Industrial platform capitalism
Outsourcings, syntheses and resistances

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ABSTRACT
Countering the theses of 'post-industrial society', in this article we develop the argument that platform capitalism synthesises the radicalisation and the spread of the logic of industrial production. In our analysis of platform capitalism and the mechanisms of outsourcing, we argue that online platforms provide empirical evidence of the development of the industrial logic of the production of goods (whether products or services, material and/or immaterial, tangible or intangible). They are the tip of the iceberg of an entire productive structure reconfigured by information technologies and neoliberal policies that are shaping an *industrial platform capitalism*. This process is ongoing, and we observe its tendency to spread the platformisation of work and its forms of exploitation, of labour relations devoid of rights. However, as in every other moment in the history of capitalism, this exploitation meets resistance from workers' struggles, which exposes perverse facets of platform work.

KEY WORDS
industrial platform capitalism, outsourcing, resistance, platform work, union action

Introduction

The dawn of the post-industrial society (Bell, 1973), driven by the development of Information and Communications Technologies (ICTs), in which creative work and autonomy were predicted to be the rule, is not coming into being as fast as its apologists would hope. The post-industrial diagnosis, besides being a utopian argument, is often used as a political and ideological instrument that persuades workers to break with formal labour and managerial ties that deepen the exploitation and domination of the working classes. In this process, imposed self-taylorisation of labour is an additional mechanism of accountability that intensifies the real subsumption of labour to capital.

In opposition to these theses which, by mistake or by design, have upheld and portrayed a non-industrial capitalist society, we argue in this article that 'platform capitalism'[1] consists in a radicalisation of the logic of industrial production. In other words, in contrast to the theses of post-industrial capitalism, we argue that digital platforms are the tip of an iceberg, pointing to a new phase in the development of capitalism. This is, however, a new phase that is the result of a long and historical process of *outsourcings* (by which we mean the reduction of productive and managerial costs by the insertion of new productive forces), which demonstrates that the necessary reproduction of the industrial form of production is one that is typical of capitalist production. The industrial form, in this sense, remains the central element of capitalist production, but has assumed a new shape in recent decades.[2] This new conformation maintains the pillar of industrial structuring. We therefore argue that 'platform capitalism' could be designated, more precisely, and with more rigour, as '*industrial platform capitalism*'.

Before developing this argument, it is necessary to consider two caveats regarding the notion of industry. First, in the expression 'post-industrial society', most of the time 'industrial' is understood as a synonym of 'factory', that is, a type of productive combination, among many possible alternatives, of the industrial form of production. The processes of automation of production and the reduction in the number of factory jobs have led many authors to assume that this form of productive labour, along with the working class and class antagonism,[3] have been left behind. A second consideration, related to the notion of industry, albeit less problematic, is the fundamental economic division of economies into 'primary', 'secondary' and 'tertiary' sectors, or agriculture, industry and services, respectively. This division remains partial and restrictive as it postulates that the industrial form of production would be just that of factories in the strict sense, and that agriculture and cattle breeding, as well as services, could not be

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1   Term coined in 2017 by Nick Srnicek.

2   According to Marx (1988: Section 4), cooperation is viewed as a new productive force that, to the naked eye, appears only as a combined workday. However, it is under cooperation that the specifically capitalist social division of labour is organised, namely the split workday, thus forming the figure of the collective worker. What is new is not only the sum of individual works, but the production of social labour, in which exploitation is carried out on the combined group of workers by the command of the capitalist. Unpaid labour is thus materialised as social labour.

3   For further discussion, see Santos (2013).

organised based on industrial production. The partiality of this statement can be challenged by observing, for example, how Marx refers to the first forms of capitalist industry present in the countryside in the chapter of *Capital* chapter entitled 'So-called primitive accumulation' (1988).

In this article, we follow Marx in understanding the industrial form as he described it in *Capital*, as a concept that '… embraces the entire branch of production conducted in a capitalist manner' (Marx, 1988:39). Based on this conceptual determination by Marx, we can depart from the assumption that industry is limited to the factory, or to the production of tangible goods. Industry is not restricted to a specific sector of society; in practice, industry is a way of producing, or even the characteristic way of producing, in capitalist societies.

Based on this conception and aiming at developing the idea that 'platform capitalism' is in fact '*industrial* platform capitalism', the rest of this article is organised as follows. First, we analyse how, since the 1960s and 1970s, capital has conducted an intense and comprehensive process of outsourcing, productive deconcentration and flexibilisation followed by the current digital work platforms. Then, we discuss the outsourcing of productive processes, a characteristic of digital platforms, conceived in this text as a synthesis of the industrial form and one of the central contemporary ways of extracting overwork. This discussion is important because of its empirical expression, as we observe the current spread of digital work platforms in progress (Cardoso & Garcia, 2021). Third, we briefly describe the resistances and political responses to platform work that workers have taken, showing that discussions about the obsolescence of the union format and its alleged incapacity to respond to these modalities of work do not correspond to the empirical reality, even though in many cases union action is still incipient. The conditions of work, the ways companies manage them, the conflicts and the workers' own experience create the conditions for collective action, which lead to the creation of new unions, as well as other means of organisation with a strong appeal to class solidarity. Finally, we draw some conclusions.

