

Sewing the city: crisis of capital, logistical urbanization, and app-based delivery workers

Costurando a cidade: crise do capital, urbanização logística e entregadores de aplicativo

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Abstract

In the context of the recent transformations undergone by work in Brazilian metropolises, there has been a multiplication of precarious jobs related to circulation of goods. The crisis of capital and of the value-form seem to be giving rise to the need of efficient circulation as a condition for accumulation, which is reflected in the so-called logistical urbanization. The article presents an interpretation of these processes based on Lefebvre's levels of analysis of the urban (G-M-P). By exploring the relationship between crisis of capital, logistical urbanization, and the everyday dimension of app-based delivery workers, we conclude that the precarization of work and the production of logistical infrastructures emerge as material expressions of the increasing crisis of the valorization of value; at the same time, they alter the forms of struggle of the working class.

Keywords: precarization of work; logistical production of space; crisis of capital; negative autonomy.

Resumo

Considerando as recentes transformações do trabalho nas metrópoles brasileiras, observa-se uma multiplicação do trabalho precário baseado na circulação de mercadorias. A crise do capital e da forma-valor parece dar origem a um imperativo de circulação eficiente como condição de possibilidade para a acumulação, que se reflete na chamada urbanização logística. Este artigo apresenta uma interpretação desses processos a partir da perspectiva lefebvriana dos níveis de análise do urbano (G-M-P). Ao explorar a relação entre crise do capital, urbanização logística e a dimensão cotidiana dos entregadores de aplicativo, concluímos que a precarização do trabalho e a produção de infraestruturas logísticas aparecem como expressão material do aprofundamento da crise da valorização do valor, alterando simultaneamente as formas de luta da classe trabalhadora.

Palavras-chave: precarização do trabalho; produção logística do espaço; crise do capital; autonomia negativa.



Introduction

Mbembe (2021) explores the concept of “brutalism” to describe the current state of the world, which is characterised by the destruction of traditional principles of order. In this context, society maintains its functioning through “assemblage work”, i.e. a determined way of bringing together the debris to keep the decadent functioning of capitalist society, albeit with great difficulty. One of the expressions of this assemblage work is the centrality assumed by logistics in contemporary capitalism. Using a computer or a smartphone makes it possible to order practically any type of product: from batteries to technological machinery; from mass-produced goods to rare and collector's items. In any case, as a kind of invocation ritual, after typing in your credit card numbers, within a few days – in some cases, within a few hours or minutes – an apparition rings the intercom and delivers the desired product. Between buying and receiving, the mediation appears personified in the figure of a delivery worker, and receiving the product formalises the obliteration of all the circuits that connect the place of production to the place of consumption.

However, the sign of globalisation and the dissolution of borders carry as its dark side successive processes of job insecurity and violence established at the nodal points of this system as a presupposition of the circulation process itself. For a product manufactured on the other side of the globe to reach you in less than 24 hours, it is not just a question of speed, efficiency and logistics (in the classic

sense of managing transport costs) but, in fact, an assembly job, a collection of rubble: suppression of wages, dismantling of labour and union movements as internal company policy, surveillance, control and disciplining of work, censorship, penalisation for efficiency, among others (Delfanti, 2021).¹

Paraphrasing Marx, it could be argued that today, wealth in societies where the capitalist mode of production reigns appears increasingly as an enormous circulation of commodities.² With the blocking of the historical conditions that allowed the valorisation of value to continue to occur as a result of the contradictory dynamics of capital (Kurz, 2014), circulation plays a fundamental role: as the commodity-producing system is anaemic of value, in other words, faced with a tendency for the mass of surplus value produced to fall, the realisation of the remaining small amount of value depends on the effectiveness of circulation. Thus, the production of the concrete conditions for circulation (infrastructure) and the efficient organisation of this process (logistics) become the contemporary expression of the dynamics of a capitalism “wounded to death”, to use Henri Lefebvre's expression (1976).

In this sense, if, on the one hand, capitalism depends on constant “assembly work” to ensure its reproduction, however precarious, it is possible to argue that the precarious workers responsible for the circulation of goods become, on the other hand, the very expression of a “weaving work” that brings together the patchwork of a fragmented urban space and social fabric. In this process, workers are separated from

each other due to the fragmentation of labour itself. However, delivery riders are separated simultaneously as they are unified by the algorithm in a great “collective labour” that produces contemporary urban space.

Food delivery drivers, app drivers, and freight drivers for large multinational companies, among others, quickly move around to make deliveries within the deadlines set by the algorithms. They weave between cars, often disregard traffic rules, and risk their own lives to get the bonuses that platform companies offer when they meet their deadlines. One can see the colourful bags with the logos everywhere. This form of contemporary hustling reveals something about the condition of Brazilian metropolises. The weaving that delivery couriers do in traffic to meet the expectations of the circulation of goods is the necessary suture for this frayed social fabric, a fragmented urban space and social reproduction that has reached a critical stage.

In the crisis of value, the dissolution and withering away of formal, salaried work and the welfare state, which were never fully consolidated in the global peripheries, gave rise to a process of the “multiplication of work” (Mezzadra and Neilson, 2013) that takes on different forms and modes of organisation, but in most cases marked by the sign of precarious labour relations. In this “new proletarian landscape” (Gago, 2018), contemporary cities in Brazil as well in the rest of the world, have increasingly become the stage for these forms of labour based primarily on circulation. This vast mass of “wageless” workers (Denning, 2010) is absorbed by the

new platform economy (Hums, 2016) based on the algorithmic management of labour via digital infrastructures (Srnicek, 2016).

