leading digital company at the time - seemed to be relegated to the margins of the political economy of the Internet. Then, in less than thirty years, the Internet economy, driven by finance, underwent a powerful process of commodification and recentralisation. With an impressive acceleration following the 2008 financial crisis, a handful of companies managed to gain top positions in the ranking of the top ten global companies in terms of market capitalisation and overturned the previous hierarchies inherited from Fordist-Keynesian capitalism²²⁸.

²²⁷ Written by Vercellone C. and Brancaccio F.

²²⁸ The 2008 financial crisis, with the collapse of the real estate sector and the collapse of General Motors, played perhaps a key role in bringing to an end the illusion of being able to revive the old tangible economy of industrial capitalism.

In the third half of 2018, the five largest companies in terms of market capitalisation are represented by the GAFAM, namely: Google (*Alphabet*), Apple, Facebook, Microsoft, Amazon, followed by two Chinese digital giants, Tencent and Alibaba.

Immediately afterwards, we have witnessed the meteoric rise of the new Unicorns of the Internet and the so-called ‘uberisation’ of the economy. In addition, the hegemony of the big Internet oligopolies and data industries is all the stronger as the model of the ‘platformization’ of the economy extends to all economic sectors and companies, making them even more subordinate to the ability to collect and process data of oligopolistic data industries.

Rank	First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
1		Apple Inc. ▼851,317		Apple Inc. ▲909,840 ^[10]		Apple Inc. ▲1,091,000 ^[10]		
2		Alphabet Inc. ▼715,404		Amazon.com ▲824,790 ^[11]		Amazon.com ▲976,650 ^[11]		
3		Microsoft ▲702,760 ^[12]		Alphabet Inc. ▲774,840 ^[13]		Microsoft ▲877,400 ^[12]		
4		Amazon.com ▲700,672 ^[11]		Microsoft ▲757,640 ^[12]		Alphabet Inc. ▲839,740 ^[14]		
5		Tencent ▲507,990 ^[15]		Facebook ▲562,480 ^[16]		Berkshire Hathaway ▲523,520 ^[17]		
6		Berkshire Hathaway ▲492,019 ^[17]		Tencent ▼478,580 ^[15]		Facebook ▼473,850 ^[16]		
7		Alibaba Group ▲470,930 ^[18]		Alibaba Group ▲476,040 ^[18]		Alibaba Group ▼423,600 ^[18]		
8		Facebook ▼464,189 ^[16]		Berkshire Hathaway ▼463,980 ^[17]		Tencent ▼388,080 ^[15]		
9		JPMorgan Chase ▲377,410 ^[19]		JPMorgan Chase ▼354,780 ^[19]		JPMorgan Chase ▲379,440 ^[19]		
10		Johnson & Johnson ▼343,780 ^[20]		ExxonMobil ▲350,270 ^[21]		Johnson & Johnson ▲370,650 ^[20]		

Table 3.1 : Publicly traded companies with the greatest market capitalization as of September 2018
Source : Wikipedia

The transition from industrial capitalism to new forms of cognitive capitalism, knowledge-based and intangible, would be finally completed.

Starting from this, it appears that an issue arises whether this new form of capitalism can enable us to find, as in the Fordism’s ‘thirty glorious years’ (Fourastié 1979), a

stabilised model of development and society, a model able to combine, at least to a certain extent, economic efficiency and social progress while dealing with the challenges of the new century: ecologically sustainable development associated with the reappearance of full employment, a more equitable distribution of income, as well as increased freedoms for individuals, finally freed from the bureaucratic and disciplinary shackles inherited from Fordism.

The answer to this question, as we have shown in chapter 1, is far from being definite and shows the ambivalence and the negative potential of this new great metamorphosis of capitalism.

On the one hand, platform and data industry capitalism has undoubtedly gone hand in hand with an extraordinary decrease in the costs and the time needed for spreading information and knowledge. It has enabled to 'fluidify' and intensify trade through a dramatic reduction in transaction costs, destabilising well-established former monopolies (while developing new ones). Furthermore, the rise of the Web 2.0, characterised by the social networks and *mobile Internet*, has also encouraged to standardise both the use of and the participation in the network of the networks, which have both reached proportions that were unthinkable at the time of the early Internet.

On the other hand, as the field of free and collective goods (the non-rivalrous and non-excludable ones) widened, big technology companies (whose platforms are nothing but one of their expressions) were forced to invent new profit models. To do this, they used a double strategy of which platforms and data industries represent the spearhead:

- The first strategy consists in strengthening intellectual property rights and it is often associated with Digital Management Right devices in order to turn *collective goods* into what economic theory, by a toned down expression, describes as '*club or toll goods*', that is to say, excludable despite their theoretical non-rivalrous nature;
- The second strategy concerns the implementation of the *merchantable gratuitousness*, based, in particular, on the apparently free offer of goods and services in return for the extraction and private appropriation of user records and data.

The wicked impact of this double strategy on the dynamism of the economy and the wellbeing (level of satisfaction achieved by individuals) of the populations is clear.

The explosion of software patents and IPs hinders the free flow of knowledge and innovative dynamics, while artificially raising the prices to the detriment of the consumer. As far as data industries' 'merchantable gratuitousness' logic is concerned, it is drawing the outlines of a society based on the surveillance and sale of our identities, something of unprecedented proportions, comparable, by analogy with the last century, to a situation where all the envelopes, and part of the contents of the letters exchanged, could have been tracked and classified (Abiteboul & Peugeot 2017).

Several other indicators prove the instability and structural weaknesses of platform capitalism and data industries. To sum up, from a macro-economic and social level to more societal issues concerning the flourishing of democracy and the respect for freedom and privacy, several factors enable to show the disruptive characters concerning the regulation of economic and social activities.

a) The first factor, as we have seen, concerns the great instability typical of the laws of platform economy and the way in which it combines with the mimetic and self-referential logic of finance. Thus, in macroeconomic and financial terms, platform capitalism and data industries considerably heighten the risk of the formation of speculative bubbles that could turn into a new crash. This is what happened with the 'dot-com bubble' at the beginning of the millennium. But this time the 'new economy' no longer has a sector-based dimension whose effects could be limited. Platform capitalism and data industries are now playing a key role in the financial and macro-economic regulation of the global economy. The crisis, even if triggered by the difficulties concerning one single point of the system, could spread and have systemic effects echoing and multiplying throughout the economy. This hypothesis is all the more likely as many platforms benefit from a stock valuation that is not proportionate to their profits. This is, for example, the case of *Amazon*, but also and especially of *Uber* and other Unicorns of the *on-demand* economy. The latter are also exposed to the risks of any regulatory measure (recognising relationships of subordination, licensing issues, security measures, etc.) that could destabilise the pillars of their business model.

For example, a recent study by Gornall Will and Strebulaev Ilya (2018), researchers at Stanford and British Columbia universities, about more than 100 successful unicorns quoted at more than \$ 1 billion, point out that they all are considerably overvalued. This overvaluation would amount on average to 48 percent, but for ten or so start-ups, it would even exceed 100 percent²²⁹.

The fragility of platform economy and of the Unicorns of the collaborative economy represents a major systemic danger: no matter which one of them becomes the Lehman Brothers of the digital economy, all this could lead us to a new crash, followed by a new crisis and persistent depression.

b) The second factor of dysfunction concerns the working conditions in terms of employment and remuneration.

Apart from *Amazon* (which has barely over a fifth of *Walmart's* workforce), the big digital giants are dwarves in terms of employment. There is a striking gap between the turnover and the amount of profits made by these platforms, the one hand, and, on the other, their weight in the economy in terms of employment. To have an order of magnitude, just think that the workforce employed by all GAFAM digital giants corresponds to a third of the that employed by *Walmart*, the largest employer on the planet. But, if we subtract the use of hybrid (half industrial and half digital) model of *Amazon*, this percentage immediately falls to about a tenth. Adding the *Microsoft* staff (131.000 in 2018) does not change the situation concerning the huge 'disproportion' between the profit captured by the digital giants and the low level of regular employment in their business model²³⁰.

The secret of this low volume of waged jobs is simple: for *Google*, *Facebook* and other merchantable gratuitousness platforms, it is only the other side of the coin of a work organisation model based on Internet users' *free digital labour*.

²²⁹ Reduced to their real value, 53 Unicorns out of the 116 ones studied, in fact, could not claim to be considered as such, that is to say that they would not reach a value of 1 billion dollars. Among the 'nuggets' of the Silicon Valley, whose estimated value is \$ 10.5 billion, *SpaceX* (Elon Musk's rocket company), would actually worth only \$ 6.4 billion: therefore, it would be overvalued by 65 percent. And the gap would be of 60 percent in the case of *Whatsapp*, 21 percent in the case of *Dropbox* or *Twitter*, 15 percent in the case of *Airbnb*, or 12 percent in the case of *Uber*.

²³⁰ Thus, in 2018 *Facebook* has only about 30.000 employees (<https://newsroom.fb.com/company-info/>) around the world, while those of *Alphabet* are about 85.050 (https://abc.xyz/investor/pdf/2018Q1_alphabet_earnings_release.pdf); *Apple* workers are 123.000 in 2017 (<http://pdf.secdatabase.com/2624/0000320193-17-000070.pdf>), while *Microsoft*'s are 131.000 in 2018 (<https://news.microsoft.com/facts-about-microsoft/#EmploymentInfo>).

As for *on-demand* platforms, like *Uber*, they depend on the massive use of forms of formally autonomous work that, whatever the legal form in which the activity is carried out (self-entrepreneurs, VAT), bypass the guarantees related to the status of classic wage labour.

Thus, *digital labour* and the ‘uberisation’ of work, contribute to widen inequalities in sharing value added between wages and profits. In general, they make it possible to sustainably compress the labour income share, so much so that it does not even recover in periods of recovery.

This vicious circle of inequalities is also considerably worsened, as we have seen, by the way in which the transnational dimension of GAFAM’s activities enables them to implement policies of optimisation and tax evasion. In Europe, they virtually escape corporate taxes and snatch government revenues that could be used to finance social protection systems.

At the same time, much of the profits made also do not turn into actually productive investments, worsening the stagnation tendencies of the world economy.

Last but not least, GAFAM’s extraordinary IT power enables a concentration of profits in the hands of a small number of big digital companies to the detriment of other companies. This power depends on the way in which, in contemporary capitalism, what Sraffa called the logic of the ‘production of commodities by means of commodities’ is increasingly taking the form of the production of data by means of data. Information and data are today the main input and output of any production. Companies that can take competitive advantage in extracting and algorithmically processing these resources, thus having a monopolistic market power enabling them to appropriate a growing share of value, and this not only to the detriment of work itself, but also to the detriment of other companies²³¹.

More generally, the control of the means of production, which make it possible to extract and process the data, gives the big Internet oligopolies the possibility to have all the other actors of the economy depend on the services based on these

²³¹ Thus, to recall just one example that is now at the centre of a major controversy, traditional media are increasingly losing their market power and advertising-based revenues to the advantage of social networks.

technologies, which we can not access without their authorisation (Bria and Morozov 2019).

Thus, as Durand (2018) points out, accumulated data is the raw material feeding the profits of the platforms, also including new activities (business services, smart cities' administrations, and so on) that are not part of their initial core business. Information extracted by influencing our behaviour and everyday life flows are, indeed, sold to other companies and public authorities, which finally pass on the costs to consumers and citizens.

This is why, as Casilli & Tubaro rightly point out in a 'Le Monde' interview, privacy has ceased to be a mere individual right and has become the object of collective bargaining with platforms and institutions extracting data from our prosumer activities. In this sense, the issue of privacy also becomes an inseparable aspect of the working conditions and property forms governing the organisation of data industries and platforms.