Our aim is therefore to demonstrate that digital platforms reproduce all the bases/elements of capitalist production. This implies three other points: first, that digital platforms, or more broadly, current capitalism, is an *industrial* capitalism; second, that this radicalisation is configured through the deepening of the outsourcing of productive and managerial[4] costs, especially with regard to labour power; and finally, that industry is the quintessential form of capitalist production.

The outsourcing process and the reproduction of the industrial form

The regime of flexible accumulation (Harvey, 1992) is based on a process of productive deconcentration, production flexibilisation, unemployment and the narrative of worker participation and responsibility in dialogue with neoliberal ideology (Coriat, 1993). In

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4   In the form of self-taylorisation of work, as can be observed in automobile manufacturers from the 1960s/1970s; in the Lean Production model within Toyotism and which, in the 2000s, was absorbed into software production in the form of 'Lean Digital' within the Agile System (Amorim & Grazia, 2021).

this regime, 'flexibilisation' is presented in many dimensions: internally within companies (regarding hiring practices, wages and working hours), as well as in the relationship among companies, in an intense process of outsourcing that takes place both inside countries and globally (Tomasina, 2012).

The internal form of productive flexibilisation can be named 'heteroflexibilisation' (Cardoso, 2022), given that it is guided only by the desires of capital to adapt the use of labour power to its needs at the exact moment they arise, remunerating only the periods in which this labour power is used. However, in the neoliberal discourse, such heteroflexibility appears to be synonymous with freedom and autonomy. Fewer rights, less bureaucracy, less control, limits to union action and greater collaboration between capital and labour are presumed to result in more employment and a better work–life balance (ETUI, 2017).

As neoliberal policies open this possibility up for capital, the reality of this supposed flexibility for workers means a loss of rights, safety and health (Antunes & Praun, 2015), and also the loss of their ability to plan and control their future working and non-working time (Cardoso, 2009), in a context of work intensification (Dal Rosso, 2008) and pressure to meet 'just in time' deadlines, economic crises and unemployment.

This situation is aggravated because such conditions also occur in the context of the process of global outsourcing, which is also hetero-determined by the large companies that carry out the subcontracting. According to Chan, Pun and Selden (2019), such outsourcing processes started as early as the 1950s and 1960s in the context of the Cold War, when the USA and Japan relocated electronics firms to countries such as Taiwan, South Korea, Singapore and Hong Kong. In the following decade, this distribution of labour for large companies reached other countries such as Thailand, India and the Philippines. At this time, according to the authors, in these countries, marked by a very strong agricultural sector, labour laws and unions were almost non-existent.

The outsourcing process gained wider scope and greater intensity in the 1980s (Bono & Bulloni, 2021), which was made possible by new transportation and information and communication technologies, in a context of growing international capital flows under neoliberal policies. In the following decade, in the midst of the digitalisation process of the economy, the outsourcing movement deepened even further (Ironzo & Leite, 2006). The production territory expanded, breaking spatial and temporal boundaries, allowing an increasing distance between the sites of production and where decisions were made (Chesnais, 2013). This change, in turn, did not mean a transformation in the logic of industrial capitalist production, but rather its deepening, radicalisation and extension to new industries, countries and regions.

As the industries kept control and centralised power in a vertical relationship with the subcontracting companies,[5] the outsourcing process imposed on these companies a

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5   In Brazil, the concept of externalisation (outsourcing) is used to refer to the bigger movement carried out by the logic of industrial production; and the term 'subcontracting' to refer to the specific action of a company that outsources functions and starts to contract them through a third-party company. Externalisation (outsourcing) is therefore the term used in this article for the central form of reducing productive and managerial costs, especially those related to the workforce.

requirement that they adapt to the demands of the contractors regarding the quality and quantity of goods produced, with deadlines becoming ever shorter and less predictable, always with a view to reducing costs. In this context, the contracting companies were able to increase their profit margins despite continually reducing the work actually performed in their dependencies (Chan, Pun & Selden, 2019).[6]

Thus, the development of global supply chains has created extremely precarious working conditions marked by long working hours, low and insecure pay, intense work, few and feeble rights and many limitations regarding workers' organisation, union representation and collective bargaining. Moreover, in many cases, the jobs that are subcontracted to other countries pose greater risks to both workers and the environment (Blanton & Peksen, 2017). Such conditions have been regarded as a cause of environmental and labour accidents, psychosocial risks at work (Moreno-Jiménez y & Garrosa Hernández, 2009; Antunes & Praun, 2015) and suicides (Chan, Pun & Selden, 2019). In addition to contracting companies seeking to 'hide' these terrible working conditions and their consequent environmental, social and labour accidents in other countries, they have been able to avoid facing mobilisation and revolt by the workers, because it is the subcontracting companies that are held responsible in these situations.

Therefore, the most important change made by the capitalist mode of production has been the separation of the times and spaces of paid work and the times and spaces of non-work, concentrating work in factories (Thompson, 1967). In other words, the combination of technologies, globalisation and neoliberal policies has enabled capitalism to re-decentralise and disperse both production and labour power. By joining this trend with that of internal flexibilisation (new forms of hiring, working hours and wages) a rapprochement can also be observed between the times and spaces of work and non-work (Freyssenet, 1994; Zarifian, 1996) characterised by the invasion of work into non-work times and spaces (Cardoso, 2009).

