To exploit and dispossess
The twofold logic of platform capitalism

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ABSTRACT
This paper addresses the relation between capital and digital labour in the context of so-called platform capitalism. Based on the taxonomy proposed by A. Casilli – on-demand labour, crowdwork or microwork, and social media labour – I argue that the concept of exploitation is not sufficient to fully account for the logic of platform capitalism, as it only makes up one of its dimensions. The other central dimension is that which targets data capture, which I call, using Harvey’s term, ‘dispossession’. Far from proposing a fixed delimitation of the concept of labour, I argue that the two dimensions operate together and, in many cases, it is difficult to isolate them, but they do demand the invention of different political strategies.

KEY WORDS
Platform capitalism, digital labour, exploitation, dispossession, big data

Introduction
Digital platforms are not only profoundly transforming the everyday life of an ever-increasing number of users, but have also had a major impact within the context of the shift in the productive paradigm of the so-called ‘Fourth Industrial Revolution’ (Loffler & Tschiesner, 2013; World Economic Forum, 2016).

In his book Platform Capitalism, Nick Srnicek argues that digital platforms constitute a new business model,

they are characterised by providing the infrastructure to intermediate between different user groups, by displaying monopoly tendencies driven by network effects, by employing cross-subsidisation to draw in different user groups, and by having a designed core architecture that governs the interaction possibilities. (Srnicke, 2016: 27)
In line with Srnicek’s argument, a report from the Organisation for Economic Co-operation and Development has also indicated that ‘in contrast to traditional firms, the valuation of platforms does not only depend on sales and profit margins, but can significantly depend on the valuation of their user networks (individuals or firms) and the data generated by their users’ (Organization for Economic Co-operation and Development, 2017: 207).

Here we are confronted with a twofold logic of capital that characterises platform capitalism on the one hand by a traditional logic of ‘sales and profit margins’, and, on the other, by a logic that is specific to platform capitalism, based on the valuation of users and data.

If this object of analysis is approached from a Marxian framework, one must ask how the relation between capital and labour is reconfigured in the case of so-called digital labour. However, it is also necessary to ask if the concept of exploitation, which has been used to analyse that relation throughout the history of capitalism, can fully account for the specific logic of platform capitalism, which accompanies the traditional logic.

In what follows, I am going to deploy the taxonomy of digital labour proposed by Antonio Casilli (2019) – on-demand labour, crowdwork or microwork, and social media labour – as a point of departure for analysis, because I find it useful for reflecting on how labour is being reshaped. Then, I explore these types of digital labour based on the concept of exploitation. My argument is that platform capitalism must be approached through the appropriate conceptual tools and that the twofold logic consists of the articulation of exploitation, in a modern sense, with what, drawing on David Harvey (2004), I call ‘dispossession,’ which implies an expanded conception of nature which I take from the Italian philosopher Paolo Virno.

**Diverse types of digital labour**

Labour in the context of contemporary capitalism, and particularly when organised through platforms, is immensely complex and eludes any type of linearity. Several ways of classifying platforms and labour have emerged in the debate (see, for instance, Ciccarelli, 2018; Heeks, 2017; Schmidt, 2017; Srnicek, 2016).

Here I am going to address some approaches to differentiating digital labour. These proposals, from my perspective, make it possible to analyse the twofold logic that traverses the various forms of digital labour, but that, at the same time, goes beyond it, as I posit in the following paragraphs.

A first distinction that I find very suggestive is that between work(ing) ‘through’ and work(ing) ‘for’ a digital platform (Gandini, 2019), in other words emphasising the relations of force, differentiating between ‘work within’ and ‘work commanded by’ platforms (Míguez, 2020). The first refers to data entry work, as well as the work of computer scientists who analyse data and develop algorithms, and who currently constitute a sort of aristocracy among digital labourers, which I am not going to address here. The latter refers to the work of riders, drivers, mechanical turks, and countless other workers whose tasks are organised, to different degrees, by the algorithms that constitute the heart of platforms.

This perspective has the advantage of connecting the online and offline dimensions, shining light on the fact that labour in platform capitalism
does not only result in immaterial products, nor is it exclusively limited to
tasks arising from internet technologies. As a new business model, platforms assail
and reconfigure entire productive sectors (Srnicek, 2016; Vecchi, 2017). For
example, in a strategic sector such as logistics, on the one hand, algorithms play a
crucial role in managing supply chain business administration software (Grappi,
2016) and, on the other hand, in cases such as Amazon’s mega-warehouses, they
allow for capturing labour performance in real time, monitoring every workers’
every movement.