Finally, our analysis has shown that the combination of the *Cloud*, the *Internet of Things* and *Big Data* technologies raises several significant issues concerning:

- The concentration of the means of production - computing infrastructures and machines, proprietary algorithms - in the hands of the Internet oligopolies, which modifies and overturns the architecture and the political form of the Internet, which were formerly decentralised and pluralistic;
- The tendency to appropriate an enormous amount of socially produced data, which, on the one hand, offers a dominant economic position to the Internet oligopolies, encouraging the strengthening of their market logic, and, on the other hand, is increasingly giving these actors political power and regulatory capacity independent from that of the States and other international and supranational entities;
- The tangible aspect of the current Internet, and its impact in ecological terms, which, contrary to what is commonly thought, raises issues of primary importance. In this sense, extractive logic characterises platforms not only in terms of digital data, but also in a direct relationship to the raw materials and the fundamental resources of the earth;

- The action of the platform, which reorganises physical space on two main levels: on the one hand, it globally intervenes in the organisation of logistics flows (the ideal-type model is *Amazon*); on the other hand, it intervenes in the local-scale organisation of urban services (as in the case of *Uber*, *Airbnb*, and so on).

From our point of view, all the features here summarised make it both desirable and necessary to look for alternatives linked to what the title of this report describes as a *commons-based* model. This is the reason why in chapter 2 we have analysed both strengths and weaknesses hindering the development of this mode of alternative regulation.

Indeed, even though it enables to create highly effective local-scale alternatives, also in microeconomic terms, the *commons-based* dynamics and, even more, that of platform cooperatives, clashes with two major limits in its conflicting and competitive relationship with platform capitalism.

Both these limits do not result from a technical inferiority or from an inability to adequately meet the needs of the population in the metropolis of the knowledge-based and digital economy, but they derive from problems of economic and financial power.

- The first limit, as in the case of *open-source software commons*, is linked to the absence of an autonomous principle of social validation for their activities, unless they pass through the market (according the *Red Hat's* model) or start depending on biased funds by Internet oligopolies (as in the case of *Linux*), running the risk of emptying the creative strength of the commons, as well as their ability to be the carrier of an economy that is genuinely alternative to that of platform capitalism.

- The second limit is linked to the insufficient financial resources, both of their own and credit-related ones, that would enable platform cooperatives to make a qualitative leap in terms of their size and their ability to consequently create network economies. In addition to this, the competitive pressure on the market risks leading to pressure on wages and to a drift of co-operatives toward business models similar to those of capitalist platforms, as taught by the experience of *Mondragon* and the Italian Coop system, whose capacity is underestimated by Scholz.

For this reason, most of the experiences referring to the logic of the *common* and/or to that of the platform cooperatives are enclosed in specific activities or niche sectors.

On the contrary, platform capitalism, as we have pointed out, has been able to make use of an exponential growth process, which was basically driven by a dynamic of mergers and acquisitions financed through financial leverage and increasing indebtedness. In this way, it has been able to gain, in many sectors, monopolistic positions that are apparently difficult to scrape.

3.1. From ‘global’ to ‘local’: an agenda for the sustainability of the *commons* movement and the neo-municipal perspective

To at least partly deal with these issues and these limits, four main research paths have to be explored, also in this case from a more global macroeconomic and political level to a local level, the neo-municipalist one, on which we will focus at the end because it also represents the most easily accessible one.

3.1.1. Proposals on a general level: basic income as a common-based institution at the service of common-based models²³²

A first proposal is represented by the establishment of a *basic social income* (BSI), conceived as a primary income, that is, directly derived from production.

It could play a key role on two levels, both reducing the effects of disruptive platform capitalism and supporting the development of an alternative model.

The first function would consist in reducing economic inequalities generated by cognitive and informational capitalism. The BSI should enable the company to partly

²³² Written by Vercellone C.

recover the value added currently captured by profits to the detriment of wages and other forms of work that are still to be socially recognised and do not have any form of remuneration.

Even though only partly considered, this is an aspect on which the reflection concerning the *Free Digital Labour* (FDL) strategy is focusing, finding in the intangible work performed by the Internet prosumers the essential source of data and content production on which the profit model of the big Internet oligopolies is based.

Indeed, the idea of remunerating *Free Digital Labour* is becoming stronger and stronger, even in non-academic fields. Associate editor at the 'Financial Times' Rana Foroohar herself has recently stated that we should have not only a more explicit right to control the use of our data, but also the right to benefit from the value extracted from it (Foroohar 2017)²³³.

As extensively discussed in chapter 1, the thesis according to which *Free Digital Labour* (FDL) is similar to an actual form of labour creating value added for companies is perfectly relevant in economic terms.

However, there are three main and closely related limits that, in our opinion, weaken the approach of FDL theorists, preventing them from developing a more complete definition of the principles and the role of the BSI as a *commons-based* institution.

- The first limit consists in the fact that this form of invisible and unpaid work does not represent an isolated case. *Free Digital Labour* is part of a more generic dislocation of the traditional borders between labour and free time, production and consumption, which is linked to the nature of labour, which is increasingly becoming intellectual and intangible. Evidence for this is the tendency to an increase in actual working time, generally not recorded in the companies' accounts, which characterises cognitive jobs, especially the most precarious ones, giving rise to new forms of 'pain in the workplace'²³⁴. Many researches on the so-called consumer work also show this (Dujarier, 2008, Codeluppi 2012, Triffon 2015). Far from being limited to

²³³ Foroohar Rana (2017), *Big Tech makes vast gains at our expense*, Financial Times, 17/09/17. URL: <https://www.ft.com/content/e1b5af54-9a2c-11e7-b83c-9588e51488a0>

²³⁴ On this point, as far as France is concerned, see for instance the studies carried out by Chenu and Herpin (2002) and Lesnard and De Saint Pol (2008).

the *Free Digital Labour* of the Internet users, it includes a much wider range of activities. Externalising whole production phases, formerly carried out within companies, to customers has become common practice among the most of the companies in both the old and new economies. And this logic can include a number of activities, from simple tasks (such as buying a ticket online or self-checkout services) to more complex activities concerning product design and R&D, which in knowledge management are part of the open innovation model. The justification and calculation for the BSI monetary amount cannot, therefore, rely on the only recognition of *Free Digital Labour* itself. They have to take into account a variety of other value-creating and wealth-creating activities that, with or without the use of ICT, take place at all social times, resulting in a huge amount of work, currently neither recognised nor paid (Monnier and Vercellone 2014).

- The second limit involves the tendency of numerous analyses to only focus on value added ‘stolen’ from *Free Digital Labour*. The risk of this approach could result in conceiving the BSI as a mere distributive compromise between Internet prosumers and platform capitalism. Now, this compromise would perpetuate and, somehow, legitimate its logic, making FDL accessory to the capitalism of the data industries.
- The third limit consists in keeping the concept of common and commons completely vague, as when it is affirmed (Casilli 2015) that the « *remuneration for FDL should try to give back to the commons what has been extracted from the commons* ». By making *Free Digital Labour* a form of common work, being it the result of a collective activity, we forget about the fact that the *common* is not an objective fact, but a *constituent process*. This completely obscures the specific and alternative sense of the bottom-up dynamic characterising the wealth-creating process of which knowledge-based and free-software-based *commons* are clear examples.

The BSI should instead be conceived as a device enabling to recognise the peculiarity and to ensure the sustainability of the alternative commons-based model, and this as far as self-managed forms of work organisation and the open and non-merchantable nature of products, property and use of data are concerned.

Indeed, the second main function of the BSI would consist in providing an independent device not only for financing commons-based activities, but also for their recognition and social validation. It would enable to reduce one of the major weaknesses that have weakened, for example, the expansion and autonomy of the free software movement: that is, the lack of sufficient financial resources and time to enable the fullest participation of the commoners in their development. Not having an autonomous principle of social validation, the activity of the *commons* still largely relies on external resources deriving from public support or on the biased financing provided by the private sector.

The establishment of a BSI, conceived as a commons-based institution, would be an important first step in order to fill in this gap. Its justification should, therefore and above all, be based on the recognition of commoners' social work as the source of a dynamic of social and productive innovation enlightening the whole society. In short, it is a matter of saying that labour can be unproductive in terms of goods and profits, but productive in terms of non-merchantable wealth and, thus, it can give rise to a counterpart in terms of income.

To conclude, the establishment of a BSI would create two essential conditions in order to lessen the power of the platforms and ensure the development of the commons and the platform cooperatives:

- 1) The implementation of an unconditional mechanism of financing and social validation of the *commoners'* productive activities, which would at the same time guarantee its economic sustainability and planning autonomy;
- 2) The BSI, ensuring income continuity despite the discontinuity of the forms of work, would encourage the transition from a passive precarious model to an active mobility model.

This would result in the transfer of workforce from the sectors governed by the logic of market profitability towards the non-merchantable sectors of the *commons*-based economy and the third sector, whose new driving force is represented by platform cooperatives. Income continuity and reduced precariousness would, indeed, enable a large number of individuals to get rid of the blackmail that makes it necessary to work in order to live. Workers' time and psychic energy thus freed could

be invested in the development of different productive forms in which workers use their own creativity, identifying themselves with the sense and the social purposes of their production. Moreover, the bargaining power of the precarious workers currently experiencing the 'uberisation' of the economy would considerably increase, enabling them to reduce their working time without fearing any dramatic cut in income. In order to maintain this workforce, the platforms would be probably brought to improve both remuneration and working conditions.

All this would imply a fundamental monetary reform, but also a tax reform including patents and, in particular, dormant patents, as well as taxing the Internet oligopoly actors.

However, the complexity of these reforms, as we are going to see in the next section, explains why the BSI, even representing a main goal, is not viable in the near future and does not represent in any case a comprehensive response.

3.1.2. Rethinking the taxation of digital businesses²³⁵

Any attempt at implementing an international regime as regards the taxation of digital businesses looks set to stumble upon conflicting political agendas and national legal regimes. As an evidence of this, some EU countries²³⁶ has started to implement unilateral fiscal measures, since the legislative proposals submitted in March 2018 by the European Commission - which will be exposed here below after briefly describing prior attempts to fiscally regulate the digital economy - seem far from reaching the needed unanimous agreement among the 28 EU Member States. Indeed, low-tax countries such as Ireland and Luxembourg, housing many Internet giants' subsidiaries, see this potential change as a threat to their economic models and fears that it would pave the way for the imposition of a minimum and common

²³⁵ Written by Rocchi G.

²³⁶ For instance, Slovakia's 2018 Tax Reform Law introduced new permanent establishment (PE) rules for digital platforms (See: Financial Administration Slovak Republic, 16/03/18. URL: https://www.financnasprava.sk/sk/pre-media/novinky/archiv-noviniek/detail-novinky/_zdan-diq-platfor) and in 2017 Italy established a 3 percent 'Web Tax' on digital transactions, coming into force as from 1st January 2019 (See: Losito A. (2018), Web Tax, Guidafisco.it, 01/10/18. URL: <https://www.guidafisco.it/web-tax-italia-cos-e-come-funziona-imposta-sulle-transazioni-digitali-1999>).

corporate tax rate²³⁷. Germany is concerned that the proposed reforms could lead international partners to respond with retaliatory tax measures that will penalize German exports²³⁸, while Sweden started to oppose after Prime Minister was urged to do so by Spotify's founder²³⁹. Overall, according to 'Politico'²⁴⁰, most of EU members are on the fence, while supporters and opponents are distributed in a fairly balanced measure.

A first proposition aimed at considering the possibility to fiscally discipline the value generated through - at that time only emerging – the so-called information society (IS) can be traced back to the 1997 report 'Building the European information society for us all' (EC 1997), prepared by a high level group of experts set up by the European Commission and focused on policy suggestions addressing the many social aspects connected to the IS - recognized as being neglected until then. Among these suggestions, was a recommendation by Professor Luc Soete, chairman of the high level expert group, to investigate further whether a 'bit tax', "based on a simple count of bits flowing over telecommunications lines" (*Ibidem*: 50) - namely a taxation based on the intensity of electronic transmission - might be a feasible tool to more equally distribute the benefits arising from the "trade in intangible information services, where notions of value are difficult to estimate or to monitor" (*vi*). In a parallel paper (Soete and Kamp 1996) the main arguments in favor of such a tax, described as a 'no-man's research land', are summarized. The paper starts by assuming that « *in the preset, global free-market environment, any suggestion for a new tax is likely to be greeted with skepticism and to be quickly rejected* » (*Ibidem*: 353), as showed by the predominantly negative reaction amongst policy makers (fearing that a similar measure might give the wrong signal to potential investors), technical experts (considering 'bits' as an irrelevant or ineffective measure of transmission intensity)

²³⁷ Stratfor (2018), *Digital Tax Proposals Produce New Discord in the EU*, Stratfor, 14/02/18. URL: <https://worldview.stratfor.com/article/digital-tax-proposals-produce-new-discord-eu>

²³⁸ Guarascio F. (2018), *EU digital tax on corporate turnover faces uphill road*, Reuters, 28/04/18. URL: <https://www.reuters.com/article/us-eu-ecofin-tax/eu-digital-tax-on-corporate-turnover-faces-uphill-road-idUSKBN1HZ0JS>

²³⁹ Business Insider (2018), *Spotify founder Daniel Ek gets his way on tech tax – after emailing Swedish PM*, Business Insider, 25/04/18. URL: <https://nordic.businessinsider.com/spotify-founder-daniel-ek-gets-his-way-on-tech-tax--after-emailing-swedish-pm--/>

²⁴⁰ Plucinska J., Vinocur N., Smith-Meyer B. (2018), *Europe's digital tax map: Where countries stand*, Politico, 12/04/18. URL: <https://www.politico.eu/article/europe-digital-tax-map-where-countries-stand-analysis-deep-divisions/>

and individual Internet users (perceiving it as an attempt of the state to tax freedom of speech). After the ‘bit tax’ was popularized by the United Nations Development Program (UNDP 1999), the US Congress threatened to withdraw from the United Nations if global tax proposals were to continue to be put forward (Thorndahl 2003: 203).