This internal heteroflexibilisation has been achieved at the global level by means of pressures and actions of capital and changes in legislation. In Brazil, besides subcontracting, there is part-time, fixed-term, temporary and intermittent work, the atypical figure of the pseudo-self-employed worker, false micro-entrepreneurship, telecommuting and work on digital platforms. This situation has even led to the overturning of traditionally won rights such as the concept of 'effective work' which, as pointed out by Maeda (2019) was defined in the Consolidation of Labour Laws (Brazilian CLT), in its Section 4, as 'the period in which the employee is *at the disposal of the employer, waiting for or carrying out orders …*' (emphasis added).

It is by such means that capital, especially from the 2020s onwards, further expanded the process of outsourcing and cost-cutting, based on the platformisation of work and the total removal of labour rights. It is important to emphasise that, just as in other historical moments, it would have been possible to constitute a process of

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6   To show this movement, the authors used the example of Apple. If, on the one hand, this company saw its operating margin increase from 18.7% in 2007 to almost 40% five years later, on the other hand, in this same period, the outsourced company Foxconn, which supplies most of Apple's production, saw its operating margin decrease from 3.7% to 1.5%. (Chan, Pun & Selden, 2019).

technological innovation – in this case, that of digital platformisation – that would not have meant the removal of rights. This is because it is not technology that defines working conditions, but rather the correlation of forces among social classes that, in the context of neoliberal capitalism, hinders, but does not completely avoid, workers' political action and reaction.

Taking account of this lack of inevitability, we might ask ourselves whether the development of so-called 'platform capitalism' (Srnicek, 2017) really constitutes an important step in the development of a post-industrial society or, conversely, if it could more accurately be considered to be one more step – a higher and deeper step – in the outsourcing process, with the current digital platforms representing the tip of the iceberg of this long process, and, consequently, the empirical proof of the further development of the industrial logic of production.

Digital platforms as a contemporary synthesis of the industrial form

The outsourcing of production processes constitutes a fragmentary and pre-existing form of digital platforms. Based on these earlier forms of outsourcing, digital platforms were able to constitute themselves as contemporary forms of the extraction of overwork that inaugurated a new phase of capitalist industrial development, even if this is currently only evident as a tendency. Platform capitalism could be seen as a radicalisation of the logic of industrial production. Unlike in a putative post-industrial society, platform capitalism and outsourcing mechanisms provide empirical evidence of the development of industrial logic. This statement derives from the fact that industrial form is the central element of capitalist production, which has taken it to a new conformation in the last decades.

This indicates that there is still need for a continuation of the long debate[7] about the relation between the productive forces and the relations of production.[8] This relationship, so important to Marx (1988) in the construction of many of his arguments, forms an essential ingredient of his description of the development of the form of capitalist production from cooperation to big industry, re-emerges when we face what we call here 'industrial platform capitalism'.

According to Marx (in the fourth section of *Capital*), with capitalist cooperation, a particular historical form of organising labour emerged which also formed the basis for

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7   Authors from the Marxist-Maoist tradition (Bettelheim, 1976; Magaline, 1977; Linhart, 1983) are radically averse to the theses of technological determinism which caused theoretical and social harm in the twentieth century, either through Stalinist stages (capitalism-socialism-communism), based on an almost Saint-Simonian understanding of the progress of technique and industry as a means of overcoming capitalism, or within the debate on the forms of political organisation and revolutionary 'consciousness', interpreted in accordance with the primacy of the productive forces.

8   The relation of productive forces to the relations of production is the background for the demonstration of our arguments, except for the cases when we see this relationship being mistakenly recovered by the theses of digital workerism (Englert, Woodcock & Cant, 2020). It is more properly demonstrated when we show the basis on which the new nucleus of subordination of the working class is constituted, developed in a long process of technological, managerial and scientific maturation, that creates the basis for the structural materialisation of digital platforms as the current, but not final (Gramsci, 2001), form of industrial production.

any and every capitalist form of production. This form, partially initiated in manufacturing, for the first time removes the workers' understanding of production as a whole, creating, in effect, a form of production that was already industrial, but not yet typically capitalist. This form of production, typically capitalist (still according to Marx) precisely at the moment that a typically capitalist productive force was introduced – that is, first individual machines and then integrated sets of machines. That this is typical of capitalism is not just a superficial assertion by Marx. Rather, he emphasises that from then on, the objective of production, now typically capitalist, is to expel as much necessary labour time as possible in order to expand surplus labour. Therefore, from then on, with capital having set this objective, all its social forces are obstinately oriented towards the externalisation of labour time, thereby devaluing the collective labour force. This is achieved by Taylorism with the taskification of work, by Fordism with standardisation (in addition to building a new collective worker profile), and by Toyotism through the use of productive and managerial accountability processes, all of which clearly have the effect of externalising labour, and therefore outsourcing it.