The International Labour Organisation (ILO) refers to a new pattern of labour relations that is increasingly moving away from so-called “traditional work” (ILO, 2018). This new type of employment differs from formal labour relations, particularly through using workers as digital intermediaries in an online labour market. This process is called the “uberisation of work”. It refers to the way in which “labour relations are increasingly individualised and invisibilised” (Antunes, 2020, p. 11), as well as marked by intermittency, precariousness and the transfer of operating costs to the workers themselves (Abílio, 2020). Their presence is such that cities today increasingly depend on the supply of these dispersed services but are connected by algorithms for their entire operation.

It is precisely in and through urban space that this heterogeneous and diffuse expression of logistics, infrastructures and the different types of work they articulate gains internal consistency. As Cowen (2014) observes, the “logistics revolution” results from a set of processes that marked the 1950s to 1970s, such as the creation of institutions, disciplines and business strategies aimed at providing a new systemic perspective on the distribution of production in space. These were also the years in which Lefebvre began to argue that urbanisation achieved, albeit virtually, a planetary scale and brought with it a reorientation of the typical problems of the industrial period, i.e. problems linked to

production, towards a new problem that was properly urban. Therefore, it is possible to argue that urbanisation is the moment and the mediation that connects the need for the accelerated circulation of goods to the most elementary forms of precarious work. At the same time, the capitalist production of space is the very engine that animates and engenders these two apparently disconnected situations.

This text aims to contribute to recent discussions on infrastructure, logistics and job insecurity, understanding these elements as connected to the global dynamics of the capitalist production of space. To do this, we follow the formulation of Lefebvre (2003), who proposes analysing the urban phenomenon from three levels or dimensions: level G (global), level M (medium/mediator) and level P (private). At level G, Lefebvre locates state and capital in their abstract operating dynamics and their strategies and logic projected onto the urban built environment. Level M is the level of the "urban ensemble" (*ibid.*, p. 80), as a space that mediates relations between the global level and the private level. Urban space, therefore, appears as the material expression of the abstract movement of the state and capital insofar as infrastructure and the built environment reflect and extend the strategies projected from the G level. The P level, finally, is the level of the body and of everyday life and, therefore, the place where the vectors emanating from the global level seek to realise the exercise of power. At the same time, at the P level, counter-projections and counter-projects of power can be constructed relying on the mediation of urban space for their realisation. We will reflect on the recent movement of capital around logistics, infrastructure and

the precariousness of work in these terms. By doing this, we will be able to see that the effects and expressions of this dynamic can also be analysed on three different levels.

We will use this Lefebvrian key to describe how the precariousness of work is linked to a general dynamic of the crisis of the valorisation of value (G) and has, as one of its strategies, the production of logistical infrastructures (physical and digital) as an "emergency exit" for capital in crisis, which produces an infrastructural urban fabric and a digital infrastructure network (M) that enables the exploitation of hyperprecarious work (P).

In addition to this introduction, this text is structured in four sections. As an expository method, we follow the aforementioned structure of levels proposed by Lefebvre (2003). In the first section, which represents level G, we discuss the causes and consequences of the structural crisis of capital, treating it with a high degree of abstraction but understanding its importance for unravelling the phenomena we analyse next. In the second section, level M, we look at logistical urbanisation, which has been developing since the second half of the 20th century but with increasing intensity in more recent years, as a counter-tendential "response" to the crisis of capital. In the third, level P, we look at how the combination of the crisis and the logistical response in the form of so-called "uberisation" produce effects that organise the daily dynamics of thousands of precarious workers, in particular by producing a subjectivity crossed by the algorithmic management of work and the experience of what we will call "negative autonomy". Finally, in the concluding remarks, we summarise the contributions of the text and point out the

importance of thinking about the forms of organisation and struggles of these workers, thus constituting a vital research agenda and a pertinent field for political action.

The structural crisis of capital and the meltdown of the wage society

Capital is, first and foremost, a historically determined form of contradictory social mediation (Marx, 2013). Its existence depends on the recurrent mobilisation of labour to make the valorisation of value possible. Thus, capital was historically structured based on a long process of dispossession, described by Marx as "primitive accumulation": a moment that created the conditions for generalising its social form. As we know, the forms of material reproduction of entire populations had to be destroyed so that they were left with no alternative means of reproduction. The worker became "someone who has no other commodity to sell, free and unattached, lacking absolutely everything necessary for the realisation of his labour-power" (*ibid.*, p. 314) and was thus forced to submit to the despotic power of capital. Hence, people were put to work in the production of commodities, which, as Marx (1996) describes, is "the production of surplus value".

The expansion of the valorisation of value must be continuous, and to do so, capital depends on continuously expanding the mass of surplus value produced. Marx (1996) identified two strategies for this. The first he called "absolute surplus value". The absolute surplus value involves expanding the mass of surplus

value produced by quantitatively increasing the working day, thereby increasing surplus labour time. The second strategy, "relative surplus value", involves rising labour productivity, which compresses the necessary working time and consequently increases surplus working time. While the first only required the formal subsumption of labour, the second required the real subsumption of labour, the essential condition for which is the advance of the productive forces in society as a whole.

[...] The production of absolute surplus-value turns exclusively upon the length of the working day; the production of relative surplus-value revolutionises out and out the technical processes of labour, and the composition of society. It, therefore, pre-supposes a specific mode, the capitalist mode of production, a mode which, along with its methods, means, and conditions, arises and develops itself spontaneously on the foundation afforded by the formal subjection of labour to capital. In the course of this development, the formal subjection is replaced by the real subjection of labour to capital. (*Ibid.*, p. 239).