One taxonomy that I consider useful for developing my reflection is that
proposed by Antonio Casilli, which differentiates between three types: on-demand
digital labour; microwork (and crowdwork); and social media labour. On-demand
digital labour is characterised by co-presence and the articulation of online and
offline dimensions. This means, at one end, contracting a service on a site or app,
which simultaneously functions as a firm and as a two-sided market (Casilli, 2019;
Nicoli & Paltrinieri, 2019), generally charging commissions only on one end. On the
other end, the task has to be carried out at the face-to-face level. Examples of
on-demand digital labour include riders for food delivery apps, such as Foodora,
Deliveroo and Glovo, and drivers for Uber, Lyft, and Didi. These are the most visible
workers of on-demand digital labour. Platforms such as TaskRabbit and Handy also
come into this category, since their services require the offline dimension, that is,
the physical presence of workers.

Crowdwork, on the other hand, consists of carrying out microtasks online that
usually require very low skill levels, such as tagging photos and videos, although some
users with higher skills and/or a good rating can aspire to more complex and better-
paid tasks. Microwork platforms – that also charge a commission and deny their
dimension as an employer – include CloudFactory, MobileWorks, CrowdFlower and
Amazon Mechanical Turk (AMT), for which the CEO of Amazon, Jeff Bezos, has used
the very eloquent designation ‘humans as a service’.

In crowdwork, what Casilli calls the ‘artificial intelligence reserve army’
constitutes a sort of hand-made artificial intelligence or artificial artificial
intelligence (Casilli, 2019; Huws, 2016; Irani, 2015a), in the sense that it manually
carries out tasks that machines are not in a condition to do, but that can be
learned thanks to the opportunity to learn from microworkers. In this sense,
‘crowdwork is a crucial, if seldom discussed component in the development,
training and support of artificial intelligence (AI)’ (Altenried, 2020), and, in fact,
constitutes an important part of the business model of these platforms, which
consists, precisely, in creating an environment that favours machine learning
(Ciccarelli, 2018; Casilli, 2019).

The third type of digital labour that Casilli proposes is social media labour – based
on participation in social media networks such as Facebook or Instagram. This
category alludes to activities that are less systematic than the case of microwork and a
type of labour that is less clear than on-demand labour. In this case, the worker is a
user-producer who is not formally subordinated to platforms, but is subjected to
incitements, which are sometimes symbolic and sometimes economic, to perform
certain actions in a connected social context (Casilli, 2019). The figure of the
‘produser’ (Bruns & Schmidt, 2011) lies at the centre of this scene. This person is not an artisan consumer but rather someone whose ‘contribution is imminently social, that is, founded on the circulation of content between individuals and its evaluation’ (Casilli, 2019: 167). Far from limiting itself to the poetic creative dimension of production, which seems to underlie certain analyses – even when they make explicit reference to a constitutively unfinished process, such as Wikipedia – the produser can be, from this perspective, someone who just shares a link or even merely clicks ‘like’ in the context of what has been called the ‘like economy’ (Gerlitz & Helmond, 2013).

Digital platforms and exploitation

The taxonomy that serves as my point of departure raises the issue of the boundaries of digital labour. Beyond the problems – which of course are urgent – inherent to labour precarisation, I am interested in examining the capital-labour relation in platform capitalism, focusing on the problem of exploitation.

As has been aptly pointed out in the debate, Marxian theories of exploitation are closely linked to the labour theory of value and imply a rigid distinction between productive labour and unproductive labour (Huws, 2014; Mezzadra & Neilson, 2018). Today it becomes complicated to take up these elements verbatim. On the one hand, contemporary capitalism seems to confirm the impossibility of the value measure, as many authors of so-called Post-Autonomist Marxism have emphasised (see, for instance, Fumagalli & Morini, 2010; Marazzi, 2016; Negri, 2017; Vercellone, 2012). On the other hand, the sharp distinction between productive labour and unproductive labour, according to which ‘such labour is productive as directly valorises capital, or produces surplus value, hence is realised, without any equivalent for the worker’ (Marx & Engels, 2010: 443) does not seem to be capable of fully grasping the multiplication of labour and the multiplicity of forms in which value is captured in the context of platform capitalism.