Digital platforms characteristically reproduce this same objective and deepen it. The process of outsourcing then takes place based on the introduction of a new productive force in this context: the digital platform. The implications of this are that in recent decades, new forms of exploitation and domination of capital over labour and new relations of production have been generated, as we indicated in the first part of this article, but, because this has been taking place in a diffuse way, it has not yet developed the full characteristics of a new productive force on which a new stage of industrialism might be based. In other words, these productive forces, in some way, have still been unable to express the desires and interests of capital in a 'complete' way, even though capital continues to search incessantly for a new productive force that can express a new and deeper degree of extraction of excess labour time in its production processes. This search has been immersed, not accidentally, in the historical framework of the processes of financialisation, driven by neoliberalism (Chesnais, 2013), which is configured as the 'laboratory' for the constitution of industrial platform capitalism.[9] It is a capitalism that, despite some changes in labour relations, state policies and forms of organisation of the working class, remains based on the pillars of industrial production, as we hope to show.

This is the basis on which we question how production is constituted in contemporary societies, looking in particular at ICTs as structuring elements in the production of goods, either directly, (as goods to be produced) or in auxiliary functions (as instruments to produce goods of various kinds, tangible or intangible). Some key questions include: Is industry at the beginning of the twenty-first century the same as it was in the nineteenth and twentieth centuries? Do workers have the same technical and scientific qualifications? Does the work performed have the same characteristics? Do the current struggles and forms of political resistance have any resemblance to those of previous centuries?

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9   These processes of elaboration of new relations of production that materialise in intermediate productive forces regarding digital platforms that are still intermediate could, therefore, be thought of as the antechamber, the material base, that allows them to emerge.

The answers to these questions demand a detailed analysis of what Mazzucchelli (1985), following Marx (1988) calls the 'contradiction in process'. If we were to consider only the apparent difference among professional qualifications, the content of the work performed, the working-class way of life, and the political organisations that are created in this context marked by ICTs and neoliberalism, the answer to these questions would be negative. A merely superficial observation, therefore, would lead us to hastily conclude that subordinate production through digital platforms would bear no resemblance to the production of previous centuries,[10] when in fact digital platforms deepen the industrial form of production.

This necessary appearance that coats the surface of the current industrial form can be explained in various ways, perhaps most importantly on the common assumption, anchored in the fetish of technology, that it constitutes a form of liberation of workers from the bonds of capitalist submission, domination and command of various orders (Standing, 2016; Gorz, 2005), in other words it frees workers from the authority of bosses, supervisors, foremen or managers.[11] In other words, there was a belief that technological development would promote labour relations marked by greater participation and engagement of workers in productive processes and that it would enable a decrease in direct supervision over work collectives.

Transferring to technologies and managerial tools the subordination of workers, giving it a veneer of autonomy, is not something new. There are several possible references to this type of production and managerial strategy. From the introduction of machinery and the Luddite revolts (Engels, 2010), to 'being a team player', markedly present in the Toyotist forms of labour management, from contemporary entrepreneurship (Amorim, Moda & Mevis, 2021; Amorim, Pelegrini, Guilherme & Moda, 2021), to the different forms of digital mediation that aim to control work collectives with the intention of depersonalising management, especially in companies that promote platformised work. These are historically determined forms that sought and seek to mystify the confrontation between capital and labour within production (i.e. the class struggle within productive processes). Nevertheless, both in older and more recent versions, the industrial form is reproduced.

Amorim and Moda (2020), observed this process when they analysed the work of Uber drivers, noting that in using the application (app) in combination with algorithmic management practices (Möhlmann & Zalmanson, 2017), the digital platform reproduces the structure of industry, but deepens the real subsumption of labour to capital. This is achieved through a process whereby the platform dictates the entire work process (goals, times and movements) in real time through the app, closely

10   See, for example, Gorz (2005); Hardt & Negri (2005); Castells, (1999); Lazzarato (1993); and Moulier-Boutang (2011). More recently, several authors have conceptualised platform work as one that would promote post-capitalist forms of work. See, among others: Dowbor, 2020; Standing, 2016; Sundararajan, 2018.

11   There is a relative transfer of command to the productive forces and managerial methodologies that obscures the contradictions and conflicts of interest between workers and capitalists. This is not a new strategy, and the ICTs allow (in the relation of coercion/consensus) the transfer of responsibilities to workers, based on self-taylorisation or self-management (Amorim & Grazia, 2021).

monitoring the execution of all the previously prescribed work, and punishing, also in real time, any deviations from the norms and rules determined by the company.[12]

Thus, the digital platform, while constituting an immense productive force whose tools of subordination extend and diversify its reach, does not break from the types of industry, work and forms of management of past centuries. Indeed, we can observe that they are still present and operating in a way that structures the processes of production in three distinct ways.

> *1) the separation between producers and means of production, which gives dominion and power to the capitalist over what to produce and how to produce continues to divide social classes; 2) cooperation as a general principle of industry, with the combination of various types of labour in order to meet increased productivity (which can be deepened via algorithmic management or based on monitoring and control software), is reproduced as a central element of industrial production; and 3) the real subsumption that still directly subordinates the collective worker to the 'new machinery', i.e. the new information and communication technologies (applications and software), in addition to incorporating old and new labour practices (know-how) of the collective worker, articulates and integrates workers, radicalising the extraction of more labour through cooperation. (Amorim & Grohmann, 2021, p. 8)*

In other words, the great transformation, highlighting its historical specificity, is exactly how these immense productive forces and automatons at the service of capital (the digital platforms), based on ICTs, deepen the control of work processes from datafication (Mejias & Couldry, 2019), of the most varied and distinct types of work, regardless of whether they are located inside a factory structure, as in Amazon's logistics warehouses (Delfanti, 2019), or spread across the globe, as in the case of Uber. Therefore, the exploitation of the collective worker, in these varied configurations of labour is strengthened to the extent that socially combined labour (capitalist cooperation) is resized in space and time.