Indeed, this first, timid call for intervention has been occurring right in the middle of the ‘Get Big Fast’ business model’s period, shortly before the 2001 bursting of the dot-com bubble, in response to which – given the bankruptcy *domino* it caused - the discourse around fiscal taxation of data-driven digital firms has been silenced, leveraging even more than before on the neoliberal assumption that government interventions are likely to distort decisions in a manner harmful for the efficient functioning of markets and may slow down investment and innovation. It is precisely this kind of *esprit* that helped some US tech-companies to reach a dominant position, at such a point that a stance with regard to a proper taxation strategy - beyond and separate from other ‘adjustment’ legal mechanism like antitrust laws and personal data protection regulations - became necessary.

Therefore, the Base Erosion and Profit Shifting Project (BEPS Project²⁴¹), led by the OECD’s Committee on Fiscal Affairs in conjunction with OECD and G20 countries, was set up in 2013 in order to collaboratively elaborate a response to “tax avoidance strategies that exploit gaps and mismatches in tax rules to artificially shift profits to low or no-tax locations”²⁴². The project consists of 15 actions²⁴³, the first of which is emblematically aimed at addressing the tax challenges of the digital economy. Following an interim report (OECD/G20 BEPS 2018) on the implications of digitalisation for taxation, more than 110 out of 116 countries and jurisdictions participating in Inclusive Framework - a platform specifically conceived to tackle BEPS Action Plan – has agreed to work towards a consensus-based solution with regard to ‘profit allocation’ rules.

The following recent EU legislative proposals - mentioned above - can be considered one of the implementation of the BEPS package.

²⁴¹ See: <http://www.oecd.org/tax/beps/>

²⁴² *Ibidem*.

²⁴³ See: <http://www.oecd.org/tax/beps/beps-actions.htm>

The first proposed directive (COM 147 (2018)) represents a long-term comprehensive reform of EU corporate tax rules, aimed at securing a real link between where digital profits are made and where they are taxed. It would enable Member States to tax profits that are generated in their territory by a digital business that, although not having a physical presence *in loco*, has nevertheless a 'significant' and therefore taxable commercial presence. The latter is reached if one or more of the following criteria are met:

- a) The company exceeds a threshold of €7 million in annual revenues in a Member State during a given taxable year;
- b) The number of users of its digital service(s) in a Member State during a given taxable year exceeds 100.000;
- c) The number of business contracts for the supply of any such digital service that are concluded by users in a Member State during a given taxable year exceeds 3.000.

The attribution of profit will take into account the market values of the following activities:

- a) The collection, storage, processing, analysis, deployment and sale of user-level data;
- b) The collection, storage, processing and display of user-generated content;
- c) The sale of online advertising space;
- d) The making available of third-party created content on a digital marketplace;
- e) The supply of any digital service not listed in points (a) to (d).

The second proposed directive (COM 148 (2018)), embodied by an interim tax (Digital Services Tax - DST) at a rate of 3 percent on digital companies' gross revenue net of VAT and other similar taxes, represents a short term solution aimed at ensuring that those activities which are currently not effectively taxed would begin to generate immediate revenues for Member States, helping this way to avoid the implementation of unilateral measures. The tax, which would only concern businesses with total annual worldwide revenues exceeding €750 million and EU revenues above €50 million, would only apply to those types of activities where users play a primary role in value creation, namely from:

- a) The sale of online advertising space;
- b) The sale of collected user data;
- c) The intermediary activities of those platforms that facilitate the sale of goods and services between users (e.g. *Uber* and *Airbnb*).

Both these directives are envisaged to come into force by January 1st 2020. However, to the problem of a substantial lack of consensus discussed above is added the likely introduction of overseas counter measures, since it has been estimated that half of the around 120 to 150 companies that would be affected by the new rules are located in the United States. Concerns about the second proposal rise from the fact that, being the DST a revenue tax, this means that it would be paid as well when the company is loss making. The both measures share a second major concern, namely that of the potential distortionary effects of taxation: it is indeed probable that highly profitable firms will be able to pass the tax burden on to their consumers. When the product is online advertisement - and the customer is an advertiser rather than a consumer – the advertiser is likely to increase the prices of the goods he sells in order to sustain the tax burden that has (allegedly) shifted upon him. This would mean that a tax that is meant to capture a share of firms' profits may have the consequence of primarily penalizing consumers.

Hence, the question of how such a digital taxation should be organized in political and legal terms is still an open challenge. Should it result in a unilateral or multilateral CSR scheme or should it be a mandatory mechanism introduced at either the national or supranational level? As digital data transcends national borders, the ideal form of implementation may be this last one, provided that a reliable and verifiable method of calculating dues is found – given the difficulty in detecting a technique to measure the effective value of data. However, supranational settlements require, as we have seen, reconciliation of antagonistic interests.

In the first chapter of this deliverable we have showed that there exist sound economic, social and ethical arguments for justifying recourse to wealth redistribution mechanisms in the digital economy. Lehdonvirta et al. (2016) proposes four broad data financing models:

- a) A *global Internet subsidy* would be used to reduce the ‘digital divide’ between online and offline individuals, at the same time benefiting other users and online service providers by growing the population of Internet users.
- b) A *privacy insurance for personal data processing* may provide a compensation for victims of potential data leaks, spent on the development of privacy-enhancing technologies, and help data processors to ‘insure’ themselves against the reputational damage of a data breach.
- c) An *attention levy for digital marketing* on intrusive advertising as a violation of individuals’ sovereignty over their personal or private sphere.
- d) A *shared-knowledge duty for open and public data* which would ensure that digital businesses honour their social contract by sharing more of the benefits they earn through exploitation of public resources (such as publicly-funded open data) or through appropriation of users’ *digital labour*.

This last point - that is data generated by users’ *free digital labour* are the core of online companies’ value creation chain - has been openly recognized in a recent French government report (Collin and Colin 2013) and pinpointed as one of the explanation for the low marginal operating costs and the exponential returns to scale that are specific to the digital economy: the fact that « *the labour factor has been squeezed out by the data generated by the activity of the users of online applications* » (*Ibidem*: 105) has allowed digital firms to avoid hiring employees to create content. Taking into account this fundamental aspect and after acknowledging that international tax law gives the power to tax profits in the country where the company’s head office is located rather than in the country where the company does business, authors suggest three sets of proposals:

1. A tax law reform aimed at identifying a new definition of a permanent establishment (PE) within the context of the digital economy making sure that such a notion more effectively captures the *free digital labour* phenomenon.
2. In the meantime, a tax for businesses that collect data obtained through regular and systematic monitoring of users in a given country will prompt the companies to adopt practices conforming to four public interest objectives:

- Strengthening the protection of individual freedom;
- Promoting innovation in the digital trust industry;
- Encouraging the emergence of new services for users;
- Generating productivity gains and growth.

3. Adaptation of R&D and market financing taxation environment to the realities of the digital economy.

In this framework, a possible way to remunerate users' *free digital labour* may be that of financing a basic income²⁴⁴. Through its increasing automation of jobs and its 'efficiency' in delivering ever vaster profits to an ever smaller number of organisations and individuals, the logic underlying the digital economy is widening rather than reducing inequality. A basic income would therefore contribute to the creation of an environment conducive to the development of a genuine knowledge-based economy.

Especially considering the complexity of the tax issue that we have just examined, the BSI as a main goal is not a viable short-term option and, in any case, does not represent an exhaustive answer. It is therefore necessary to encourage and strengthen two other essential ways to increase the workers' bargaining power in order to reduce their precariousness. The first, among all those actions aimed at making the status of subordination of the autonomous workers experiencing the 'uberisation' of the economy recognised, is represented by the class action.

3.1.3. The class action as a new form of collective negotiation at the time of the prosumer and digital labour²⁴⁵

As we have seen, there are several European countries, including Bulgaria, Denmark, Sweden and Portugal, that have introduced, in order to protect the consumers, class-action lawsuits based on the US model. It is important to point out that the Obama Administration had recognised the right to resort to class action also to

²⁴⁴ The relationship between the digital economy and basic income as a potentially standard form of remuneration of user's *free digital labour* is being at the center of a debate that is being addressed from different perspectives (cfr. Pulkka 2017, White 2018).

²⁴⁵ Written by Giuliani A. and Rocchi G.

workers, enabling, among other things, Californian *Uber* drivers to be recognised as employees rather than self-employed workers. However, a ruling by the US Supreme Court dated 21st May 2018 has disowned this possibility by establishing that labour disputes have to be filed by single workers and not in the form of collective action.

However, this device has continued to influence the legislation of other European countries, although the possibility to bring collective actions is rather restrictive, which compromises their adoption and effectiveness. The French and Italian cases are paradigmatic. Class actions were introduced, after a long debate, in the French legislation with the adoption of the 'loi Hamon' in 2014 and in the Italian legislation with the amendment of article '140 bis' of the 'Codice del Consumo' ('Consumer Code'). Unfortunately, French law makes it particularly difficult to resort to class actions for three main reasons: first, the plaintiff must be proactive (*opt-in* regime); secondly, only the regularly certified organisations established for at least five years and whose statutory purpose is the protection of consumers and users can initiate a collective action; thirdly, the device is only for consumers and users. The Italian version shares the first and the third drawbacks of the French one but not its second downside. In Italy, a new legislative proposal was approved by the Chamber of Deputies on 3rd October 2018, a legislative proposal that was based on another one dating back to 2013, which had run aground during its process. Among the main novelties of this text, compared to the 2013 version, we find: a) a shift in terms of the discipline concerning class actions from the Consumer Code to the Code of Civil Procedure; b) the extension of the legal situations protected; c) the transfer of responsibility to the 'Tribunale delle Imprese' ('Enterprises Court'); d) the possibility to participate in the class action both before and after the sentence that approves the action. Waiting for any changes made by the Italian Senate of the Republic, it is however necessary to underline that, if definitively approved, the text does not contradict the EU legislation to be enacted, namely the legislative package 'New Deal for Consumers', which seems to pave the way for a European collective appeal mechanism. In any case, in terms of labour law, class actions, up to now, seem to be quite limited.

As far as class actions specifically relating to privacy violations are concerned, we can say that in the United States, although they can generally benefit from institutional

and juridical structures that are more favourable than the European ones, they tend to be solved through agreements rewarding the lawyers of the claimants and charity associations rather than the class action participants, because of the increasingly frequent recourse to the so-called *cy-près* doctrine (see paragraph 2.2.1., in particular footnote 65). The main limitation of this approach consists in still keeping consumers and workers separate in terms of defence of privacy, which is all the more inconsistent in a context in which the borders between consumption and production, between the private sphere and the public sphere are progressively fading, as the new figure of the *prosumer* shows.

In this context, characterised by the extreme fragmentation and heterogeneity of the single national legal systems in the field of class actions, it seems crucial to promote a reform of labour law at European level. A reform that, relying on the same recognition that the Obama Administration had given to it at the time, would be able to re-launch the theme of *class action* as that of a modern form of collective work negotiation adapted to a situation in which production is increasingly taking on a social form, although hidden by the individualisation of the contractual relations which, according to the platforms of the ‘uberisation’ of the economy, would make them mere intermediaries of peer-to-peer exchanges.