As a result, capital, pressured, among other factors, by the organisation of workers and the coercive law of competition, starts to organise the extraction of surplus value through its relative form. The result is that productive and technological innovations are increasingly fundamental in guaranteeing the continued exploitation of relative surplus value. However, as a contradictory form, capital, in this same movement, produces its own internal crisis. The rise in the organic composition of capital results in a fall in the rate of profit, the de-substantialisation of value and the production of a mass of unemployed (Kurz, 2018).

As Marx (1996) argues, capital is driven by an intrinsic need for its own expanded reproduction to raise labour productivity. Consequently, living labour is replaced by dead labour due to the development of productive forces. As discussed by Blank (2014), technological development takes on a destructive role since it is subsumed under the influence of the value-form. It destroys the social forms that produced it (Jappe, 2006). This detachment of productive activity by the productive forces from the forms of social mediation also releases its destructive potential (Kurz, 1993).

The cause of the crisis is the same for all parts of the world commodity-producing system: the historical decrease in the substance of abstract labour as a result of the high productivity achieved through the mediation of competition. (Ibid. p. 220)

This formulation refers to the writings of Marx (1996), who saw capital's intrinsic need to reduce socially necessary working time. Otherwise, it would dissolve itself. This contradictory rationality has guided the development of this critical social form to the point where its contradiction becomes unavoidable. This situation should not be surprising since this process was described by Marx (ibid., pp. 556-557) as the "principle of big industry", which causes the "dissolution of the productive process into its constituent elements without regard for human hands" and thus "renders the worker himself superfluous and unleashes an uninterrupted sacrificial rite of the working class".

The development of the productive forces engenders a critical moment in the social relations of production that would lead to the transformation of social reproduction: the form of the wage society that was historically constituted and had its apex in the 1950s and 1960s in the central countries, has entered a state of decay. In various ways, the form of social reproduction today tries to emulate the wage labour that has already been eroded.

If, on the one hand, capital has acted as a totalising force that has drawn actual social relations into its interior and imprinted its form on the social life of the entire planet; on the other, as a contradiction in process, capital is driven by an immanent impulse to reduce its dependence on living labour to a minimum as it raises productivity (Marx, 1993, 1996 and 1998). As an "automatic subject", capital is entangled in this contradiction. Today, when the development of the productive forces has reached a certain irreversible level of production of the superfluous, capital enters a sacrificial spiral that denies the very source of value. "The whole form of the movement of the modern industry depends, therefore, upon the constant transformation of a part of the labouring population into unemployed or half-employed hands." (Marx, 1996, p. 442).

If, as we saw, level G refers to the scale necessary to understand the more general dynamics of capital and its projection onto level M, that is, onto urban space and the built environment, the self-destructive process set in motion by capital's own internal contradictions will represent a specific type of intervention on space and, precisely, production of space in line with the countertrend strategies employed.

In this sense, it is by presenting capital's crisis tendency that we can understand the transformations, as we shall see, at the other levels.

In the next section, we present how this crisis dynamic manifests itself in urban space (M) through logistics and the production of infrastructures as emergency outlets for capital. Urban space appears to be traversed by the strategies of capital, which finds in the built environment a new possibility for realising its expedient of valorising value.

Logistical urbanisation as an “emergency outlet” for capital in crisis

Faced with the structural crisis that capitalism as a system of social reproduction has been going through since the 1970s, a series of “emergency outlets” have appeared at all levels to circumvent the tendency of the rate of profit to fall. On a more systemic level, the so-called “logistical revolution” (Bonacich and Wilson, 2008; Cowen, 2014) allowed capital to reorganise and redefine territories on multiple scales in order to guarantee further cycles of accumulation for capital in crisis: on the one hand, by accelerating the cycle of rotation and realisation of capital itself; on the other, through the creation of new infrastructural facilities, by conveying quotas of over-accumulated capital towards ventures whose profits are perhaps less rapid, but more secure

in the long term, and guaranteed by states through an assortment of contractual devices, such as the various types of public-private partnerships.

During the last few years, several studies (Cowen, 2014; Easterling, 2014; Gri, 2016; Invisible Committee, 2016; Hildyard, 2016; Mezzadra and Neilson, 2019; Arboleda, 2020; Peregalli, 2022) shed light on logistics, analysing it not just as an expanding economic sector and activity, but as a real logic or rationality that increasingly involve a multiplicity of actors, sectors and areas of contemporary capitalism. In this sense, the authors mentioned above adopt a “logistical perspective” to address a set of heterogeneous circumstances, such as the new forms of port labour; the production of new strategic territorialities such as special economic zones and development corridors; the global production chains; the algorithmic workings of industry 4.0 and the platform economy; and the new forms of management of metropolitan flows. Into the Black Box Collective (2018, s.p.) defines logistics as “the strategic intelligence that coordinates the harmonising of production, circulation and consumption of global capitalism, where an increasingly accelerated high-speed circulation is gaining hegemony over the whole process”.