The extraction of more work from the collective worker thus becomes organised and controlled in real time. The 'new machinery' (Amorim & Grohmann, 2021), the digital platform, thus creates with it a new collective worker from whom it can extract accelerated excess work time as never before, without, however, renouncing the private appropriation of the fruits of this combined labour extraction, guaranteed by private ownership of the means of production: the digital platforms themselves. The platformisation of work is, therefore, an unfolding of the industrial form: it is the contemporary exemplification of the (digital) collective worker.

Thus, the real subsumption, described by Marx in *Capital* (1988), which in the exemplary case arose with the introduction of the machine tool in the eighteenth century, has gained another historical form: a new phase that synthesises the interests of capitalist valorisation and accumulation within the production process. The materialisation of this new moment of radicalisation of industry, that is, of the

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12   Woodcock (2020) describes this as the use of an 'algorithmic panopticon', with workers being constantly and meticulously supervised by technological mediation.

typical form of capitalist production, develops necessarily and simultaneously with the forms of dispersion of labour (Harvey, 1992) in a double sense: first, by deepening the division of labour (task, microtask, etc.); and second, by maintaining control over the collective worker, that is, using the internet and ICTs as mechanisms for coagulating the dispersion or combination of productive heterogeneity, thus configuring a common nexus between increasingly subdivided activities and tasks. In other words, jobs and tasks are dispersed, but their combined use is still centralised by physical and remote forms of control, ensured by the centralisation and concentration (Abílio, Amorim & Grohmann, 2021) of a huge amount of capital, historically guaranteed by the maintenance and reproduction of private ownership of the means of production.

It is in this sense that in the dialectical relationship between a certain level of technological development and the relations of production that seek to overcome this technological base, the digital platform is crystallised as a synthetic instrument involving the convergence of digital technologies, algorithmic management, robotics, microelectronics, agile methodologies and digital despotism. All these characteristics, however, are still mediated by wage labour.

This thesis, partially presented in Amorim and Grohmann (2021), gains depth when another important argument is introduced: that this past set of productive outsourcing, which created the basis for the platformisation of work, is in practice a process of outsourcing that follows the same logic (the industrial logic) since it maintains, in an updated manner, the fundamental pillars of typically capitalist production. Industrial production is thus externalised within the same structural pattern of capitalist expansion. Therefore, if we look at the cycles of reproduction of capital throughout history, especially in the last 150 years, it is evident that there is nothing new in this new social conformation. Social reproduction still obeys the dominant class objectives, even if within these social classes the centre of economic, political and symbolic power has historically swung between shareholder capital and productive capital (strictly speaking).

Amorim and Grohmann's (2021) study analysed the industrial-cooperative form in a more generic way, assigning relevance only to how the typical forms of capitalist production are currently present and also show themselves as a trend of industrial development. Later, Abílio, Amorim and Grohmann (2021) extended this argument, arguing that it was important to emphasise the necessary presence and reproduction of the collective worker, seen as a fundamental historical figure for the structuring of the production of goods and their sociability in capitalism. Even in a context in which everything seems fluid, ephemeral, liquid or heterogeneous, especially with regard to production processes, such characteristics are often configured from the deprivation of the physical articulation of work collectives, a deprivation guaranteed by the internet and social networks and the ICTs.

In this article, we deepen this assumption to the extent that we highlight the platformisation of work, or platform capitalism (Srnicek, 2017), as a new moment or a new phase in the industrialisation process. Beyond this, we seek to emphasise that this phase is not only based on platform capitalism, but on an *industrial platform capitalism* in which the production of commodities (whether goods or services) is in its structural

principles an expanded, scaled-up version of industrial capitalism in which the exploitation and domination of labour has been radicalised.

Thus, we consider that the platformisation of goods production present in contemporary capitalism represents the most recent unfolding of the relationship between productive forces/production relations described by Marx when he observed the passage from (first) cooperation (socially combined work) to (second) manufacturing (partial work) and then (third) to machinery (real subsumption of labour to capital). In other words, production through digital platforms simultaneously conserves cooperation, partial division of labour and real subsumption insofar as it socially combines dispersed workers controlled by an informational technological infrastructure (a new 'mechanical monster').

The historical possibilities for organising production were built up over time and followed diverse paths. However, only machinery represented and synthesised the interests of capital in the eighteenth century. The same principle is present in the platformisation of work. Despite being somewhat more restrained in relation to the outsourcing of production that preceded it, platformisation, by synthesising the most urgent interests of capitalist accumulation, inaugurates the reduction of costs and the expulsion of labour time from the production process but this time without losing,[13] and indeed even expanding, control over labour collectives, suggesting that it may represent a new phase in the real subsumption of labour to capital.

In other words, we are affirming that the platformisation of work could only be constituted to the extent that a set of social relations of production was already present before it. Nevertheless, it is based on the platformisation of work that industrial capitalism is radicalised. In other words, the platformisation of work could only be formed because of previous, larger and necessary, but still uncoupled, forms of production outsourcing created in the preceding decades.