Here I return to the fertile suggestion made by Sandro Mezzadra and Brett Neilson, who propose a ‘notion of exploitation based on analysis of the dramatic difference between subjects’ capacity to produce, the use (or non-use) of that capacity, and the accumulation of wealth beyond those subjects’ control’ (Mezzadra & Neilson, 2018: 101). This allows us to broaden our perspective and think about the exploitation situated in the difference between labour power and labour (Mezzadra, 2018), independently from the contractual form that unites capital and labour as well as the exploitation of a set of actions and interactions that become sources of value for platforms.

Based on a differentiation between labour ‘which is productive for capitalism as a whole [. . .] and labour which is directly productive for individual capitalists’, Ursula Huws (2014: 83) has used a suggestive formula to define ‘labour inside the knot’ that labour

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1 The concept of produser goes beyond the concept of prosumer. While the latter indicates a consumer that produces the information necessary for the introduction and circulation of a product in the market (Toffler, 1990), thanks to the irruption of new media the former denotes ‘no longer simply usage or production, but something else altogether: produsage, or the collaborative and continuous building and extending of existing content in pursuit of further improvement’ (Bruns & Schmidt, 2011: 4).
carried out directly for a capitalist employer by a worker who is dependent on this labour for subsistence and is therefore a front-line adversary in the struggle between capital and labour over how much labour time should be exchanged for how much money. (Huws, 2014: 84)

If we accept that proposal, it is undeniable that in on-demand labour and crowdwork – that Huws would define as ‘labour inside the knot’ – exploitation can be understood in terms of the difference between workers’ concrete labour and the abstraction of labour, and in fact in algorithmic management this is also presented ‘as a normative grid for the assessment and remuneration of human activity’ (Mezzadra & Neilson, 2019: 83). Thus, most of the struggles that emerged in the context of platform capitalism have emphasised the relationship represented in that diagram, demanding better pay or improved working and contractual conditions.

In the case of the on-demand labour of food delivery app workers or drivers, workers organise their tasks (trips and deliveries) in a very autonomous way, whether due to their own knowledge of the city (Rossi, 2019; Tammisto, 2018) or thanks to the use of digital geolocation platforms (such as Waze or GoogleMaps) or through cooperation and exchange of strategic information between workers (Hayns, 2016; Vecchi, 2017), to make their work as profitable as possible. In any case, the platforms (and thus capital) are able to decide – through algorithms – who works (and how much) and who does not, as well as to suspend workers who are formally independent. In this way, capital manages labour power with the goal of extracting surplus value whether by directly organising certain aspects of production or by capturing value from workers’ autonomous labour and cooperation.

Similar observations can be made with regard to microwork. Platforms such as AMT – even when it is presented as an ecosystem in which a requester and a worker find each other – sell packets of what Casilli calls ‘a labour flow that could not be assigned to one single person and for which a machine would only give mediocre results’ (Casilli, 2019: 122). Additionally, as Lilly Irani has indicated, ‘microwork platforms allow for the distribution, collection, and processing of data work at high speeds and large scales. Instead of hiring hundreds of homeworkers for a few weeks, a single person can hire sixty thousand workers for two days’ (Irani, 2015b: 226). In this way, AMT – through its algorithm – not only optimises and measures the sale of something very similar to what Marx calls labour power or labour-capacity, that is ‘the aggregate of those mental and physical capabilities existing in the physical form, the living personality, of a human being, capabilities which he sets in motion whenever he produces a use-value of any kind’ (Marx, 1976: 270), but it also coordinates cooperation: ‘a new productive power, which is intrinsically a collective one’ (Marx, 1976: 443).

With regard to social media labour, the issue is less linear. In the debate that has taken place in relation to digital labour from a broadly Marxian perspective, some important tensions have emerged in recent years. Christian Fuchs (2010), for example, returns to the categories of ‘classical’ Marxian value theory, according to which ‘the value of a good is the total time that is needed for its production’ (Fuchs, 2010: 181) and ‘surplus value is generated by unpaid labor’ (Fuchs, 2010: 183), to argue that in the context of what is called informational capitalism ‘the victims of exploitation of surplus
value’ are not only the employees of companies such as Google and Facebook, but also the ‘users and produsers engaged in the production of user-generated content’ (Fuchs, 2010: 191), whose free labour helps to maximise the rate of exploitation. Even though this reading allows for justifying the demand for a basic income – which I think is crucial in political terms – the weakness of that point of view lies in the application of the labour-time law of value to an environment that, probably more so than any other, clearly shows the crisis of that theory. Additionally, as Adam Arvidsson and Elanor Colleoni (2012) have highlighted, this perspective does not take into account the weight of the financial dimension of ‘informational capitalism’. In fact, as Srnicek (2016) has indicated, the value of platforms is based more on expectations of future earnings, linked to the monopoly position with regard to data extraction, than in real earnings.