Despite its explosion in recent decades, “logistical rationality” has long been part of the development of historical capitalism. Taking a genealogical perspective (Foucault, 2004), it is possible to identify a set of origins of logistics, as well as moments of rupture and discontinuity that account for the acquired

centrality of this logic to capitalist operations. Van Creveld (1977) identified as the main antecedent of contemporary logistics the emergence of military logistics between 1560 and 1715 in the main European armies, based on the latter's need to organise a complex supply system during their long war campaigns. At the beginning of the 19th century, we find reflections on military logistics directly in the writings of strategist Carl von Clausewitz and Napoleonic general Henri de Jomini. Another proposal for genealogical trajectory was developed by Harvey and Moten (2013). These authors identify the emergence of logistics in transatlantic commercial activities, especially as a management science for the control, subjugation and trafficking of enslaved people. From another perspective, Stern (2011) highlights the role of the Indian Companies of the 17th and 18th centuries as the first private agents that established political control over entire overseas territories, foreshadowing what would become, in contemporary times, the multiplication of strategic territorialities for the management of commodity and people flows, as in the case of logistical corridors and special economic zones.

However, although the origins of logistics go back to the beginnings of capitalism, it was after the Second World War that contemporary logistics emerged. According to Canadian geographer Cowen (2014), the so-called "logistics revolution" began with a series of processes that took place between the 1950s and 1970s. Firstly, with the emergence in the United States of business logistics, i.e. a series of new institutions (such as the American Management Association, the National Council of Physical Distribution Management and the

Logistics Management Institute), disciplines (such as Supply Chain Management) and business perspectives that determined the real birth of a science of distribution management, based no longer on simply reducing the costs of economic activities, but on a new "systems perspective". This had implications for the new multinational companies' perception of the relationship between production and circulation, pushing the latter to assume the imperative of not just seeking to reduce the distances between points of extraction, manufacture and sale of products but attempting to directly intervene in the entire economic space and the location of these points according to wider "total cost schemes".

However, the leap towards a "logistics revolution" was also determined by introducing two new technologies in the economic field, both from the military context. The first was the container, invented by the Sea Land transport company to move military supplies for the war in Vietnam. The widespread diffusion of this object during the 1970s allowed, on the one hand, the replacement of weight by volume (calculated in TEU)³ as the main unit of measurement for international trade; on the other, the emergence of a new intermodal transport system, whereby a single container full of goods could be transported without interruption, just in time and to the point, and on the most diverse means of transport: railway trains, cargo ships, trucks and even aeroplanes for commercial use. The second fundamental invention for contemporary logistics was information technology: also originated in the military sphere, with the Rand Corporation's implementation of Arpanet, a sophisticated information network committed by the US

Department of Defense and which was the precursor of the Internet, the development of so-called Information and Communication Technologies (ICT), and their relation to the production of goods, is deeply linked to the transition from the fordist economic model to post-fordist and toyotist forms of organisation, ending up in recent times with the algorithmic management of the platform economy.

It is, therefore, clear that behind what is commonly known as the “economic restructuring” of the 1970s and the related emergence of a new pattern of “flexible” accumulation (Harvey, 2000), there is a profound change in the architecture and physical and infrastructural (and increasingly digital) skeleton of global capitalism, promoted by the “logistical revolution”. This implies a spreading of the production process across a multiplicity of territorial nodes (a process that Cowen defined as “stretching the factory”), the increasing importance of global supply chains for the reproduction of the international capitalist system and the emergence of the corridor form for the physical and geographical organisation of territories.

Mezzadra and Neilson (2019) recently highlighted the growing importance not only of logistics, but also of extraction and finance as the favoured logics of post-1970s capitalism. According to these authors, that period not only represented the crisis of the fordist-taylorist-keynesian model that dominated the so-called “golden years” of capitalism but also the crisis of the three prevailing state figures of the time, i.e. the welfare state in the northern countries, the socialist state in the Soviet bloc and the developmental state in the Third World, in representing so-called

total social capital in the face of the particular interests of individual capitalists. In their perspective, on the one hand, the crisis of industrial capitalism and the post-war state led to the centrality of logistical, financial and extractive operations in the composition of total social capital; on the other, these same operations are less mediated by the regulatory and planning action of the state and are organised by a global governance in which the separation between public and private is increasingly blurred. According to the authors, extraction, finance, and logistics are now not just economic sectors but logics or rationalities that encompass more and more areas of economic activity and operate together and intertwine in different capitalist operations. Taking up an expanded conception of extraction, Gago and Mezzadra (2015) think of it not only in its literal-territorial meaning as the violent appropriation of resources and energy from soil and subsoil, but they see in it a much broader logic of the social body, capable of subsuming and capitalising on dynamics of social cooperation and overlapping with traditional mechanisms of exploitation of living labour. This general notion of extraction is linked in many ways to logistical and financial logics.

Marx (2014) had already realised the importance of logistics and circulation for production. In the second book of *Capital*, the German philosopher extensively discusses the “productive” value of tasks necessary for the realisation of capital, such as storage and transportation. Specifically, he considers the function of the movement of goods and the transport industry as particular and ambivalent aspects of the production cycle:

The circulation, i.e., the actual locomotion of commodities in space, resolves itself into the transport of commodities. The transport industry forms on the one hand, an independent branch of production and thus a separate sphere of investment of productive capital. On the other hand, its distinguishing feature is that it ears as a continuation of a process of production *within* the process of circulation and *for* the process of circulation. (Ibid., p. 257)

In this sense, transport represents, on the one hand, a real industrial sector dedicated to producing certain types of goods and commodities, which are the transportation means and infrastructure. To this end, this sector attracts significant amounts of investment that materialise in the construction of containers, large ships, ports, roads, trains and canals, investments that today have the important function of releasing excess and over-accumulated financial capital and binding it to “productive” processes. On the other hand, this sector as a “continuation of a process of production *within* the process of circulation and *for* [it]” (ibid.) becomes fundamental for the reproduction of total social capital as a whole, by reducing circulation and realisation times. It is in these two aspects that we can understand today the strategic importance of logistics and infrastructures as emergency outlets to overcome – or at least circumvent – the tendency of the rate of profit to fall, continually creating and opening up new frontiers, markets and territories for investments and seeking to avoid any kind of dead time in the production process.