3.1.4. Development of digital cooperativism based on commons-based principles²⁴⁶

The second path is the one of the development of mutualism based on the *Smart* model, which offers guarantees for wage labour.

Back in 1844, the cooperative movement wrote one of the most beautiful pages of its history by founding the *Rochdale Society of Equitable Pioneers*, the first consumers' co-operative regarded as the cornerstone of modern cooperativism. The principles of this experience were openness and democratic control, the autonomy and independence of the cooperative and mutualism among all the co-operators.

²⁴⁶ Written by Giuliani A.

Since the second half of the 20th century, the cooperative organisations have experienced a certain shift towards capitalist business models consistently distorting their nature. For this reason, the development of a real alternative to capitalist enterprises has hardly (or only marginally) been pursued any longer.

The development of new technologies and the growing power of capitalist platforms together with the current economic crisis are creating circumstances where the cooperative movement could gain momentum again. Of course, the figure of the consumer characterising the appearance of the Rochdale's 'store' has given way to the figure of the prosumer, the producer and consumer who, surfing the Net, produces and consumes for the benefit of capitalist platforms. The growth of the latter is based on a development model that sheds light on types of work such as the *cognitive piecework* or the *putting out system*, causing a considerable worsening of the working conditions of a multitude of *digital labourers*. This trend will undoubtedly trigger off the development of digital commons, with more and more citizens proposing alternatives to the various capitalist platforms. But, in order to do so, it is necessary to renew the founding values of digital cooperativism, such as common property, openness and democratic participation in the platform life, and non-profit purposes.

As we have seen, the real difficult step, in this sense, consists in overcoming the limits characterising historical cooperativism, underestimated by theorists of neo-cooperativism such as Scholz. In this perspective, let us reiterate in the strongest terms, the main challenge in the development of platform cooperativism lies in getting rid of any illusion concerning the neutrality of technology: not only cloning the algorithms of platform capitalism would be insufficient, but it would also inexorably lead to reproducing social relations governing the hierarchical organisation of the capitalist enterprise, preventing any democratic control and management from emerging and, subsequently, from integrating all the co-operators. Under these circumstances, it will be possible to show, as suggested by Nobel Laureate in Economic Sciences Oliver Williamson (1985), that the co-operative model can be a source of economic and social efficiency, a model that cannot be worse than that of the company hierarchy, but only better. The example of platform cooperatives like *FairCoop* and *FairMondo* seems to go in this direction. Other

experiences, such as the model of the *SMart* cooperative, could spread due to their ability to guarantee those working conditions that are precluded to other *platform economy* workers, offering an effective combination of exit and voice.

3.2. Commons-based federalism and neo-municipalism²⁴⁷

It is our conviction that all the general levels that we have analysed so far, in order to become real, at least partly, should deal with the urgent challenge of federalism and municipalism as alternatives to *Smart Cities*. It is a matter of overcoming the extreme dispersion linked to knowledge-based and platform-cooperative-based commons. In order to achieve this goal, two main roads should be travelled.

The first consists in overcoming the isolation of the several different experiences related to the commons and to platform cooperatives through a federation process aimed at strengthening, on the one hand, *cohesion as a political subject* facing public and private centralised powers, and, on the other hand, *inner economic solidarity* by implementing the mixing mechanisms of trade and productive organisation relying on the synergies of the different actualities. In this perspective, complementary and alternative forms of money based on the blockchain technology and a renewal of mutual banks (Lordon: 2009) could also be usefully experimented, without leaving out the possibilities offered by solidarity forms of online funding like crowdfunding. Only in this way the alternative model of the commons and platform cooperatives will be possibly able to compete with the power of capitalist platforms.

The second road is a corollary of the first one: it regards municipalism as the first of the conditions enabling to achieve a similar federation-oriented goal, which would be possible through *an alliance with local political power*, within the framework of an unbiased convergence of interests in both political and economical terms. In particular, this alliance relies, beyond the political orientation of a municipality, on two points in which the issue of data management plays a key role:

²⁴⁷ Written by Vercellone C. and Rocchi G.

1. Municipalities have an interest in protecting their *financial independence* and their *technological sovereignty* against the big oligopolies of the digital economy in order to organise essential services that will be increasingly dependent on the management of large amounts of data (see Bria and Morozov: 2018). This also affects their autonomy in political decision-making processes concerning tenders and permits, and in transparent relationships with the citizens and their digital identity. From this point of view, it is fundamental to integrate rules in contract awarding, rules that, beyond the immediate criteria of economic efficiency, have to take into account *ethical principles* and *alternative devices* for the wealth and wellbeing of the citizens.

2. *Commons* and platform cooperatives could, in turn, significantly take advantage of this opportunity in order to ensure their autonomy, which would be guaranteed by public funding consistent with their projects, such as encouraging *free software hackers* to enter into partnerships with the public sector for the design of algorithms, software and platforms at the service of *intelligent cities* that would turn the men and the development of their many abilities into a goal and not into a means (Gorz: 2003). Moreover, this public-common alliance would enable cooperatives to reach sufficient size to oppose the capitalist platforms' monopoly as a true metropolitan rival. So, the *free software commons* may provide, for instance, suitable services in order to process data according to the legal principles of *common property*, which at the same time would be respectful of citizens' *privacy*; and platform cooperatives, as far as they are concerned, could compete for primacy with *Uber* and *Airbnb*, making use of a municipal policy supporting their activities to the detriment of capitalist platforms that violate both labour law and citizens' privacy.

A series of arguments (Symons and Bass 2018) uphold the opinion that city governments and local authorities are the most suitable entities to promote and protect people's digital rights: cities are emerging as new battlegrounds over personal data, they are closer to the lives of everyday people, they are often more flexible than regional or national governments and represent the most appropriate focus for entrepreneurial ecosystems. This is all the truer if we consider the process of 'regionalization' and consequent strengthening of the principle of subsidiarity that

has interested several European countries in response to the crisis of the nation-state, giving local and regional realities a greater chance to claim strong forms of autonomy. And it is precisely on the basis of this unprecedented decision-making autonomy that municipalities from all over the world can join forces and learn from one another, in a process of exchange and mutual support, in order to find concerted and easily replicable solutions to promote ethical data collection practices and responsible technological innovation. This process of federation would simplify and facilitate the implementation of a set of primary policy actions (Symons and Bass 2018: 44-46), on which to build the foundations for a network of *data commons*-based and people-centric cities. This set of policies entail, *inter alia*, building consensus around clear ethical principles and translating them into practical policies, training municipality staff in how to assess the benefits and risks of smart technologies, and actively engaging citizens in the development of new identity systems for various e-government services - including the testing of decentralised alternatives that give local residents more responsibility and control over the management and use of their personal data.

In this perspective, the neo-municipal experiences of Naples and Barcelona have already taken important steps and they could mutually strengthen each other through *an exchange of good practices* at the European level.

3.2.1 The case of Barcelona: digital participative democracy as an actual alternative to the Smart City model²⁴⁸

We shall first of all focus on the case of Barcelona. In October 2016, Barcelona City Council presented the 'Barcelona Digital City Plan 2017-2020'²⁴⁹, whose pivot is that of rethinking technology and digital innovation as a means to implement high-quality, bottom-up and co-created public services aimed at better meeting citizens (and city's) priorities and needs.

²⁴⁸ Written by Rocchi G.

²⁴⁹ Barcelona City Council (2016), *Mesura de Govern : Transició cap a la Sobirania Teconològica – Pla Barcelona Ciutat Digital*. October 2016. URL : https://ajuntament.barcelona.cat/digital/sites/default/files/pla_ciutat_digital_mdgovern.pdf

This transversal plan - drafted through participation of citizens, technological communities and companies, manufacturers and academic researchers - consists of three major pillars²⁵⁰, in turn comprising specific actions.

At the top of the first pillar (*Digital Transformation*) we find the '*Technology for Better Government*' action. In order to practically implement the notion of digital sovereignty, Barcelona City Council is committed to adopt Free/Libre Open Source Software for most of its administrative apparatus' digital services, following open and agile methodologies and open standards to promote interoperability and ethical/transparent data management. '*Presupuesto Abierto*'²⁵¹ is a tool aimed at facilitating the citizens' understanding of the municipal budgetary management, also allowing the download of data in open formats. Another initiative is the '*Buzón Ético*', a channel for citizen complaints against corruption or other unlawful practices, guaranteeing complainants' confidentiality, anonymity and indemnity. The second action concerns '*Urban Technology*' and it is aimed at guaranteeing that Barcelona's digital infrastructures ensure public and uniform coverage of the needs of all citizens (e.g. '*Internet 4all*'²⁵²), improving at the same time the access to basic necessities such as housing, unemployment, social exclusion, health, energy and mobility (e.g. '*Bicing*'²⁵³). Finally, '*City Data Commons*' relates to the development of a public, open and distributed data infrastructure, along with a data sovereignty strategy involving citizens, developers, PMIs, companies, communities and universities. For instance, on '*Open Data BCN*'²⁵⁴ users can find all information opened by Barcelona City Council in reusable formats. DECODE - coordinated by Barcelona City Council – is also part of this action. wants to promote the vision of data as a common good and empower citizens with an infrastructure that allows them to control the use of such data.

The second pillar (*Digital Innovation*) includes the '*Digital Economy*' action, whose priority is to promote what is called '*Digital Social Innovation*' (DSI) to enhance links between present and future innovators that use digital solutions to tackle social

²⁵⁰ See : <https://ajuntament.barcelona.cat/digital/es>

²⁵¹ See : <http://ajuntament.barcelona.cat/estrategiafinances/pressupostobert/en/>

²⁵² See : <https://ajuntament.barcelona.cat/digital/es/transformacion-digital/tecnologia-urbana/internet-4all>

²⁵³ See : <https://www.bicing.cat/es/>

²⁵⁴ See : <http://opendata-ajuntament.barcelona.cat/en>

challenges. In this framework we find the expected further strengthening of the DS4BCN network²⁵⁵ and the creation of the new ‘Incubadora MediaTIC’, a business center developing projects primarily applied to Artificial Intelligence, the Internet of Things, robotics, space technologies and nanotechnology. ‘*Make in BCN*’ seeks instead to foster the Maker movement’s philosophy and activities (democratizing technology and pursuing the do-it-yourself approach, which is closely related to the concepts of collaborative and circular economy), by growing the ‘Maker Faire Barcelona’ event²⁵⁶ and the pilot project ‘Maker District’ in the Poblenou neighborhood. The project ‘BCN Industry 4.0 Hub’ wants instead to boost the collaboration of engineers, manufacturers, technology providers, associations, research centers, universities and the municipal government to identify, develop and promote best practices in the field of industry 4.0. Lastly, the underlying idea of the ‘*i.lab*’ action is to use the city as a laboratory to test innovative and sustainable products and services, and promote new solutions to city challenges that allow business growth and job creation by linking innovation with public procurement, fostering at the same time international collaboration and exchange through events like the Mobile World Congress, the Smart City Expo and the Big Data Congress.