Carlo Vercellone, on the contrary, considers prosumers as workers, but stresses that this is a type of work that is inserted into a paradigmatic shift regarding the relation between living labour and dead labour. What is at stake in platforms, according to Vercellone, ‘is not the simple sum of individual surplus values, but rather the product of labour cooperation, that of the collective intelligence of a multitude of prosumers’ (Vercellone, 2020) that produces ‘network value’. From this point of view, any action or interaction that produces value – even when it does so after many mediations – is labour. I think this reading is suggestive, but it misses the specificity of the twofold logic of platform capitalism.

Here I am not going to take into account the problem of payment (or the hope of payment), given that both slave labour and domestic labour – to take two examples of unremunerated labour – have played a central role in the emergence of capitalism and throughout its history (see, for instance, Federici, 2004; Williams, 1944). I am referring to the fact that it is possible to identify – no matter how pleasurable or unconscious – a certain production of use-value, a product of concrete labour, in social media networks. In an important text published in 2000, Tiziana Terranova proposed the hypothesis that free labour is a fundamental element for the creation of value in the digital economy in a twofold sense. On the one hand, ‘the labour of building a community was not compensated by great financial rewards (it was therefore “free”, unpaid)’ (Terranova, 2000: 48), on the other, ‘it was also willingly conceded in exchange (it was therefore “free”, pleasurable, not imposed)’ (Terranova, 2000: 48). The Italian researcher concentrated her analysis on early virtual communities and by ‘labour’ she refers to ‘building web sites, modifying software packages, reading and participating in mailing lists, and building virtual spaces’ (Terranova, 2000: 33). Even if she focuses on never finished processes, such as websites, free labour is still only understood in terms of the production of an object endowed with material existence: concrete labour.

In fact, some of the activities of social media labour can be adapted to the ‘modern’ schematic. We could think about influencers, whose working day is organised by platforms such as Instagram, which, besides paying them, constitute the infrastructure of their work and the measure of their success, which ‘strongly impacts their future employability’ (O’Meara, 2019). The case of researchers who use specific social media networks, such as Academia.edu or ResearchGate, to broaden their networks – something which is not directly related to their scientific labour – to possibly get more citations and increase their impact factor, is not very different. It is also obvious that
other platforms, such as YouTube or the many triple X video platforms, are exclusively based on the quantity of amateur users who upload all types of content. Regardless of whether or not users receive some sort of compensation, recording and editing a video or uploading papers to a platform are the result of what Marx calls 'some specific useful and concrete labour' (Marx, 1976: 152).

Additionally, uploading photos, organising events and reposting a statement by the prime minister or an athlete on social media can be considered to be the production of objects endowed with a material existence.

However, in platform capitalism, the issue is more complicated, insofar as platforms not only extract value from actions that produce use-value, but are also the sites where many other actions or interactions take place that, through a series of mediations, become sources of value. If, as a provisional starting point, we divide users into three categories: those who produce content, those who comment and share, and passive readers, it seems to me that the latter, who make up the large majority,² constantly escape the definition of concrete labour.

While the border between active user and passive user is extremely labile, it cannot be denied that there are interactions that are captured by platforms that produce value only to the extent to which they enter into the data flow analysed by algorithms and are transformed into metadata: ‘information about information (like Google’s PageRank algorithm, financial algorithms and academic software indexing publications)’ (Pasquinelli, 2015: 62).

Then, returning to Huws’ (2014) differentiation, my hypothesis could be formulated in the following terms: in the framework of platform capitalism, exploitation takes place both in labour ‘inside the knot’, in which capital and labour directly confront one another, as well as in what we could call, drawing on Terranova (2000), free labour. However, I think that in order to understand the twofold logic of platform capitalism in all its depth, we must go beyond only thinking about exploitation.

The twofold logic of capital
In this section, I am going to present my thesis and the arguments behind it. Drawing on Harvey’s (2004) work, I think that the specificity of the twofold logic of platform capitalism could be formulated in terms of the coeval presence of exploitation and dispossession.