Collective action, resistance and political responses in the framework of industrial platform capitalism

The issues discussed above are relevant both from theoretical and social points of view to the development of an understanding of the qualitative and quantitative changes in the labour market related to the spread of work platforms, as well as the performance of the various social actors. As Cardoso and Garcia (2021) point out, if the predominant idea was that work platforms would be just a high-tech way of reproducing precarious work in sectors in which this reality was already present – such as care (Pereira & Cardoso, 2022), beauty (Oliveira & Pereira, 2022) or delivery (Festi & Oliveira, 2022) services, in the current context, it is evident that this conception was mistaken.

After all, the platformisation process does not just affect a small part of the working class, nor only those industries already marked by precarious work, but is spreading to sub-industries with higher levels of formality and better working conditions – such as

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13   See, for example, the discussion on the just-in-time worker, in Abílio (2020).

banking (Cavarzan, 2022), health (Marcelino & Cardoso, 2022), education (Ikuta, 2022), legal (Santos Silva, 2022) and Information Technology (IT) (Melo & Ferro Junior, 2022) services. In fact, digital platforms entered the labour market through the so-called precarious sectors, seeking less resistance from consumers, lawyers and the workers themselves and are now moving into other sectors.

Although there is an enormous variety of work platforms, with different business models, relationships with clients, workers and forms of work organisation, almost all of them are based on some fundamental similarities: digital infrastructure and mediation – which enable the dispersion of production while allowing for centralised control; datafication – as a new form of monetisation; management by gamified goals and through algorithms – leading to labour intensification and the absence of autonomous spaces for those who work; and disregard of legislation, including labour legislation (Cardoso, 2022).

This combination, in addition to creating terrible working conditions, allows capital to follow its goal of paying only for the time 'effectively' worked. As several studies show, in the working day of platform workers there are many unpaid working times such as waiting for clients or establishments, looking for work, correcting tasks, training or building a profile on the platforms (Kalil, 2019; Festi & Oliveira, 2022).

Moreover, the arrival of platforms in the most diverse industries will constitute another group of workers within each of these industries, impacting the political organisations of the working classes, above all because one of the goals in the expanded reproduction of capital is, before materialising its new dominant form, to deconstruct or destroy the bonds of political solidarity, built over time, within the working class (Gramsci, 2001).

It is in this context of advancing digital transformation and the emergence of platform work in countries like Brazil, for example, that a narrative reappears that puts trade unionism in the spotlight again. It is claimed that it has aged and is no longer able to respond to the new world of work. However, these claims disregard the fact that these emerging occupations (or reconfigured digital platforms), are composed of young workers, who are outside an organised and protected labour market, and who often have never had a formal employment relationship.

This discourse about unions is reappearing in the twenty-first century, more than 30 years after the theses of the terminal crisis of unionism were originally postulated. However, neither the end of unionism, nor its death has taken place, even though there has been a reduction in union membership rates and strike action in several countries involved in a variety of crises of different nuances and dimensions. Experiences of the reinvention of unionism and of political resistance by the working class have been captured and analysed by several empirical studies contradicting many of the theses that affirmed the obsolescence of the union institution (not to mention social classes).

According to Bridi (2021), there is a certain view that workers linked to 'digital work' are averse to union organisation. However, in Brazil, for example, although very little known academically, IT workers have been organising themselves since the 1970s, with the formation of associations of data processing professionals, when the first public IT companies were created. Many of these associations have become unions and new ones have been created, totalling about 30 unions, which represent a pool of IT occupations and are permanently challenged to adapt to rapid technological changes that also produce changes in the framework of occupations and the base itself, described in their statutes

and collective bargaining agreements.[14] Currently, the advance of the platformisation, including in the IT sector, will demand new answers from this unionism.

Other examples can be cited from other parts of the globe. For example, according to Schalit (2021), workers in the technological area, who are in general highly qualified and well paid, though considered unlikely to unionise, have recently been organised and unionised by the Histadrut Union Centre (General Organisation of Workers in Israel).

In this vein, union organising is taking place even in giant IT companies such as Google and Amazon (Schalit, 2021) in which those working there recognise themselves as 'workers' and as a reaction to the objective and adverse working conditions, are moving towards collective action. This organisation of workers in the Google company, for example, occurs despite the imaginary constructs disseminated by business schools and market agents of these companies as the 'heaven of work' due to their 'good' and differentiated working conditions.

In the area of games, the Game Workers Unite was created in 2018, present in 12 countries, with the goal of unionising workers in the video game industry, aiming to end overtime practices and adopt diversity and inclusion, as well as providing support for claims that aim to ensure fixed and fair wages (Tecmund, 2018). In the segment of audio-visual streaming platforms, Means TV, a cooperative of anti-capitalist audio-visual content producers was created in 2020 with the aim of fighting the widespread dominant mode of platformisation (MEANS.TV, 2017).