The last but not least pillar (*Digital Empowerment*) consists, firstly, of the ‘*Digital Education and Empowerment*’ action, whose purpose is to provide a range of technological and digital training activities to all levels (from students to unemployed or active professionals) in order to empower them with the needed skills to properly face what are called ‘the jobs of the future’. For instance, ‘Ateneos de Fabricación’ are public spaces promoted by Barcelona City Council and implemented transversally in the neighborhoods and districts of the city, aimed at bringing the technology and science of digital manufacturing (and its applications) to all citizens. Closely related is the ‘*Digital Inclusion*’ action, which is about reducing the digital divide brought about by new technologies through educational programs in order to tackle the ‘cyber-illiteracy’ issue, which can represent a ground of social and work exclusion in an increasingly computerized world. Finally, the development of digital interaction models facilitating citizens’ direct decision-making and

²⁵⁵ See : <https://digitalsocial.eu/es>

²⁵⁶ See : <https://barcelona.makerfaire.com/>

translating their collective intelligence into actual policy measures is being pursued within the '*Democracy and Digital Rights*' action, especially through *Decidim*²⁵⁷, a transparent and traceable tool that allows citizens to participate through different channels (processes, assemblies, initiatives, queries) and mechanisms (proposals, voting, blog, comments, on-site meetings), monitoring at the same time municipal responses and implementations. Since the platform - along with the modules, libraries or any other code that is developed for its functioning and deployment – run on a Free/Libre and Open Source Software and that all the interfaces that are deployed to interact with users follow open and interoperable standards, *Decidim* is adoptable by any other municipality that is willing to do so²⁵⁸. Indeed, *Decidim* has been chosen by several Catalan City Councils and by two Spanish cities, respectively Pamplona and Burgos. It is expanding also in other European cities, such as Lille and Helsinki. In Barcelona, has been used as a supporting tool to co-draft the municipal triennial roadmap which establishes, at the beginning of each mandate, governmental priority lines and objectives. This roadmap consists of two parts, namely the Plan d'Actuació Municipal (PAM) and the Plan d'Actuació de Distritos (PAD) 2016-2019. Their collaborative co-creation (which involved 39.049 participants, generating 10.860 proposals and 230.675 interactions) represents the *Decidim*-mediated participation process with the greatest political, administrative and social impact to date²⁵⁹.

When we focus our attention on responsible data management promoted by city governments, we can see that the last few years have seen an emergence of new projects and policy initiatives to protect people's digital rights in several other cities, such as Amsterdam, Paris, New York, Seattle, San Francisco, Sidney, Ghent, and Zug (Symons and Bass 2018: 15-43). In this sense, the city of Naples could create synergies with the DECODE project, which intends to experiment in Amsterdam and Barcelona with an infrastructure based on blockchain technology and to promote

²⁵⁷ See: <https://decidim.org/>

²⁵⁸ For a comprehensive description of *Decidim*'s functionalities see Barandiaran and Romero (2017). A brief *Decidim*'s portrait is given in the fact-sheets relating to the *DDDC* and *Citizen Sensing* pilots, which will run in Barcelona in the framework of the DECODE project. They are available in Appendix A, along with those about Amsterdam-based pilots.

²⁵⁹ For a comprehensive description of *Decidim*'s functionalities see Barandiaran and Romero (2017). A brief *Decidim*'s portrait is given in the fact-sheets relating to the *DDDC* and *Citizen Sensing* pilots, which will run in Barcelona in the framework of the DECODE project. They are available in Appendix A, along with those about Amsterdam-based pilots.

the vision of data as a *common* by empowering citizens with the control over the use of such data.

3.2.2 The case of Naples: from the recognition of urban civic use to the blockchain as a decentralised technology in the management of common goods²⁶⁰

Naples is the most interesting Italian neo-municipal experiment in the framework of our research. As is known, this city initially stood out for a number of innovations in terms of common goods, thanks to the introduction, triggered by citizens' committees, of the legal institution of urban civic use: « *civic and collective urban use [...] experimentally turns the category of civic uses of public goods for collective enjoyment and use into everyday practice and administrative practice* » (Capone, 2016: 630).

A number of activities realised by the inhabitants of the city have led the Administration to launch a public debate on the intended use of available real estate. This, first of all, brought about an amendment to the Municipal Statute in September 2011, by introducing the legal category of *Common Goods*. In particular, the Statute establishes that “the Municipality of Naples, also in order to protect future generations, guarantees the full recognition of the *Common Goods* as they are functional to the exercise of the fundamental rights of the individuals in their ecological context” (Article 3). Since that moment, many administrative acts have been adopted and numerous initiatives have been proposed by the assemblies of the inhabitants, who are interested in establishing a real network of *Common Goods*.

To date, there are 9 formerly municipal real estates (now *Common Goods*) involved in the process because of their own nature (territorial location, history and physical features): they have become spaces of civic and collective use for their value being exactly that of ‘*Common Goods*’.

It should be emphasised that the definition of *Common Goods*, conceived ‘from the bottom-up’ and, at the same time, designed by a new generation of lawyers paying

²⁶⁰ Written by Vattimo P.

particular attention to this kind of experiences, is not based on the features of the 'goods' taken into consideration (whether they are real estate or metropolitan green spaces), but, rather, on the *use* that social cooperation forms make of the 'goods' themselves.

Thus, the physical characterisation of the 'goods' taken into account (which, in the civil law system, is something traditionally included in property law) is subject to the primacy of¹ the social activities of the *Commons*.

These pioneering experiences have made it possible, over the time, to form a permanent assembly of inhabitants, aimed at increasing and strengthening the city constituent process concerning the subject of the *Commons*, as well as a number of institutional negotiations and study groups supported by both the municipal administration and by citizens.

Within this framework, it is also possible to find the '*blockchain technology study group*', promoted by the Municipality of Naples. At the moment, the study group is wondering what concrete ways of connection the blockchain can offer in order to federate the emerging Neapolitan Common Goods with other municipal experiences covering same subject area in Europe.

When we analysed the main digital alternatives to *Google* and *Facebook* in chapter 2, we showed how the solution imagined by them was that of a decentralisation of the Net, and therefore a return to self-produced IT made of personal servers, governed by a non-appropriation legal logic and involving reduced energy and natural-resource consumption.

From a technological point of view, one of the most significant alternatives enabling us to move in this direction is precisely that of the development of the blockchain. It is no coincidence that, currently, we are more and more often talking about it as a new frontier in the Internet, which would open the door to the Web 3.0.

People tend to associate the blockchain with cryptocurrency, but it this kind of technology actually opens up to several different usages, in terms of transparency and democratic management in data use: "The blockchain is set to be a new infrastructure that will enable to develop economic and social interactions. It not only makes buying and selling possible, but also enables to improve and validate

economic relations, professional relations, production-related ‘digital facts’, without any third party being required to verify that validity. Technical data sheets for materials, process traceability and production locations are useful for consumers, who can better assess the quality of a product. On the other hand, workers too will take advantage of this in terms of health. Think of how you can enhance ‘the human’ in a sector using low-quality or harmful materials, improper manufacturing processes, and so on”²⁶¹.

The blockchain, like all technologies, is not neutral: so, the positive possibilities that it offers depend on the political and social uses made of it. However, what is sure is that the same structure of this kind of technology encourages forms of decentralised social validation, which are not subject to the bureaucratic control of the State. As we have seen, it is not by chance that experiences such as the *FairCoop* one adopts the blockchain technology in order to implement and strengthen an alternative ecosystem to platform capitalism. The potential of this technology could, then, be applied to a range of fields, such as fiscal transparency, the decentralisation of forms of governance, and the recognition of digital work.

It is for this kind of reasons that the Neapolitan municipality has promoted a ‘blockchain technology study group’. In the note presenting the ‘voluntary blockchain technology study group on (transparency) and cryptocurrency (payments)’, it is possible to read the following statement: “The city of Naples - the capital of the Mediterranean Sea - and the political innovation it has experienced in recent years [here we mean the best practices concerning the emerging *urban commons*, which we will shortly describe in more detail, ed.], have clearly showed what a ‘democracy of proximity’ is, by enabling its citizens’ ventures and direct decision-making processes on matters of public interest. Similarly, through the blockchain technology, it would be possible to guarantee an actually public participation in collective life, which is the basis of a self-government model founding its decision-making processes on the sovereignty of the peoples’ rule. Indeed, the blockchain technology can be used in all areas where a relationship between several individuals or groups is necessary, and can ensure the proper

²⁶¹ Bentivogli M. and Chiratti M. (2018), *Blockchain, la tecnologia «umanizza» il lavoro*, Il Sole 24 Ore, 24/08/18. URL: <https://www.ilsole24ore.com/art/impresa-e-territori/2018-08-12/blockchain-tecnologia-umanizza-lavoro-123005.shtml>

exchange and the truthfulness of any information. The subjects of decentralisation and participation are the cornerstones of the technology called blockchain, and its fundamental principles are in line with the action and ideas implemented in several fields by the municipal administration: indeed, adopting the blockchain technology for the management of administrative procedures in public administrations can make these processes more transparent. In addition, the non-editability characteristics of this kind of technology could definitely be beneficial in terms of transparency, efficiency and accountability of administrative activities. Today, there is no appropriate knowledge and experimentation in terms of blockchain technology and crypto-currency within international public administrations, but this technology, if properly implemented, could contribute to the improvement of the activities carried out. For this reason, the Municipality of Naples promotes a study group on these subjects. To this end, the City Council is planning to set up a voluntary working group having the task of developing and possibly realising blockchain technology-related objectives²⁶².

In this sense, Naples could create synergies with the DECODE project, which proposes to experiment, in Amsterdam and Barcelona, an infrastructure based on the blockchain technology and on principles of data management founded on decentralisation, as well as on the will to restore the inhabitants' common property of their own data.

3.2.3 Two key technological pivots for interconnected cities: a decentralised Cloud and Open Data stabilization²⁶³

As far as the network infrastructures and digital platforms are concerned, we can now try to make some considerations and final proposals aimed at encouraging a federation of digital cities. In our opinion, it is essential that a neo-municipal perspective embraces the most innovative experiences and alternative digital platforms we have examined during this research. Our aim is to formulate some transitional proposals of a socio-technical model based on the recognition of the

²⁶² Source: <http://www.comune.napoli.it/blockchain>.

²⁶³ Written by Brancaccio F.

driving role of the knowledge and digital commons as well as on the establishment of a new decentralised network infrastructure at a municipal level. The stabilization and extension of the alternative platforms examined in the second chapter can contribute to the creation of a concrete alternative to the dominant economic and governmental model of the *Smart Cities*.

As we saw in paragraph 1.5, the cities are one of the main stakes in the current hierarchical and centralised structure of the ‘new Internet’. Both the aspects of freedom and autonomy characterising the Internet activities and its decentralised and polycentric infrastructure have been called into question. The combination of the three major innovations from the last decades - *Cloud*, the *Internet of Things* and *Big Data* - has led not only to a concentration of the means of production (i.e. infrastructure networking, computing machines and proprietary ‘predictive’ algorithms), but also to the consolidation of a huge amount of social data in the big Internet oligopolies’ hands. This process is like a two-faced Janus, which deals with both the economic and the legal-normative aspects of the Internet in ‘disruptive’ terms - with severe ecological repercussions (consumption of soil, raw materials, basic resources and energy).

The new platform capitalism affects not only the form and architecture of the Web, but also the physical space - in particular urban and metropolitan ones -, for example: *Amazon* and the effects of desertification of trade in urban centres, as well as *Airbnb* and the accelerated tourism processes. Thus, the model of the *Smart City* is going towards a standardisation, i.e. the progressive homogenization of urban spaces and times, as it has already been anticipated by Henry Lefebvre in his studies on the ‘right to the city’ (Lefebvre 1968).

In light of this, the member of the Paris Council representing the 18th arrondissement Ian Brossat has highlighted in a recent essay on the ‘uberised city’ (‘villas ubérisée’) that one of the main aspects of the economic strategies chosen by *Airbnb* (but also *Google*, *Amazon* and *Uber*) precisely consists in wanting “the city of the twenty-first century” (*Ibidem*). To his eyes, the *Smart City* is an ‘urban uberisation’ process affected by several facts, such as: the real estate speculation, increase in rents, expulsion of inhabitants from city centres, space segregation, commercial activities’ standardisation, change in life and loss of identity (*Ibidem*).

For Brossat, reverting the urbanisation city model is the best strategy to adopt by every municipal administration willing to defend its autonomy and its political action. So, it is crucial not only to embrace a set of economic and regulatory measures to limit the impact of the platforms on the urban space, but also to set a much higher goal: the redrawing of the ‘geographies of power’.

The redesign of the geographies of power involves the proposal of a *neomunicipality* which means *the political constitution of a federation of cities and of digital cooperative platforms*.

As far as the digital infrastructures are concerned, the transition to a *commons-based* platform will have to be renovated, taking into account not only the latest technological innovations, but also the decentralised and polycentric network. It must be a real alternative to both the centralised technologies of the Cloud and the standard model of the *Smart City*²⁶⁴.

From our point of view, it represents a *constitutive challenge*: it is about imagining and making effective new economic and political models oriented towards a *commons-based* logic. These models act on a *double-space level*: on the one hand the European Union, seen as a ‘wide space’ where new economic and new legal policies can be experimented; on the other hand, the city seen as political entity to realise a possible *commons* federation.