This presupposes, firstly, continuous intervention in the “production” and redefinition of space (Lefebvre, 2013). The logistical production of space operates inseparably from the processes of financialisation of the global economy since, in fact, it is precisely when the weight of financial capital increases that, at the level of the so-called “real economy”, attempts are made to compensate for the productive crisis “by the intervention on the geographies (namely the shapes of power) of capital and commodities circulation” (Into The Black Box, 2018, n.p.). This hens on multiple geographical scales, from the reorganisation of entire continental spaces along land or ocean corridors, as in the case of the aforementioned Belt and Road Initiative, to the development of European projects (such as the Trans-European Transport Network – TEN-T) or Latin American projects (as in the case of the Initiative for the Integration of South American Regional Infrastructure - IIRSA and the Mesoamerica Project). It can also take on a more local scale, based on the logistics-led transformation of “global cities” (Sassen, 2000) or the creation of very logistics cities, whose most emblematic model is Dubai (Cowen, 2014). Bearing in mind that the recent transformations of capitalism have displaced consolidated notions of geographical scale, the logistics revolution can be seen as a vector of a trans-scalar movement towards what Brenner and Schmidt (2015) call “planetary urbanisation”.

In the words of Cuppini (2018), contemporary cities can be analysed as “logistical systems”. According to this author, we may be leaving behind the old industrial

city, organised around a rigid segmentation between factory districts, dormitory districts and places of leisure, for a new type of urban space that is increasingly

“logistified”, fluid, malleable and interwoven, whose rhythms are calibrated through the insertion of multiple (virtual or “material”) infrastructures that serve global flows (of goods or capital, of tourists or productive forms that are increasingly anchored in the “territory”). (Ibid., p. 301)

Intermodality, which emerged along major infrastructure corridors and logistics hubs such as ports, dry ports, special economic zones, etc., is now more and more permeating the structure of urban centres themselves. The areas abandoned during deindustrialisation are increasingly given a new meaning with the multiplication of shopping centres, interports, goods warehouses and new road networks seeking to attract investments of all kinds. Cities have now become the favoured space for developing the logistics processes of close proximity, also known as “urban logistics” or “last mile logistics”. This is the context where the enormous logistics companies in the e-commerce sector operate today, such as the US multinational Amazon, the Chinese giant Alibaba, the Latin American company Mercado Libre and many delivery platforms for home delivery of food and other products.

We could name this process as logistical urbanisation (Sengpiehl et al., 2008; O’Shea, 2014; Diniz and Gonçalves, 2022), whose nature is associated with the development and densification of logistical infrastructures. Connecting infrastructures thus guarantee the movement of goods and are integrated with digital infrastructures that enable this

connectivity. As Diniz and Gonçalves (2022, p. 9) describe, “logistical urbanisation corresponds to the production, management and connection of spaces whose high technical-scientific-informational density facilitates and promotes the fluidity of capital, especially in its commodity form.” The spread of digital platforms is, therefore, not dissociated from the necessary transformation and fundamental (re)organisation of urban space and the practices that take place in it. However, despite this technological modernisation in the urbanisation process, as we will see, it takes place in a context of dependent and peripheral social formation, such as the Brazilian case.

Logistical urbanisation, therefore, represents the condition for the operation of digital platforms, which increasingly mediate socio-spatial practices in large cities by mobilising highly precarious work. As Graham (2020) points out, new socio-spatial interactions between users-consumers and users-workers emerge in this context, producing a new urban geography of precarious labour (Strauss, 2017).

These digital delivery platforms are giving life to what has been called “crowd-logistics” (Mladenow, Bauer and Strauss, 2016). If we consider that, due to the spatial density of cities, the “last mile logistics” is traditionally the least efficient stretch of the production chain, actually concentrating 28 per cent of costs (Jordán, Riffo and Prado, 2017), it is clear how overcoming urban bottlenecks is seen as an increasingly central need. For this last-mile logistics, the problem of access to the territory becomes a central issue. The urban planner and architect Lyster (2016, p. 18) has coined the term “timescape” to designate the propensity of logistics to calibrate “space according to time and thus making the city

a timescape". As De Stavola (2022) argues, if, according to Marx (1993), circulation is orientated towards the "annihilation of space through time", under contemporary logistics this idea is integrated with an ability to define space on the basis of time.

Thus, logistical urbanisation (which occurs at the M lefebvrian level) involves unfolding the crisis context analysed above. It is, therefore, a specific form of urban development in a context of crisis that prioritises the moment of commodity circulation, seeking to reduce the turnover of capital. This process takes place through the mobilisation of a multitude of precarious workers who work mainly in the delivery sector. Logistical urbanisation is thus the way capital, in its moment of crisis, finds in order to continue its process of decadent accumulation, by sewing the more general structure to the dynamics of precarious reproduction of a mass of workers.