It seems to me that there is one element that runs across all uses of any type of digital platform. That is, all activities generate data that are appropriated and transformed into metadata. Here we can think about on-demand work apps, the labour tasks involved in the generation of data by workers, which exceeds their effective and paid working time, including waiting time and offline time. With the goal of improving its product, Uber

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² Referring to an investigation from more than a decade ago (Ochoa & Duval, 2008), Casilli (2019) speaks of a 1–9–90% division. Regardless of whether this composition has been modified in recent years, it does not change the terms of the question. A similar tripartite division is proposed by Nick Dyer-Witheford, who writes ‘Web 2.0 capital was characterised by platforms mobilising unpaid “user-generated content”, whether as the passively provided raw material processed by search-engine crawlers or as active contributions to various forms of social media’ (Dyer-Witheford, 2015: 91).
captures data about each worker's performance, for example, collecting information about drivers' behaviours, even when they don't have passengers (Casilli, 2019; Srnicek, 2016). Additionally, Uber drivers 'provide information related to their age, gender, date of birth, address, bank account, phone number and approval for the tracking of the phone's geographical position' (Jamil, 2020: 245). On the other hand, passengers themselves, who contract a paid service, also generate data that is appropriated by platforms. In this way, 'all potential users are obliged to be watched – visible to the application's algorithmic eye – even prior to their full affiliation to the company's network of users (riders or drivers)' (Jamil, 2020: 245). The same could be said of the riders and clients of food delivery apps: they are all targets for data extraction.

In the case of crowdwork, perhaps this dynamic is not so obvious, as workers are paid to carry out microtasks that are openly oriented toward the production and manipulation of data. However, as I discussed above, data capture for machine learning is a key element of the field, well beyond paid microtasks. In this sense, as Roberto Ciccarelli has affirmed 'the labour force has acquired a new function: training algorithms' (Ciccarelli, 2018: 27). However, this capture goes beyond crowdwork and, as Pasquinelli (2009; see also Marazzi, 2016) has noted, algorithms, such as Google PageRank, feed off the collective knowledge that they extract from millions of searches that are carried out in the search engine daily. Using social media and, more generally, surfing the internet requires a large number of actions by users that involve data generation or constitute training for algorithms. These are sometimes mandatory, such as the CAPTCHA text, without which we could not access certain services.

In social media labour, this dispossessive dimension is taken even closer to its limit, insofar as merely existing on the network, for example, being tagged in photos posted by other people (Pasquinelli & Joler, 2020), or simply entering personal data to sign up for a page, generates data that is appropriated by platforms. Reflecting on the case of Facebook, Carolin Gerlitz and Anne Helmond have clearly shown that:

*This medium-specific infrastructure further creates an environment that does not require active participation in the Like economy through clicking on social buttons or commenting. The underlying data mining processes foster participation by default, tracking users' browsing behaviour, storing Like button impressions or instantly sharing app engagement to the ticker.* (Gerlitz & Helmond, 2013: 1361)

Additionally, as Shoshana Zuboff (2018) has argued very effectively in *The Age of Surveillance Capitalism*, the accumulation of data goes much further than online activities and platforms. Focusing on the Google ecosystem, she shows that they also constitute an apparatus of data capture that even ignores national privacy rights. Frank Pasquale (2015), reflecting on the context of the United States, has also shown how private companies commit the most infractions of privacy violations, forming what he has called 'the Other Big Brother'.

Returning to Srnicek's work, I am interested in the metaphor of extraction, according to which 'we should consider data to be the raw material that must be extracted, and the activities of users to be the natural source of this raw material' (Srnicek, 2016: 40). Building on the Marxian definition of 'raw material', that is 'the object of labour [. . .] filtered through previous labour' (Marx, 1976: 284), Srnicek
suggests that ‘just like oil, data are a material to be extracted, refined, and used in a variety of ways’ (Srnicek, 2016: 40). This analysis seems to be confirmed by a reading such as that of specialist Pete Warden (2011) who, in his Big Data Glossary, indicates that 80% of big data work consists of data cleaning.