Workers at Alphabet, the company that controls Google, created the Alphabet Workers Union. The agenda of this union is to improve working conditions and fight against pressures, harassment, discrimination and persecution, along with better wages (G1.GLOBO, 2021). Another organisation worth mentioning, especially since it concerns an occupation outside the employment relationship, is the YouTubers Union, created in 2018 by Jörg Sprave (*YouTubers Union*, 2022) Affiliated to the largest German union, IG Metall, its agenda is to seek greater transparency in algorithms and in the criteria for demonetisation of videos, communication with people and not machines to solve problems, participation in the decisions that imply changes in the digital platform. Interestingly, YouTubers and app deliverers, although their occupations are different, share some common demands: for greater transparency of the platforms, work management and better pay, transparency in evaluations and direct communication with companies without the automatic mediation of machines. The similarities in the demands are related to algorithmic management, working conditions and remuneration, factors that drive the organisation of these workers, albeit with different profiles and not always even considered 'workers'. In the case of workers who work in the 'gig economy' (a concept adopted in Europe, but which presents limitations for the Latin American context), Tassinari and Maccarrone (2020) assert that the individualism, fragmentation and dispersion, which are characteristics of these occupations, make worker solidarity and organisation unlikely to happen. Nevertheless, this is contradicted by several actions and mobilisations, carried out by workers (Kalil,

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14   IT unions in Brazil have some particularities compared to other unions in Brazil, such as the representation of workers in the public and private sector and collective bargaining with public and private companies of different sizes and configurations (Bridi, 2021).

2020; Coelho, Jesus & Silva, 2020). These empirical realities have led scholars to investigate collective action in these 'new' frontiers of platform-controlled work.

London, for example, witnessed in 2016 the first strikes by Deliveroo workers, called 'wildcat strikes', in which they organised themselves through digital apps and social media. The protest was against arbitrary changes in payment methods, which until then were based on a combination of an hourly rate and delivery payment and changed to payment only per delivery (Woodcock & Cant, 2022), which resulted in a significant reduction in earnings. According to Cant (2018), after this London strike, there were 41 new 'incidents' or movements in six European countries: The Netherlands, Germany, Spain, Belgium, France and Italy, which have been increasingly synchronised and have seen increasingly levels of participation. From a review of the evidence, it seems that these transnational movements occur like waves, which, even though they do not follow a linear pattern, maintain some continuity, as platform workers have been expanding their international organisation and articulation.

In 2020, for example, we can observe a new wave of actions by these workers' movements, both nationally and internationally. With the participation of 23 countries, including several in Latin America, app drivers managed to organise internationally, founding the International Alliance of App-Based Transport Workers (IAATW). App drivers came together in a broad, global alliance to support, coordinate and internationally organise to prevent exploitative and harmful practices, improve the lives and occupations of drivers around the world, promote solidarity and cooperation, and build capacity to address local issues as well as the global industry itself (Manifesto of Rights & Liberty of World-Wide App-Based Drivers, 2020).

The COVID-19 pandemic, by exacerbating conflicts and problems such as reduced earnings, long working hours, risks of illness and new costs for the worker (such as masks, screens and hand sanitiser), accelerated a wave of strikes in Brazil in 2020, known as the 'Breque dos Apps'. According to Bridi and Bohler (2021), these strikes exposed the problems of a category of workers who, despite being considered 'owners' of their time and supposedly 'free', and also the owners of the labour instruments (such as motorcycles or bicycles), were, after all, subordinated to digital platform companies.

In Brazil, with the victory of Luíz Inácio Lula da Silva in 2022 and the possibilities of dialogue that opened up in 2023 for the working class, social demands for the regulation of platform work have been heard, leading the government to organise a commission to discuss this issue. Initially, this involved only the participation of trade unions, triggering a movement of workers organised in various collectives throughout the country, who began to mobilise in order to intervene in the process and be heard. Field research by the authors has revealed that, to achieve this, various collectives across the country quickly organised and converged to create the National Alliance of Delivery Workers by Apps, with the objective of intervening in this debate and presenting the type of regulation they aim for. Articulated on Telegram, creating live events on YouTube and on Facebook pages, they established intense debates on autonomy, subordination, formal hiring (by the CLT), and labour rights.

The experiences shown here demonstrate that there is no unorganisable worker (Grohmann, 2020). The conflicts at work, and the contradictions of an unfair, exploitative economic system light the flame of collective organisation. The absence of formalised institutions of representation does not mean that resistance and of forms of organisation and concrete actions do not exist.

For these workers, however, given the absence of a workplace and daily meeting place, the use of social media is taking the place of the factory meeting, in what is called 'connected action' (Tecmund, 2018). Networks such as Facebook, Reddit, WhatsApp and Telegram, as well as tools such as Hustle, a text messaging service, allow groups to collect information about work, how companies and workers themselves are run, and enable the organisation and dissemination of campaigns around the world (Tecmund, 2018). Such forms of informal contact also appear to exist among users of global crowdsourcing platforms such as Mechanical Turk and Freelancer, which are among the large online labour subcontracting companies, where workers are also outside the scope of legal protections and collective bargaining.