As we have tried to show so far, the crisis of valorisation of value (G) forces capital to look for emergency solutions. Logistics ears here as one of these solutions and presupposes an enormous process of reorganisation and production of space (M), which has specific consequences for the redefinition of geographies and the operativity of contemporary cities. In this sense, a vector connects level G to level M, reflecting a dynamic of crisis in the cityscape itself. At the same time, as we will see below, logistics also operates and drives a gigantic movement towards a constant reduction in the cost of labour through new forms of precariousness related to the so-called "uberisation of work" (Abílio, 2020), which directly affect the subjective production

of the working class and the modes of political organisation in the contemporary world. In this way, not only does urban space serve as a support and emergency exit, through logistical and infrastructural intervention, for capital, but it also mediates and transposes the imperatives posed by the global crisis (G) at the level of everyday life and the body itself (P).

From autonomy to subordinate self-management

So far, we have described the movement that links transformations at level G, that of capital and the State, to level M, that of the urban. In the first section, we saw how there is an immanent tendency to the movement of valorisation of value that pushes capitalism towards a constant reduction of its dependence on living labour. However, this movement threatens the capacity to extract and form a mass of surplus value capable of sustaining capital's profit rates in the long term. The crisis of value as a social form, an expression of this contradictory development, implies the crisis of formal and waged labour and the forms of mediation engendered by capital.

In this sense, it is safe to assume that, at the level G, capital operates on an immanent logic that ears into the level of everyday life (P) under the form of an immense mass of unemployed people (Kurz, 2018). On the other hand, as we saw in the second section, capital finds in logistics and infrastructures, that is, in the field of circulation itself, an emergency way out from the crisis of value. Although these strategies are unable to curb

the movement of immanent crisis, the logistical and infrastructural production of space allows capital to survive. At level M, the level of the urban complex, therefore, capital works through the production of a space focused on circulation that takes, as we have seen, the material form of corridors, ports, special economic zones, global production chains, digital platforms and metropolitan flows of all sorts. These new spaces reconfigure and mediate the relationship between level G and level P, as they drive the formation of a “new world of work” (Beck, 1996), organised and governed increasingly by logistical rationality and by digital infrastructures and platforms that produce the fragmentation of work and the individualisation of the workers involved (Heiland, 2020).

A paramount example of this transformation can be seen in the multiplication of platform delivery companies and forms of courier work in Brazilian metropolises. According to the collective Neblina (2022, p. 44), it is not new that an indispensable part of the Brazilian urban metabolism moves on two wheels:

In the chaotic expansion of cities, where transportation came in tow, mending the parts, the price of that precariousness was always paid by the daily rush of those who had to arrive on time. While the lack of mobility punishes the workforce with overtime hours of effort in the packed collective transports, the other commodities don't get by on their own account and demand an increasingly fast circulation. Hence the appearance, in the late 1980's – long before any online platforms –, of an army of *motoboys* [motorcycle couriers],

progressively growing in number, capable of crossing the traffic jams in between the cars and thus guaranteeing, at risk of death, the acceleration of capitalist flows in our collapsed metropolises. The “informal and mortal motorcycle aisles” enable the circulation of what cannot stop amidst blocked traffic and serve, at the same time, to increase productivity in the mobility of workers made hostage of urban immobility, who then find in the motorcycles the emergency exit which “equates low cost with high speed”.

As Abílio (2019, p. 2) argues, “digital platforms have been globally recognised as vectors of new forms of work organisation” guaranteeing “new ways of dispersing work without losing control over it”. This movement, called the uberisation of work, concerns two main changes engendered by platforms in work relations. Firstly, the dispersion promoted by digital networks, particularly when we think about the easy access to smartphones and the Internet, is accompanied by a growing centralisation and subordination of workers in “a single company” (ibid). Unlike productive factory work, in which this subordination depended on the concentration of workers in the same work environment through a formal hiring process, platforms today work based on a *membership* dynamic, according to which the worker appears increasingly more as a user of the platform than as a workforce itself. Secondly, the dynamics of “voluntary” adherence to digital platforms companies masks the fact that these workers find themselves, precisely, in the condition of non-employees, “entirely devoid of associated guarantees, rights or security to work” (ibid.).

Even in formal and contractual terms, platform couriers usually fall under the legal category of “users”, participants in a virtual market in the same way as consumers themselves.

Through these two elements, the possibility of a space-time dispersion of workers and a voluntary form of adherence to the platforms, platform companies are able to “recruit the motorcycle courier who has been on the tracks for thirty years, the worker with a permanent job who makes deliveries after hours and the unemployed young man who owns or rents a bicycle as a *bico*”⁴ (Neblina, 2022, p. 45). The multiplication of infrastructures, logistics and digital platforms, therefore, brings with it the multiplication of precarious forms of work in cities, whether in the overlapping of different working hours, or in the extension of the working day itself to improve income. In any case, the circulation of goods in the city seems to depend increasingly on this “heterogeneous crowd” of workers subordinated to a decentralised domination of work for its functioning (ibid.) – what we are calling here the *weaving work* operated by delivery riders.

A vast literature has reflected on the progressive increase in exploration resulting from these technological transformations (Antunes, 2020; Woodcock, 2020; Grohmann, 2020). Some authors describe the processes of exploitation to which these types of workers are subjected using the analogy of “modern slavery in the digital age” (Antunes, 2018). Others focus their interpretation on the type of discourse this new form of business mobilises. As described by Slee (2017), the preponderant rationality of the platform economy is supported by the

ideology of the “self-made man”, that is, that of an individual project of self-entrepreneurship as the only way to improve life. Even though the ideological dimension is fundamental to understanding reality, it does not alone explain the transformations and forms of adherence to precarious work.