One of the main critiques that has been levelled against the ‘extractivist’ perspective argues that data – that is, a flow continually generated by users – cannot be compared to natural resources, that are a stock (Vercellone, 2020). I maintain that the definition of an ‘expanded concept of extractivism’ (Gago & Mezzadra, 2017; see also Mezzadra & Neilson, 2019) can help us move beyond this impasse, insofar as the extractive dimension that characterises the operations of capital, in a financial, digital, or territorial sense – in the framework of which there is an articulation between different forms of concrete labour subject to abstract labour – makes it impossible to differentiate clearly between the different operations.

The rereading of the Kantian concept of ‘rude nature’ proposed by Paolo Virno (2011) can offer us a different perspective for approaching this question, proposing a conception of nature that is also expanded, which is the object of dispossession. If by ‘rude nature’, Kant (2000) refers to spaces that do not have a defined form, such as desert sand, a cloudy sky or a glacier, Virno stretches his definition and argues that, far from being exclusively attributable to an area set apart from sensible reality, ‘rude nature’ indicates ‘nature's general way of manifesting [where] what is at stake is not a number of particular objects (the ocean, the desert, etc.), but rather the potential appearance of any object’ (Virno, 2011: 58). In this way, nature is not something that is given once and for all, but rather open to history, and contains more than what can be found between heaven and earth (Virno, 2011).

David Harvey proposes the concept of accumulation by dispossession to refer to ‘the continuous role and persistence of the predatory practices’ (Harvey, 2004: 74). For Harvey, practices of dispossession are not limited to

> The escalating depletion of the global environmental commons (land, air, water) and proliferating habitat degradations that preclude anything but capital-intensive modes of agricultural production have likewise resulted from the wholesale commodification of nature in all its forms. The commodification of cultural forms, histories and intellectual creativity entails wholesale dispossessions – the music industry is notorious for the appropriation and exploitation of grassroots culture and creativity. (Harvey, 2004: 75)

From my point of view, data stored by platforms and with which they work (and will continue to work, since we cannot see the future reach of data accumulated now and what ‘new raw materials’ could be found there) and the algorithms that produce ‘information about information’ can be understood through Virno’s expanded concept of rude nature: a nature that is enclosed and appropriated by platforms.

This points to the second dimension of the operating logic of platforms which appropriate a part of rude nature – that they can store thanks to technological advances – to process it and harvest raw material from it. But at the same time, this rude nature constitutes a terrain where new forms of exploitation are created and old ones reconfigured and where new possibilities of liberation and conflict open up.
Conclusion
I am going to conclude with some political considerations that follow from my thesis about the twofold logic of platform capitalism.

In the context of contemporary capitalism, some of the boundaries that characterised capitalist modernity have become blurred, and the economic, political, social and cultural terrains overlap (see, for instance, Hardt & Negri, 2004). Therefore, it is not useful to apply conceptual tools developed to analyse modern industrial capitalism to a capitalist horizon that has mutated because they are not capable of fully accounting for reality. On the other hand, I think that it would be a political and conceptual error to simplify contemporary capitalism’s logic of operation as if it were monolithic, as if something like ‘capitalism’ existed, rather than a set of coexisting and overlapping historical capitalisms.

In the case of platform capitalism, a clear need emerges to elaborate new conceptual tools that are adequate for the present conditions. I agree with Harvey, who suggests, from his theoretical-activist perspective, that faced with the twofold logic of capitalism ‘we ought to be prepared to envision an organic relation between the two forms of resistance’ (Harvey, 2010: 313), in other words that which confronts exploitation and that which confronts dispossession.

On the other hand, struggles are taking place on platforms, above all by the workers in inside the knot labour. In the case of on-demand digital labour workers, these struggles are being multiplied during the COVID-19 pandemic, in the context of which some digital workers, such as riders, take on an enormous importance.

On the other hand, the data from which we are dispossessed constitute a collective wealth that we could conceptualise as rude nature. If, as Pasquinelli states, ‘Metadata represent the shift to a different and higher dimensional scale in relation to information: they disclose the collective and “political” nature that is intrinsic to all information’ (Pasquinelli, 2015: 62), the struggle for democratic management of data therefore must be understood as a politics from below in the fullest sense, that is as ‘the struggle of men – I would add women and all the subjective figures of sexual dissidence – for the institutions that should regulate their coexistence’ (Negri, 2015: 141).

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3 In his analysis of capitalism in the internet era, Guglielmo Carchedi (2014) argues that instead of discarding Marxian concepts, such as the theory of value or the difference between productive and unproductive labour, we should apply them. Although I agree that the Marxian toolbox is fundamental, I think it needs to be updated.
REFERENCES

Altenried, M. (2020). ‘The platform as factory: Crowdwork and the hidden labour behind artificial intelligence’, Capital & Class, 44 (2):145–158.