The literature has shown that these workers are digitally connected and address a variety of issues such as online careers, protection from fraud and pricing of services. Uber drivers and delivery drivers, for example, despite working individually, participate in groups, and are active in chats, social network pages and WhatsApp groups. In Mexico City following the *Unión Nacional de Trabajadores por Aplicación*, the first union in the category region, the *Unión Nacional De Trabajadores de Aplicaciónes Movíles*, which was in the process of creating a union, were realising their meetings and assemblies in the streets, broadcasting online from their pages, responding to posted comments and making intensive use of communication technologies. In fact, in the context of the pandemic, most unions are holding meetings, assemblies, and even negotiation tables from communication platforms (Bridi, 2022)

There is therefore evidence to suggest that such actions have been taking place in parallel with various attempts to make face-to-face contact between workers both at the local and international levels. Thus we observe a logic of connected action, which refers to new modes of organising, in which workers take advantage of the potential for connection, exchange of ideas, discussions about wages, situations of injustice, and so on.

The collective action observed expresses a process of class formation, since, according to Thompson (1967), it is forged in the daily conflicts and clashes of work. Along these lines, the platforms can be analysed as a laboratory of the class struggle, and the disputes involving management and control of work present loopholes and gaps for the organisation, argues Grohmann (2021). While there is potential for struggle and organisation, there are also limits to this potential, arising from legal and geographical factors, including the dispersion of the workforce, entrepreneurial discourses and ideologies that cloud labour relations (Kalil, 2020). Such limits, however, although capable of hindering collective action, have not prevented workers from organising informally, or from seeking to form trade unions following traditional institutional models, which remain as a possibility of class organisation, even among those workers who seem 'unorganisable'.

Conclusion

In this article, we have argued that platform capitalism radicalises and spreads industrial forms of production. To develop this argument, we have emphasised that the logic of industrial production can neither be taken as a synonym of 'factory', as in the past (which is only one type of productive combination) nor as something that resides only in the so-called 'production' or 'industrial' sector.

Rather, starting from Marx's (1988) conception of the industrial form as the main form of production in capitalist societies, we have argued that, since its constitution, but especially with the introduction of machinery, the goal of capital has been to remove 'labour' from the production process, cheapening commodities and increasing their profits, bringing about new forms of subsumption. In this article, we have analysed the processes of internal and external flexibilisation initiated in the 1960s and 1970s, which have been enhanced through the introduction of digital platform companies.

We have further argued that production in digital platforms reproduces, in a radicalised form, the central goals of capitalist industrial production for four reasons. First, it takes for itself, and for free, the collective combination of workers (cooperation) who produce various services through the digital platform. Second, despite this necessary productive combination, the work of this collective of male and female workers is partialised, taskified and individually controlled (partialisation with objective control of times and movements) by the platform. Third, these collective workers are absolutely dependent on digital platforms and their applications, having their productive rhythms and cadences determined by the private owners of these platforms, which leads to a global process of reduction of necessary work time (real subsumption). Finally, this reduction of necessary working time presupposes management strategies of individualisation of accountability for these collective workforces, through practices such as self-taylorisation of work (a characteristic of lean production) and the transfer of a large part of the production costs to the workers (for example, costs such as PPE, cars, fuel, bicycles, smartphones, internet, computers, insurance, etc.).

This new phase of valorisation and accumulation of capital is characterised by a range of different forms, including outsourcing, subcontracting, crowdsourcing, crowd work, homeworking, intermittent and informal work as well as jobs that are subordinated through digital platforms. However, it is important to avoid technological determinism when characterising this phase and its inauguration. On the contrary, we regard machinery as a metaphor, and view the digital platform as the synthesis of a set of social relations that articulates a range of different forms of flexibilisation of work and production which are brought together within the digital platform itself. It is in this sense that the digital platform is best regarded currently as only the most visible part of a long but accelerated process of outsourcing of productive costs which are materialised within it.

On the other hand, just as in other moments in the history of capitalism, strong resistance and mobilisation can be observed on the part of workers. Thus, digital platforms represent sites of conflict, related to factors such as poor working conditions, digital control, algorithmic despotism, insufficient remuneration and long working hours.

In this scenario, collective action and forms of resistance by the working class can be observed in a variety of spheres and modalities. These range from the organisation of workers' collectives related to specific issues in groups connected via social networks to the classic mode of union organisation, albeit in many cases incipient. Engagement in collective action does not occur through a single path but is shaped by the personal and collective experiences of workers, the presence of unions (insofar as unions can channel these workers' dissatisfactions), perceptions of injustice in the workplace, reactions against authoritarianism, harsh working conditions, and the perception of risks involved in their activity.

In summary, we conclude that we are in a new phase of capitalism, marked by the centrality of digital platforms, which we must necessarily qualify as 'industrial'. Furthermore, digital platforms do not alter the elements that configure industrial production (following Marx in designating this as characterised by collective and partialised divisions of labour, real subsumption based on the extraction of relative surplus value and rationalised management and self-management through the transfer of productive costs to workers). Following from this, if current trends in the spread of platformisation of production are realised on a global scale, becoming the new standard of capitalist production and its central form of valorisation and accumulation, the concept of industrial platform capitalism and its underlying foundations will become ever more strategically important, on the one hand, to comprehend the logic of the reproduction of class structures and the continuing dominance of capitalist classes dominance, in a context of rapid technological transformations, and, on the other hand, to contribute to the qualification and understanding of the dynamics of this new phase in which, according to our analysis, the digital platform becomes the latest manifestation of what Marx (1988) characterised (in relation to machinery) as the 'mechanical monster'.

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