We want to argue, on the contrary, that the multiplication of forms of precarious, individualised and dispersed work in the everyday life of cities (P) is, instead, the expression of a desire for autonomy that is expressed in a negative or subordinate way and that is related to a change in the horizon of expectations of the working class generated by the crisis of value (G). This desire for autonomy of workers concerning their owners and foremen, for self-management of time and the forms of their own work, is an old feeling of the working class in the context of the capitalist mode of production, which emerged in multiple social struggles in the “golden” years of the Fordist-Taylorist capitalism. However, given the productive restructuring that began in the 1970s, which is, to a large extent, a response to the challenges imposed on capitalism by the struggles of the working class and given the intrinsic incapacity of the system to absorb labour and produce formal jobs, autonomy appears as a symptom of a class of workers without wages, without work and, therefore, without bosses. In this context, autonomy can sometimes take on a negative expression, as capital finds ways to appropriate the “modes of living” that emerge from the crisis of value and subordinate them to a neoliberal logic (see, for example, Abílio, 2021).

As Gago (2018) explains, the penetration of neoliberalism in the Latin American continent must be taken seriously if we want to explain the emergence of neoliberal rationality and subjectivity that dominates popular sectors. The notion of a “neoliberalism from below” suggests that neoliberalism should not be understood only as a set of policies and economic orientations at the level of the State and Capital (G), but as a specific type of subjectivity that needs to be developed in popular sectors facing a scenario in which economic calculation, profit, pricing and other market mechanisms become the dominant form of mediation of collective reproduction in everyday life (P). The author argues that there is a vitalist pragmatics that aims to provide the living conditions of popular sectors “in a context in which the state does not guarantee the conditions of neoliberal competition prescribed by the ordoliberal model” (ibid., p. 6). On the other hand, it is precisely this forced need to assume responsibility for collective reproduction, not guaranteed by public and private, that “organises a certain idea of freedom, which, in its particular way, challenges some of the more traditional forms of obedience” (ibid.). In other words, the withering away of labour form and the dissolution of any vestige of the Welfare State, never consolidated on the periphery of global capitalism, force the worker to identify as a gain in autonomy exactly that which undermines his capacity and guarantee for social reproduction.

The discourse on entrepreneurship is nowadays a way of “capturing” the workers' desire for autonomy and decision-making

related to schedules and forms of work itself, something that, in the context of extreme precariousness in peripheral metropolises, appears through the economic calculations and vitalist pragmatics of this “neoliberalism from below”. Based on research on courier workers from Rappi in Buenos Aires and Mexico City, De Stavola (2021) considers that, in platform work, in addition to the formal freedom of the worker already identified by Marx, there is also an autonomy that is expressed as a function of a self-management space produced, organised and subsumed by the power architecture that supports the logistical flow, that is, that of the platform. Based on this, the author proposes the concept of a “functional self-management of work”, with which he seeks to critically interrogate the forms of subjectivation of platform couriers, which is usually a type of “functional” agency for the objectives of capitalist profitability:

Functional self-management of labour is first and foremost subordinate. On a subjective level, it can be interpreted as the result of the ideology that structures the social phenomenon (Žižek, 2003), that is, as a product of the contradictory order: “enjoy being autonomous”. Secondly, it is functional to the logic of the capital valorisation cycle insofar as the delivery worker has no choice but to adapt to the company's objectives in order to enjoy it. Finally, it is possible to define the autonomy enjoyed by delivery workers in the self-management of labour as functional because it is subject to capital in the form of data. In fact, it is a minimum condition for the extraction operation, since the delivery worker, in the space of functional self-

-management, mobilises knowledge, attitudes, calculations and behaviours that will constitute the data that is the object of the operation itself. (De Stavola, 2021, p. 61)

In line with this interpretation, Abílio (2019, p. 05) names as a “subordinate self-management” this shift from the figure of “self-entrepreneurship” or the *self-made man* to that of the “worker” subordinate self-manager”. In their ability to mobilise work dispersed across metropolises, this means that platforms emulate a form of agency that responds to workers' desire for autonomy. There is no manager. There is no boss other than yourself. You can decide when to start and when to stop when to stay overnight or take a vacation. However, this autonomy appears fundamentally subordinated to a relationship in which remuneration is linked to the availability for work. For the author,

[...] What is at stake is the outsourcing of part of the work management to the worker himself, [but] a subordinate management. Your survival strategies, your time management, your knowledge is privately appropriated as factors in the execution of your work and your productivity. (Ibid.)

This outsourcing of work management to the worker, which is also accompanied by the outsourcing of the costs of the means of production themselves, such as the car, motorcycle or bicycle, bag, smartphone and cell phone data, leads to, albeit in the form of “autonomous” self-engagement in work, an increase in working times, that is, to an increase in the “formal subsumption” of labour under

capital. However, based on the consideration of the articulation of the algorithmic management of platforms with the precarious forms of life that, historically, constitute the structure and social infrastructure of Brazilian metropolises, Abílio (2021) herself goes so far as to define uberization as a “real subsumption of the *viração*”.⁵