Therefore, let us focus on two specific proposals that could encourage the transition to a digital, federalist and ecological city model: 1) the creation of a new digital infrastructure in municipal terms, and alternative to the centralised *Cloud* system; 2) a new legal protection policy for *Open Data* that re-launches the *Copyleft* and *Creative Commons licenses* logic.

1) In terms of common thinking, even though nowadays the *Cloud* model seems a necessary condition for an overall reorganisation of the Internet, the proposed solutions diverge significantly from it and deal with the public-state restoration and the return to the personal property. Let us have a closer look at them.

²⁶⁴ About the *Smart City* as a process of standardisation of the cities revoking the functionalistic drawings of modern architecture, cf. also Picon 2016.

1) The first proposal is about a *restoration of the primacy of the public*, especially in some key fields of scientific research such as genomics. This is the case of the proposal made by a team of American researchers in an article published on 'Nature' in 2015. They exhort the US government to set a '*Public Common Cloud*', in order to host and process sensitive data in the scientific field. Moreover, the proposal aims at reversing the current trend: the main scientific research centres make use of Cloud owned by *Amazon* or *Google* to take advantage of its computing power, which is by far greater than the *Cloud* installed at laboratories and research centres.

On the other hand, the second proposal, in line with the libertarian philosophy of the free software movement (as seen, for example, in paragraph 1.5 referring to Richard Stallman's positions), is the one that insists on the need to radically reverse the current trend through the *decentralisation of the Net*. The advocated solution, in this second case, is that of a return to self-produced IT, through the installation of individually owned personal servers, then networking thanks to the different *commons-based* platforms that we analysed in chapter 2 of this research. As we have seen, this is the case of social networks like *Diaspora* and *Mastodon*, and this is also the philosophy behind the *FramaSoft* (and, in particular, the *FramaCloud*) project. It should also be noticed that this second proposal for the decentralisation and fragmentation of the *Cloud* is based on an ecological consideration: indeed, the *Big Data centre model* is considered non-convertible in ecological terms, because it is too expensive in terms of basic raw materials and energy consumption.

It is our belief that these two proposals - public funding on the one hand, and the decentralisation of the Net on the other - are not mutually exclusive: instead, both public intervention and the return to individually owned and self-installed servers should be structured within a new *commons-based* and decentralised paradigm at municipal level. On the one hand, the role played by public authorities remains crucial as far as the financing of a new decentralised and public digital network infrastructure is concerned. From this point of view, the 'macro-subject' is represented, rather than by the single States, by the European Union, which could and should take charge of a new *Cloud* policy capable of reversing the trend of the current extractive and privatistic model. And reversing the trend, in our opinion, is not equivalent to merely reproducing, in Europe, the dominant model of the United

States (this is, for example, in the political and journalistic debate, the solution imagined by those promoting the establishment of a European ‘Silicon Valley’). On the contrary, in a constituent perspective, Europe should be the testing ground for an alternative model to Silicon Valley in terms of organisational forms and recognition of digital work, economic models for financing platforms, and legal relationships concerning algorithm and data property²⁶⁵. The same is for the structure of the network: the public intervention, at the level of the multi-level governance characterising the European Union, should not reproduce the centralistic logic typical of the Silicon Valley giants, a logic that, as we have seen, has subverted the original architecture of the web. On the contrary, it should promote the decentralisation of the Net and the migration of the public administrations, at every level, towards the free software, by internalising the philosophy of the alternative platforms, from *Diaspora* to *Mastodon*, from *OpenStreetMap* to the *FramaSoft* project.

We also believe that it is necessary, in realistic terms, to solve the problem of filling, at least partially and compatibly with the principles of a *new political ecology* (Gorz 2008; Guattari 2008), the technological gap currently facing the giants of the Web in terms of computing power and data storage. A solution could consist in creating of a number of small *Clouds*, organised in reticular form also through the new blockchain technologies, financed at municipal level and protected by a new *Open Data* policy. In this way, it would be possible to encourage, at municipal level, the establishment of an open digital architecture and *city data commons* (see Bria and Morozov 2018: 93 and following), access, exchange and elaboration of data concerning, for example, essential services for the citizens; and it would be possible to promote digital participation processes as well.

Thus, the new interconnected digital city would be able to achieve a double goal: on the one hand, that of re-appropriating the *Cloud*, encouraging its decentralisation; on the other, the one of promoting the creative activity of the *commoners* by

²⁶⁵ We have seen this, in our research, in the case of a search engine like *Qwant*, funded by the European Union. Although *Qwant* is a very interesting experiment, from the point of view of the property of the source code, it does not revolutionise the exclusive and absolute model of intellectual property; in the same way, from the point of view of the economic model, the search engine keeps adopting a model of financing through advertising, albeit in much less invasive forms (in terms of privacy) than Google’s ones.

providing them with all digital infrastructures and platforms oriented to direct participation and collective decision (this seems to be the philosophy of *Decidim* in Barcelona). This 'bottom-up' logic, on which the urban civic use institution virtuously experienced in the city of Naples is based, could be reproduced in the digital space as well: the *commoners*, with their imaginative power, would introduce new uses and new digital practices that municipal administrations could recognise, like the equivalent of a civic use, in order to strengthen and extend them (see the case of *OpenStreetMap* and the city of Paris).

2) A second significant proposal consists, as we said, in strengthening the *Open Data* policy, a policy aiming to minimise the risks of the social data private appropriation carried out within platforms and municipal network infrastructures. As we have shown in chapter 2, the solution to be adopted in terms of *Open Data* involves strengthening the legal principles established in December 2007 at the Sabastopol meeting, promoted by, among others, Lawrence Lessig and Tim O'Reilly. From this point of view, it should be noticed that the choice of the type of licence is crucial for establishing the policy of public institutions in terms of data. The problem is, therefore, the same as the one characterising the origins of the *Copyleft* licence for source code and algorithms: exit the ambiguity of the *res nullius* regime, applying to the things belonging to no one and subject to the principle of free appropriation by anyone, and promote a number of forms of legal protection based on *common property*.

When a local community or a municipal government produces *Open Data*, through applications, platforms or sensors installed all around the city, the type of licence chosen is vital to determine the reuse of these data: in particular, in our opinion, the main distinction arising is that of the *inalienability and non-merchantability* of *Open Data*. This is the goal of the ODbL (Open Database License)²⁶⁶, the licence on which virtuous projects such as *OpenStreetMap* are based, and which requires those who reuse the data to leave them open for later re-use. For this reason, this licence was defined as 'anti-Google', as it prevents from any privatisation in later re-use of

²⁶⁶ Which has already been successfully experimented in some major European cities, such as (<https://opendata.paris.fr/pages/lalicence/>).

data. Different, as we have seen, is the case of the ‘open licence’ Etalab, issued by the French Government and used by many local authorities: it authorises any later re-use of open data, also for commercial purposes, with the only obligation to mention the original licence.

In our opinion, a municipalist *Open Data* policy alternative to the privatistic logic of the *Cloud* should simplify the transition to the ODbL licence, or, in any case, to other similar licenses²⁶⁷ *based on the prohibition against any exclusive and privatistic appropriation of data.*

²⁶⁷ As, for example, the CC-BY-SA 4.0 licence (*Creative Commons - Attribution Share Alike*).

Annex A - DECODE pilots' fact sheets²⁶⁸

USE CASE
Participatory democracy (city of Barcelona)
PILOT
Distributed Democracy and Data Commons (DDDC)
COORDINATORS WITHIN DECODE
<ul style="list-style-type: none"> ▪ IMI (Institut Municipal d'Informàtica) - Barcelona City Council ▪ Eurecat ▪ UOC (Universitat Oberta de Catalunya) ▪ ThoughtWorks
PARTICIPANTS (preliminary list)
<p>Communities: Metadecidim²⁶⁹, Xes Procomuns²⁷⁰, Making sense²⁷¹, Decidim.barcelona²⁷², data enthusiasts, general citizenry.</p> <p>Public sector: Municipal Institute of Informatics (IMI), Office of Innovation in Democracy, Barcelona Data Office, Barcelona Technology Office, Barcelona Participation Office.</p> <p>Private sector: Ideas for Change²⁷³, Smart IB²⁷⁴, Dribia²⁷⁵, ThoughtWorks²⁷⁶.</p> <p>Academia: UOC, Eurecat, Polito, CNRS.</p>
REACH
Decidim users. The number of participants will likely stay in the hundreds (200-300). However, 30.000+ will be informed of the process via Decidim channels.
MAIN OBJECTIVES
<ul style="list-style-type: none"> ▪ To enable a participatory process on the basis of the Decidim²⁷⁷ project in order to deliberate and decide upon the constitution of a 'data commons' (i.e. a collectively

²⁶⁸ Written by Rocchi G. with the contributions of Antonio Calleja López (UOC), Oleguer Sagarra (IMI BCN), and Tom Demeyer (Waag).

²⁶⁹ <https://meta.decidim.org/>

²⁷⁰ <http://xes.cat/comissions/procomuns/>

²⁷¹ <http://making-sense.eu/>

²⁷² <https://www.decidim.barcelona/>

²⁷³ <https://www.ideasforchange.com/>

²⁷⁴ <https://smart-ib.coop/>

²⁷⁵ <http://www.dribia.com/home/en>

²⁷⁶ <https://www.thoughtworks.com/>

²⁷⁷ <https://www.decidim.barcelona/>

devised and managed socio-technical and legal system that permits the production, governance, and use of different types of data to solve societal challenges of public interest) by actualizing the notion of 'data sovereignty' (i.e. the control of sociodemographic data/attributes - date of birth, national ID number, post code + optional attribute sharing in the signing process, such as age and gender - achieved by means of entitlements defined in smart contracts expressed through a smart rule language pursuant to the new General Data Protection Regulation requirements and allowing the conclusion of legally binding obligations between a data owner and a data consumer, where the former decides upon the data access level the latter can obtain) through the testing of DECODE's Privacy Enhancing Technologies/PETs (i.e. an ensemble of technical tools and infrastructures, which include the wallet²⁷⁸, the distributed ledger²⁷⁹, and the dashboard²⁸⁰ all conceived following a privacy by design approach²⁸¹).

- To integrate DECODE technology in the Decidim software.
- To develop a DECODE Data Commons License.

TOOLS

The process will run on a Decidim installation/instance. Decidim's channels will be used to publicly announce the DDDC participatory process. People will take part in it by authenticating via the DECODE wallet, contributing to test and improve it. Early in the process, participants will be asked to donate sociodemographic data under well-defined smart contracts, by filling in a survey. During the process, participants will be able to: collectively discuss around the features that a 'data commons' should possess using Decidim's vast array of functionalities; sign petitions (while remaining in strict control of their data) to decide in common on issues such as the normative framework defining a 'data commons', sustainability models and the types of data to be aggregated. At the end of the project, participants will be able to check the results of the process, which will be

²⁷⁸ « A DECODE wallet is an implementation of a software wallet that stores cryptographic material which identifies the user. The user may interact with their DECODE wallet to "Login with DECODE" into applications. In this scenario, the user attempting to log into a pilot application would be redirected to their DECODE wallet, authenticate there as above and then an exchange of application specific cryptographic credentials would be passed back to the application, allowing them to be authenticated » (Hughes et al. 2017: 8). The wallet mediates between user and the DECODE ledger and, along with the dashboard, it represents the main tool for users to visually interact with the datasets and policies being discussed and conceived.

²⁷⁹ « Distributed ledger technology refers to the ability for users to store and access information or records related to assets and holdings in a shared database (i.e., the ledger) capable of operating without a central validation system and based on its own standards and processes. DLTs differ from standard accounting ledgers in that they are maintained by a distributed network of participants (known as "nodes") rather than a centralized entity. Another common feature of DLTs is the use of cryptography as a means of storing assets and validating transactions » (Kakavand et al. 2016: 4-5).