Arvidsson, A. & E. Colleoni (2012). ‘Value in informational capitalism and on the internet’, The Information Society: An International Journal, 28 (3):135–150.

Bruns, A. & J.H. Schmidt (2011). ‘Produsage: a closer look at continuing developments’, New Review of Hypermedia and Multimedia, 17 (1):3–7.

Carchedi, G. (2014). ‘Old wine, new bottles and the internet’, Work Organisation, Labour and Globalisation, 8 (1):69–87.

Casilli, A. (2019). En attendant les robots. Enquête sur le travail du clic, Paris: Seuil.

Ciccarelli, R. (2018). Forza lavoro. Il lato oscuro della rivoluzione digitale, Roma: DeriveApprodi.

Dyer-Whiteford, N. (2015). Cyber-proletariat: Global labour in the digital vortex, London: Pluto Press.

Fuchs, C. (2010). ‘Labor in informational capitalism and on the internet’, The Information Society: An International Journal, 26 (3):179–196.

Gago, V. & S. Mezzadra (2017). ‘A critique of the extractive operations of capital: Toward an expanded concept of extractivism’, Rethinking Marxism. A Journal of Economics, Culture & Society, 29 (4):574–591.

Gandini, A. (2019). ‘Labour process theory and the gig economy’, Human Relations, 72 (6):1039–1056.

Gerlitz, C. & A. Helmond (2013). ‘The like economy: Social buttons and the data intensive web’, New Media & Society, 15 (8):1348–1365.

Grappi, G. (2016). Logistica, Roma: Ediesse.

Hardt, M. & A. Negri (2004). Multitude: War and democracy in the age of empire, New York: Penguin Press.

Harvey, D. (2004). ‘The “New” imperialism: Accumulation by dispossession’, Socialist Register, 40:63–87.

Harvey, D. (2010). A companion to Marx’s Capital, London/New York: Verso.

Hayns, J. (2016). ‘A sharing economy strike’, Jacobin Magazine. Accessed 7 June 2020. https://www.jacobinmag.com/2016/08/deliveroo-strike-sharing-economy-living-wage.

Heeks, R. (2017). ‘Decent work and the digital gig economy: A developing country perspective on employment impacts and standards in online outsourcing, crowdwork’. Accessed 25 May 2020. hummedia.manchester.ac.uk/institutes/gdi/publications/workingpapers/di/di_wp71.pdf.

Huws, U. (2014). ‘The underpinning of class in the digital age: Living, labour and value’, Socialist Register, 50:80–107.

Huws, U. (2016). ‘Logged in’, Jacobin Magazine. Accessed 9 May 2020. https://www.jacobinmag.com/2016/01/huws-sharing-economy-crowdsourcing-precarity-uber-workers/

Irani, L. (2015a). The cultural work of microwork, New Media and Society, 17 (5):720–739.

Irani, L. (2015b). ‘Difference and dependence among digital workers: The case of Amazon Mechanical Turk’, South Atlantic Quarterly, 114 (1):225–234.

Jamil, R. (2020). ‘Uber and the making of Algopicon – Insights from the daily life of Montreal drivers’, Capital & Class, 44 (2):241–260.

Kant, I. (2000). Critique of the power of judgment, Cambridge: Cambridge University Press.

Loffler, M. & A. Tschiesner (2013) ‘The Internet of Things and the future of manufacturing’, McKinsey Digital. Accessed 2 May 2020. https://www.mckinsey.com/business-functions/mckinsey-digital/our-insights/the-internet-of-things-and-the-future-of-manufacturing.

Marazzi, C. (2016). Che cos’è il plusvalore?, Bellinzona: Casagrande.

Marx, K. (1976). Capital: A critique of political economy, Vol 1, London: Penguin.

Marx, K. & F. Engels (2010). Collected works, 34, London: Lawrence & Wishart.

Mezzadra, S. (2018). In the Marxian Workshops: Producing Subjects, London/New York: Rowman & Littlefield.
Mezzadra, S. & B. Neilson (2018). ‘Entre extraction et exploitation: des mutations en cours dans l’organisation de la coopération sociale’, *Actuel Marx*, 63 (1):97–113.