²⁸⁰ The alpha version is available at: <http://84.88.76.35/dashboard.html>

²⁸¹ Hughes et al. (2017) describes eight privacy by design principles that are particularly relevant to interface design and user experience. These principles are summarized as follows: user-focused approach; user control over data; device context; consent captured in a clear, unambiguous way and revocable; clarity and understandability of the information presented to users and what the implications of their choices are; inform about which/how/for what purpose data is processed; educate users about their personal data and privacy issues; minimise the capture and display of data.

registered in the DECODE distributed ledger.

The Barcelona Now dashboard / BCN Now²⁸² is an environment composed of a back-end subsystem acting as data aggregator and manipulator and currently hosting Barcelona City Council data and other external open-access data, accompanied by a web-based front-end subsystem which enables citizens to leverage the data provided by the back-end to discover patterns and possible relationships or dependencies between the different data sources. The data generated through the Barcelona pilots (DCCC and Citizen Sensing) will be integrated as further sources of data and accessed through the DECODE wallet, making BCN Now a privileged and unifying interface to interact with the pilots, allowing the pilots' participants to obtain personalized visualizations and information. The code, released under the terms of the GNU General Public License, is highly modular, so that other data sources can be integrated by adding appropriate data collectors to the backend, and the infrastructure can be easily deployed for other cities. Furthermore, data are exposed through an API, so other services and interfaces can be developed on top of the back-end.

Depending on political negotiations and how the process goes, the DDDC may be introduced to the Decidim stack and stay as a key space to take collective decisions on Barcelona city data policies. The other 15 instances currently running Decidim would therefore be free to adopt it, together with the wallet.

BACKGROUND

Decidim is a digital platform for participatory democracy launched in February 2016 by the Barcelona City Council. The platform has been used as a supporting tool to draft the municipal triennial roadmap 2016-2019, consisting of the Plan d'Actuació Municipal (PAM) and the Plan d'Actuació de Distritos (PAD). Their collaborative co-creation represents the Decidim-mediated participation process with the highest political, administrative and social impact to date.

The code of the platform, along with the modules, libraries or any other code that is developed for its functioning and deployment are fully open and released under the Affero GPLv3 license. Likewise, all the interfaces deployed to interact with users follow open and interoperable standards and all design elements are published under a Creative Commons BY-SA. Finally, the data generated and collected through the platform are published and licensed under the Open Data Commons Open Database License.

Regarding the current management of personal data within Decidim, being the latter a platform for political participation protecting its participants' opinions (expressed in the form of supports to petitions), participants' information is not stored or used, and this won't change, in principle, as a result of DECODE. The pilot will take care that the personal attributes disclosed in order to be eligible to do

²⁸² « A dashboard is defined as a set of visualizations that can be monitored on a single view, grouped by topic or type. Each visualization constitutes a widget and a dashboard can contain multiple widget » (Marras et al. 2018: 22-23). « The environment enables users to define one or more dashboards where they can group the widgets to be monitored on a single screen based on different user-defined thematics, goals, and needs. Each widget can be directly moved between different dashboards by drag and drop and shared via short custom links to allow other users to view and reuse them » (Ibidem: 15).

petitions are transparently managed and only if it will be very successful some actions regarding the current Decidim's data regulation may be considered.

Besides being a platform, Decidim is a free and open project where Metadecidim (which includes LAB Metadecidim, SOM Metadecidim, and JAM Metadecidim) is both how the community is called in the Decidim project and the framework into which various work spaces made up of a range of different actors (from hackers to general citizenry) interact, with the communal purpose of jointly and continuously improve the functionalities of the platform.

Decidim, which in Barcelona has reached 30.000+ registered users, has been adopted by several Catalan City Councils and by two Spanish cities, respectively Pamplona and Burgos (15 instances in total so far). It is expanding also in other European cities, such as Lille and Helsinki, although they are still at a very preliminary stage of use.

DATA SOURCES

All the data generated during the DDDC process *plus* the data captured in the context of the other Barcelona pilot (CitizenSense, see the dedicated fact sheet), will converge into the BCN Now dashboard, adding up to the following already operative sources:

- Barcelona City Council sources → ASIA²⁸³ (Aplicatiu de Sistemes Integrats d'Atenció), IRIS²⁸⁴ (Incidències, Reclamacions i Suggeriments), ODI²⁸⁵ (Open Data Infrastructure), CityOS²⁸⁶ (City Operating System), Sentilo²⁸⁷ (open source sensor and actuator platform). All these sources are publicly available. Data from ODI, Sentilo, ASIA, and IRIS will be connected to the CityOS, which will become a central enter point for all the data and it will be in turn connected to the BCN Now dashboard.
- External public data sources → Inside Airbnb, Smart Citizen.

TYPES OF DATA

At the time of donation there is a smart contract in place that ensures that the sociodemographic data and the results of the petitions is correctly aggregated and disposed, and a proof of that. Aggregated data will no longer be private data (it is aggregated) and will be used for collectively beneficial purposes. Individual private data will be only accessible to each user and only to him.

HYPOTHESIS STATEMENTS²⁸⁸

"As a user (of Decidim), I want to sign a petition in a secure, transparent and auditable process, and control the granularity of access to personal information I share with my petition".

"As a user (of BCN Now), I want to view a dashboard of citizen-generated data".

²⁸³ http://www.bcn.cat/publicacions/la_municipal/n_68/lm_33.htm

²⁸⁴ <http://www.bcn.cat/iris/eng/index.html>

²⁸⁵ <http://opendata-ajuntament.barcelona.cat/en>

²⁸⁶ <http://ajuntament.barcelona.cat/imi/es/proyectos/city-os>

²⁸⁷ <http://connecta.bcn.cat/connecta-catalog-web/>

²⁸⁸ Biasprozvanny et al. (2017).

THE PILOT'S OBJECTIVES WILL BE REACHED WHEN...

Of the 9 following objectives, 3 of them (already listed in the 'Main objectives' section) are primary or necessary, and 6 of them are secondary or desirable:

1. Test and improve DECODE technology;
2. Integrate DECODE technology with Decidim;
3. Develop and test DECODE Data Commons License;
4. Test Dimmons' toolkit²⁸⁹;
5. High quality and quantity participation;
6. Awareness rising;
7. Uptake;
8. Policy and social innovation;
9. Test concepts and frameworks.

The DDDC instance is oriented to operate as a space for enabling collective deliberation and action upon Barcelona City Council data policies with a pro-commons orientation.

DEFINING A COMMONS-BASED MODEL

The technological policy underlying the production, use and governance of data is only one of the aspects characterising a *commons-based model* and it is expressed through the use of free, open source and decentralized software. As highlighted in Fuster Morell et al. (2017), other fundamental dimensions should be met by a *commons-based model* for being considered as such, namely: the knowledge policy (open content and open data); the governance model (co-ops, foundations or SMEs allowing the open participation in the decision making); the economic model (no profit objective and transparency with regard to economic information); social responsibility (gender and social disadvantaged groups' inclusion, and environmental impact reduction).

MODEL'S FINANCIAL SUSTAINABILITY

Since a decision was made not to make DECODE immediately compatible with City Council's regulations, this will depend on later work.

One potential way is that DECODE technology is put to production in other Decidim instances, if communities find it useful, and they are thus willing to cover the costs of maintenance.

MODEL'S REPLICABILITY

Amsterdam has showed interest in participating in the pilot. Beyond this, I am not aware of any work being done on this regard. This will expectedly take place after the pilot.

The most obvious replicability is on the one hand in other Decidim instances; on the other hand its value and likelihood of replicability is promising due to the fact that it represents the first use of a privacy-aware blockchain that allows for petition counting.

²⁸⁹ Available at: <https://decodeproject.eu/publications/multidisciplinary-framework-commons-collaborative-economy>

USE CASE
Internet of Things (city of Barcelona)
PILOT
Citizen Sensing (provisional name)
COORDINATORS WITHIN DECODE
<ul style="list-style-type: none"> ▪ IMI (Institut Municipal d'Informàtica) – Barcelona City Council ▪ Eurecat ▪ ThoughtWorks ▪ Thingful
PARTICIPANTS
<p>Public sector: Barcelona City Council</p> <p>Private sector: SMEs, Thingful, Ideas for Change (leading the communities), Smart Citizen (providing tech support to the communities)</p> <p>Communities: communities of users around Barcelona wishing to deploy open source and open hardware sensors for testing Data Sharing Contracts on them.</p>
REACH
Citizens of Barcelona, communities of Makers (in Barcelona and elsewhere), users of Smart Citizen (all around the world, once DECODE technology is tested on the pilot), neighbours directly involved in deploying the sensors and analysing the data.
MAIN OBJECTIVES
<ul style="list-style-type: none"> ▪ To enable local residents to collect noise data in different areas of the city by equipping them with sensors released under FLOSS licences in order to build an IoT '<i>data commons</i>' (i.e. a collectively devised and managed sociotechnical and legal system that permits the production, governance, and use of IoT crowdsourced data to solve societal challenges of public interest and to contribute to citizen science research projects) by actualizing the notion of '<i>data sovereignty</i>' (i.e. the control of personal data/attributes - home addresses, noise readings, sensor metadata- achieved by means of entitlements defined in smart contracts expressed through a smart rule language pursuant to the new General Data Protection Regulation requirements and allowing the conclusion of legally binding obligations between a data owner and a data consumer, where the former decides upon the data access level the latter can obtain) through the testing of DECODE's

Privacy Enhancing Technologies/PETs (i.e. an ensemble of technical tools and infrastructures, which include the wallet, the distributed ledger, and the dashboard, all conceived following a privacy-by-design approach).

- To provide citizen science projects²⁹⁰ scattered around Barcelona with a decentralized infrastructure that will allow them to cut data maintenance costs, share their respective user bases, and manage data in a secure manner.
- To test DECODE technology with low-risk personal data in order to consider its future employment with more sensitive domains (e.g. health).

TOOLS

The pilot's participants will create their DECODE wallet, which is connected to the Smart Citizen infrastructure. They will be able to choose among diverse data sharing entitlements from a pool of predefined policies, previously discussed and agreed upon during the data governance co-creation sessions. The possibility of these policies to be set dynamically is out of the scope of DECODE but included in the design, so that developer communities will be able to pursue this goal in the future. The data sharing agreements are recorded on a distributed and public ledger.

The Barcelona Now dashboard / BCN Now is an environment composed of a back-end subsystem acting as data aggregator and manipulator and currently hosting Barcelona City Council data and other external open-access data, accompanied by a web-based front-end subsystem which enables citizens to leverage the data provided by the back-end to discover patterns and possible relationships or dependencies between the different data sources. The data generated through the Barcelona pilots (DCCC and Citizen Sensing) will be integrated as further sources of data and accessed through the DECODE wallet, making BCN Now a privileged and unifying interface to interact with the pilots, allowing the participants to obtain personalized visualizations and information. The code, released under the terms of the GNU General Public License, is highly modular, so that other data sources can be integrated by adding appropriate data collectors to the backend, and the infrastructure can be easily deployed for other cities. Furthermore, data are exposed through an API, so other services and interfaces can be developed on top of the back-end.

BACKGROUND

Citizen Sensing will leverage the Smart Citizen infrastructure²⁹¹ and combine the participation of the existing communities who have been involved in previous initiatives, such as the Making Sense EU²⁹² and TRIEM²⁹³ projects. The Making Sense

²⁹⁰ For instance, the initiatives promoted under the umbrella of the 'Oficina de Ciencia ciutadana' (<http://www.ub.edu/opensystems/ca/projectes/oficina-de-ciencia-ciutadana/>).

²⁹¹ <https://smartcitizen.me/>

²⁹² <http://making-sense.eu/>

²⁹³ <https://www.saluscoop.org/triem/>

EU project (which has run several pilots in the cities of Amsterdam, Barcelona and Prishtina around the theme of participatory sensing for collective environmental awareness) builds on and extends the Smart Citizen Kit (SCK). This latter is an open-source environmental monitoring platform consisting of: an Arduino-compatible hardware which carries sensors that measure air composition, temperature, light intensity, sound levels, and humidity, it can be placed in outdoor locations such as windowsills and balconies, and is powered by a solar panel and/or a battery; a website²⁹⁴ which gathers environmental data streams produced to date by more than 1000 kits around the world; an online API; and a mobile app.

By using the Smart Citizen API, Eurecat²⁹⁵ collected noise observations coming from 50 outdoor noise sensors spread along 10 districts and 25 neighbourhoods of Barcelona from January 2017 until October 2017, and conducted some experiments in order to show how, through the BCN Now dashboard, by putting in contrast this information with data coming from other open data sources (e.g. IRIS and Inside Airbnb), any citizen is able to autonomously discover urban patterns and answer questions such as: do areas with high density of short-term rent listings have higher levels of noise during night? Are these areas affected by a large number of noise complaints? Furthermore, this way citizens are empowered to call for public intervention to solve matter-of-factly detected issues.

Smart Citizen's datasets are on the public domain at the moment and users have expressed privacy risks potentially deriving from sharing data of IoT devices streaming from their private houses. Through the DECODE infrastructure, SDK's owners will be able to define a variety of access levels for the data they donate and, vice versa, will be able to explore the dashboard based on data they have permissions to access accordingly to other users' settings.

DATA SOURCES

All the data captured through the 25/50 SCKs installed by the pilot's participants in different city neighbours *plus* the data generated in the context of the other Barcelona pilot (DDDC/BCN Now, see the dedicated fact sheet), will converge into the BCN Now dashboard, adding up to the following already operative sources:

- Barcelona City Council sources → Asia²⁹⁶ (Aplicatiu de Sistemes Integrats d'Atenció), Iris²⁹⁷ (Incidències, Reclamacions i Suggeriments), Odi²⁹⁸ (Open Data Infrastructure), CityOS²⁹⁹ (City Operating System), Sentilo³⁰⁰ (open source sensor and actuator platform). All these sources are publicly available. Data from ODI, Sentilo, Asia, and Iris will be connected to the CityOS, which will become a central enter point for all the data and it will be in turn connected to the BCN Now dashboard.
- External public data sources → Inside Airbnb, Smart Citizen.

²⁹⁴ <https://smartcitizen.me/kits/>

²⁹⁵ See Marras et al. (2018).

²⁹⁶ http://www.bcn.cat/publicacions/la_municipal/n_68/lm_33.htm

²⁹⁷ <http://www.bcn.cat/iris/eng/index.html>

²⁹⁸ <http://opendata-ajuntament.barcelona.cat/en>

²⁹⁹ <http://ajuntament.barcelona.cat/im/esi/es/proyectos/city-os>

³⁰⁰ <http://connecta.bcn.cat/connecta-catalog-web/>

TYPES OF DATA

Home addresses, noise readings, sensor metadata.

HYPOTHESIS STATEMENTS³⁰¹

“As a user I want to be in control of my data”.

“As an IoT platform provider I want to give users a transparent, traceable, secure, collaborative platform”.

THE PILOT’S OBJECTIVES WILL BE REACHED WHEN...

The pilot aims at:

1. Co-creating with the communities the DECODE technologies, including the wallet and entitlement features;
2. Integrating the DECODE technologies with the Smart Citizen hardware and software;
3. Sharing the data collected, analysed, and governed through entitlements in order to contribute to the understanding of noise pollution in certain areas of Barcelona;
4. Testing a set of tools to enable granular data sharing, which might be used for other kinds of more private types of data (e.g. health data).

DEFINING A COMMONS-BASED MODEL

Open source, open hardware, community decisions, entitlement policies’ collective realization, common dataset’s crowd-pooling.

MODEL’S FINANCIAL SUSTAINABILITY

If the use of the DECODE technology is satisfactory, this will be included in the Smart Citizen infrastructure and put to production for future projects.

MODEL’S REPLICABILITY

If the pilot is successful, it can potentially be replicated with health data under the framework of the SALUS coop³⁰².

USE CASE

Community platform (city of Amsterdam)

³⁰¹ Biasprozvanny et al. (2017).

³⁰² <https://www.saluscoop.org/>

PILOT
Gebied Online
COORDINATORS WITHIN DECODE
<ul style="list-style-type: none"> ▪ Waag Society ▪ City of Amsterdam ▪ ThoughtWorks ▪ Dyne
PARTNERS
Communities: Gebied Online community
REACH
Users of the current Gabied Online platforms
MAIN OBJECTIVES
To enable Gebied Online's users to log into the platform using and testing DECODE's Privacy Enhancing Technologies/PETs (i.e. an ensemble of tools and infrastructures, which include the wallet and the distributed ledger, conceived following a privacy-by-design approach) by actualizing the concept of 'data sovereignty' (i.e. the control of personal data/attributes - name, email address, date of birth and post code ³⁰³ - achieved by means of entitlements defined in smart contracts expressed through a smart rule language pursuant to the new General Data Protection Regulation requirements and allowing the conclusion of legally binding obligations between a data owner and a data consumer, where the former decides upon the data access level the latter can obtain), in order to build a 'data commons' dataset shareable via aggregation mechanisms (contracts), making it relevant and valuable for many more communities.
TOOLS
The wallet will be used to store personal data (some of it verified), sign-on and issuance of Gebied Online's membership (relevant to more instances of the platform), support for polls (projects), and possibly peer-to-peer verification of certain attributes.
BACKGROUND
Gebied Online ³⁰⁴ was developed in 2012 by IT specialist and founder of CrossmarX (an Amsterdam software company) Michel Vogler, in response to the request made by an IJburg's neighbourhood community (Amsterdam) to help them build

³⁰³ There can be many more data shared, depending on specific activities and implementation of the pilot in the operational platform. Activities undertaken on these platforms generate much data of varying levels of 'personal' that can be very valuable to the local communities.

³⁰⁴ <https://gebiedonline.nl/>

a platform to enhance their local network and share information online. Hallo Ijburg³⁰⁵ is currently used by more than 5000 citizens of Ijburg and the technology underlying the platform (which is modular, customizable but not open source yet) has been adopted by twenty-one other communities belonging to other Dutch cities, namely Gouda, Lissebroek, Amersfoort, and Badhoevedorp. The platform offers a rich set of functionalities, among which a calendar showing an overview of the activities that take place in the area, a marketplace for the exchange of products and services, and a space to propose and discuss initiatives and projects, facilitating offline contact among inhabitants of neighbourhoods.

Gebied Online is owned by a namesake not for profit cooperative founded in January 2016 and whose main goal is the joint further development of the platform.

The opening of a new network, namely of a platform covering a given neighbourhood, brings in one person as a member of the cooperative, who is responsible for the payment of the annual membership fee. All members have the same basic role and responsibility: each one represents one or more networks, becomes an expert of the platform, co-designer and ambassador. He is also required to help running the cooperative with small ad hoc tasks. But becoming a member means above all to have a say in the development agenda during the cooperative's monthly meetings, where all decisions are taken on the basis of consent: this means that a decision is made when none of the members puts forward any arguments against the adoption of the decision. Consent differs from consensus in the sense that the person who gives his/her consent does not mean that he/she is "in favour" of the proposal, but only 'not against' it. A member may represent more than one network, but shall then have one vote.

Membership fee for new members is € 2000 per year, while existing members can decide whether to pay € 500, € 1000, or € 1500 per year. The fee amount is determined at the end of each year during the members' meeting. At the moment It is not possible to temporarily get a free demo to assess whether the platform meets a given interested party's preferences. About 20.000 people have an account in one of the networks.

An advertising module is available for experimentation. Functionality for crowdfunding and visibility for sponsors are in development. The idea is that any income will be used to support the local community and strengthen the economy and/or (partially) reduce the costs. Platform-enabled websites and data are stored in a server accessible only by CrossmarX. Each network remains the owner of its data (and can obtain exports). The cooperative shall determine whether, on a case by case basis, allowing external parties (e.g. municipalities) to do something with the aggregated data.

DATA SOURCES

Besides Gebied Online data, other neighbourhood platforms may be connected to the DECODE architecture. However, this is not part of any pilot.

³⁰⁵ <https://halloijburg.nl/>

TYPES OF DATA

Anything that is available on the current platforms is likely to be subjected to entitlements, depending on actual platform requirements and initiatives. Name and email are minimum.

HYPOTHESIS STATEMENTS

"As a user (of Gebied Online), I want to share personal data in a more secure and easier way than is currently possible in Gebied Online networks".

THE PILOT'S OBJECTIVES WILL BE REACHED WHEN...

A subgroup of primary and quantifiable objectives to reach by the end of the project is being defined.

DEFINING A COMMONS-BASED MODEL

An active community of users and producers.

MODEL'S FINANCIAL SUSTAINABILITY

Gebied Online's current business model would support any technology deemed valuable enough by the cooperative.

MODEL'S REPLICABILITY

The purpose is to make Gebied Online's model easily adoptable by any neighbourhood platform.

USE CASE

Holiday Rental Register (city of Amsterdam)

PILOT

Holiday Rental Register

COORDINATORS WITHIN DECODE

- Waag Society
- City of Amsterdam
- ThoughtWorks
- Dyne

PARTNERS

Public sector: City of Amsterdam

REACH

Citizens of Amsterdam who rent out rooms via any rental platform.

MAIN OBJECTIVES

To develop a web application that enables Amsterdam residents, in compliance with Amsterdam's rental legislative framework, to register holiday rental periods of their properties with Amsterdam City Council through testing of DECODE's Privacy Enhancing Technologies/PETs (i.e. an ensemble of tools and infrastructures, which include the wallet and the distributed ledger, conceived following a privacy by design approach) which will either replace the registration system currently embedded in the city council website or represent a parallel alternative service. This will lead to the actualization of the concept of 'data sovereignty' (i.e. the control of personal data/attributes - verified home address and number of rental days - achieved by means of entitlements defined in amendable and auditable smart contracts expressed through a smart rule language pursuant to the new General Data Protection Regulation requirements and allowing the conclusion of legally binding obligations between a data owner and a data consumer, where the former decides upon the data access level the latter can obtain). Finally, by enabling open peer-to-peer accommodation platforms (such as Fairbnb) to interact with the data collected by the City Council and, vice versa, to share their data with the municipality in a DECODE-mediated/privacy-aware manner, a '*data commons*' dataset of variably accessible information about short-term stays will help regulators to better administer this lively and disruptive sector. This way, insights can be gained into rental 'pressure' in neighbourhoods and local social effects can better be assessed (and ameliorated when needed).

TOOLS

A resident establishes (logging into the rental registration page with her DigiD³⁰⁶ credentials) that he is the owner / main occupant of the object, and that she actually lives there. This results in a 'verified resident of address' attribute that allows for submitting rental dates on the ledger. Enforcement can respond to complaints of neighbours by checking register and issue a fine when the owner is not registered. No personal data is stored. # rental days is linked to address.

³⁰⁶ <https://www.digid.nl/en/about-digid/>

BACKGROUND

As of January 1st 2019, Amsterdam will impose a new 30 days' restriction on holiday rentals of private properties to tourists via websites like Airbnb, halving the current 60 days per year, a measure that was introduced in 2017 along with the obligation for landlords to register their property with the City of Amsterdam on the city register by filling out a form every time they want to let their property for a holiday rental. Furthermore, only the landlord (or the occupier who has obtained his permission) is allowed to rent out the property for a maximum of four guests at a time. Failure to notify the City of Amsterdam can incur a fine of €6,000, plus potential additional fines if other regulations, such as the 60-day-rule, have been violated. DECODE technology will either replace the registration system currently embedded in the city council website or represent a parallel alternative service.

DATA SOURCES

rental days is linked to address. That is the only data relevant to the pilot.

TYPES OF DATA

When authenticating through DigiD, the user will have the option to store further verified personal attributes in his wallet besides the address and # rental days, although these are not needed for the pilot.

HYPOTHESIS STATEMENTS

"As I want to rent out my property for short periods in compliance with my city's rental law, I want to use a registration platform without storing any personal information".

THE PILOT'S OBJECTIVES WILL BE REACHED WHEN...

A test group has successfully used the DECODE register and the City Council considers the DECODE solution a viable alternative to the current register.

DEFINING A COMMONS-BASED MODEL

An active community of users and producers who share common goals and 'territory' (i.e. domain).

MODEL'S FINANCIAL SUSTAINABILITY

A city department would be in charge of the Holiday Rental Register's maintenance and improvement costs once it would actually be operational. If not, it would remain with the departments of data and innovation.

MODEL'S REPLICABILITY

The application is fairly specific, but could be modified to run in other cities with a holiday rental platform registration. The technology developed is fundamental, though, to a great variety of DECODE-enabled applications, anywhere.

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