Mezzadra, S. & B. Neilson (2019). *The politics of operations: Excavating contemporary capitalism*, Durham, NC: Duke University Press.

Míguez, P. (2020). *Trabajo y valor en el capitalismo contemporáneo*, Los Polvorines: UNGS Press.

Negri, A. (2017). *Marx and Foucault. Essays*, London: Polity Press.

Negri, A. (2015). *Storia di un comunista*, Milano: Ponte alle Grazie.

Nicoli, M. & L. Paltrinieri (2019). ‘Platform cooperativism: Some notes on the becoming «common» of the firm’, *South Atlantic Quarterly*, 118 (4):801–819.

Ochoa, X. & E. Duvel (2008). ‘Relevance ranking metrics for learning objects’, *IEEE Transactions on Learning Technologies*, 1 (1):34–48.

Organization for Economic Co-operation and Development (2017) *OECD digital economy outlook 2017*. Accessed 3 June 2020. https://www.oecd.org/internet/oecd-digital-economy-outlook-2017-9789264276284-en.htm

O’Meara, V. (2019). ‘The threat the bot brings. Instagram, influencers, and engagement automation’, *Notes From Below*, 8. Accessed 19 April 2020. https://notesfrombelow.org/article/threat-bot-brings

Pasquale, F. (2015). ‘The other big brother’, *The Atlantic*. Accessed 2 June 2020. https://www.theatlantic.com/business/archive/2015/09/corporate-surveillance-activists/406201/

Pasquinelli, M. (2009). ‘Google’s pagerank algorithm: A diagram of the cognitive capitalism and the rentier of the commun intellect’ in K. Becker & F. Stalder (eds) *Deep search: The politics of search beyond Google*, London: Transacción Publishers:152–162.

Pasquinelli, M. (2015). ‘Italian Operaismo and the information machine’, *Theory, Culture & Society*, 32(3):49–68.

Pasquinelli, M. & V. Joler (2020). ‘The nooscope manifested: Artificial intelligence as instrument of knowledge extractivism’ *AI and Society. Journal of Knowledge, Culture and Communication*, forthcoming.

Rossi, U. (2019). ‘The common-seekers: Capturing and reclaiming value in the platform metropolis’, *Environment and Planning C: Politics and Space*, 37 (8):1418–1433.

Schmidt, F. (2017). *Digital labour markets in the platform economy. Mapping the political challenges of crowd work and gig work*. Accessed 26 May 2020. https://library.fes.de/pdf-files/wiso/13164.pdf

Srnicek, N. (2016). *Platform capitalism*, London: Polity Press.

Tammisto, T. (2018). ‘When Mr. robot is your boss: Working under algorithms’, *Notes From Below*, 5. Accessed 17 May 2020. https://notesfrombelow.org/article/when-mr-robot-is-your-boss.

Terranova, T. (2000). ‘Free labor. Producing culture for the digital economy’, *Social Text*, 18 (2):33–58.

Toffler, A. (1990). *Powershift: Knowledge, wealth and violence at the edge of the 21st century*, New York: Bantam.

Vecchi, B. (2017). *Il capitalismo delle piattaforme*, Roma: Manifestolibri.

Vercellone, C. (2012). ‘La legge del valore nel passaggio dal capitalismo industriale al nuovo capitalismo’. Accessed 29 May 2020. http://www.uninomade.org/vercellone-legge-valore/

Vercellone, C. (2020). ‘Les plateformes de la gratuité marchande et la controverse autour du Free Digital Labor: une nouvelle forme d’exploitation?’, *Information et Communication*, 2, *Revue ouverte d’ingéniérie des systèmes d’information*, 2 (1). Accessed 4 May 2020. https://www.openscience.fr/Les-plateformes-de-la-gratuite-marchande-et-la-controverse-autour-du-Free

Virno, P. (2011). *Convenzione e materialismo*, Roma: DeriveApprodi.

Warden, P. (2011). *Big data glossary*, Sebastopol, CA: O’Reilly.

Williams, E. (1944). *Capitalism and slavery*, Chapel Hill, NC: North Carolina University Press.

World Economic Forum (2016). The future of jobs. Employment, skills and workforce strategy for the Fourth Industrial Revolution. Accessed 23 April 2020. http://www3.weforum.org/docs/WEF_Future_of_Jobs.pdf

Zuboff, S. (2018). *The age of surveillance capitalism. The Fight for a human future at the new frontier of power*, New York: Public Affairs.