For the author, it is necessary to “escape the formal-informal pair” if one wants to reveal how capitalism subsumes peripheral modes of living (ibid., p. 943). Most workers who find themselves in these types of work are dispossessed of stability, guarantees or even rights related to the activity carried out, and, therefore, they find themselves in a constant movement of combining “survival strategies” with the “creation and exploitation of ephemeral opportunities” (ibid). This movement that Abílio calls a “*viração*” or even, as the author well reminds us, what Oliveira (2003, p. 68) called the “organisational talent of thousands of pseudo-small entrepreneurs”, reveals exactly the power of the vitalist pragmatics identified by Gago (2018). Faced with the inability to guarantee the minimum conditions for social reproduction, the popular classes are forced to develop different ways of dealing with insecurity and precariousness and thus assume the costs of their own reproduction. These forms take on varied expressions, from the accumulation of different jobs, formal and informal, legal and illegal, permanent or temporary – what we called above, with Mezzadra and Neilson (2013), a multiplication of work – to the adoption of practices to maximise the earned income that threatens the continuity of the worker’s own life.⁶

Thus, if, on the one hand, the precarious worker experiences a certain type of autonomy in his work – that is, his apparent ability to define how, where and for how long he or she works –; on the other, it is exactly this autonomy that capital captures at the current moment. The workers' weaving work thus operates an ideological suture, which unifies precariousness and autonomy in a negative and contradictory unity. This "monopolised appropriation of peripheral modes of living", as Abílio argues (2021, p. 943),

can be seen in action in the strategies of young black man who, among other activities that make up their entry into the job market, rent a bicycle to earn an income as a bike boy spends the day devising ways to avoid having to face police brutality, the brutality of urban traffic, everyday racial violence; establishes means to intensify their own work, is willing to work 12 hours uninterruptedly to earn a bonus (Machado, 2019) and integrates the distribution of the food sector.

In other words, capitalism strives to subsume precisely this vitalist pragmatics that animates work in an environment in which social reproduction is not guaranteed in the slightest.

Final thoughts: precariousness, urban logistics and class struggle

As we have explained in this text, capitalism in crisis undergoes profound transformations in various ways and social reproduction scales.

The collapse of the value society produces massive wage disaffiliation. It creates spaces of precariousness, unemployment and informality for the "surplus" population while at the same time undermining the very basis for the reproduction of capitalist accumulation. There is an effort to counter the inevitable decline in profits through the "capitalist production of space." This involves using logistical reasoning to create infrastructure and increase the speed of capital circulation, rotation, and realisation. In urban areas, this transformation leads to the emergence of a new group of workers, known as "jobless workers" (Rizek, 2022), who have limited rights and work informally, but are effectively integrated into high-profit platforms.

This text emphasises the significance of identifying various scales to comprehend job insecurity. Inspired by Lefebvre's trans-scalarity, our approach allows us to visualise how the conflicting dynamics of capital affect individuals. By connecting the G, M, and P levels, we can critically evaluate logistical urbanisation, the employment conditions of numerous platform delivery workers, and the capital crisis.

This situation leads to significant changes in the challenges faced by platform workers and the types of class conflicts in modern society. To understand this phenomenon, we must also analyse workers' resistance to these processes. The explosion of platform couriers' struggles in Brazil in the context of the covid-19 pandemic – when the "stay at home" rule was realised only through the exception of an ever-increasing army of delivery drivers who carried (and still carry) the costs and risks of the collapsing social infrastructure of metropolises on their backs – brought to the fore, not only a

rejection on the part of these workers of ever lower rates of pay and ever more degrading working conditions, but also their rejection of attempts to be subjected to the traditional labour regulations.⁷ In other words, a declared “war” on platform delivery companies was accompanied by an aversion to trade unions, to any institutionalised form of “direction” of struggles and to any kind of discourse that sought to bind the work of delivery workers to an employment relationship that they associated with “the hellish universe of ‘shitty jobs’: schedules to keep, low pay and a boss to make your life more difficult” (Neblina, 2022, p. 46). Autonomy emerges here in a double sense: as self-management of their own work and also of their struggles. However, as we have shown in this text, this desire for autonomy can quickly become “negative”, “functional”, or “subordinate”; there is an excess that continues to challenge, in some way, the company’s need for control, which emerges, in the moments of greatest discontent, in molecular situations, such as when the delivery rider denounces having missed a delivery in order to secure a meal or, more directly, when the self-management of working hours is put at the service of the self-organisation of struggles. It is above all as a response to this that, in recent years, the Brazilian company iFood has been creating forms of more direct control over delivery riders’ working time, setting up forms of shift scheduling or even outsourcing part of the “fleet” to partner companies known as “logistics operators” (OL).

However, the changes in workers’ forms of engagement are not limited to the contradictions inherent in the concept of autonomy and “self-management”, positive or negative, of one’s own work. The recent emergence of the “*breque*”⁸ as a form of protest, particularly highlighted during the national demonstration on July 1st, 2020, and other prolonged strikes in Brazil, has shifted away from the traditional factory picketing. Instead, this new form of protest disrupts the circulation of goods and services in metropolitan areas. Rather than stopping the assembly line of a product, the focus is on preventing the realisation of goods by physically blocking the entrances of shopping.

The shift from a production-based struggle to one centred on circulation can be linked to the impact of the logistical revolution that has occurred over the past 50 years. This development can be viewed historically in the context of the long-lasting history of the capitalist mode of production. Drawing from Braudelian perspective and Arrighi’s systemic cycles of accumulation (2007) theory, Clover (2016) proposed a reading of capitalism that examines the paradigmatic types of struggles in different historical periods. According to Clover’s analysis, prior to the Industrial Revolution, the most prevalent form of struggle in European societies and the Atlantic world was the riot. These riots aimed to reduce the prices of goods on the market and were considered circulation struggles because they mainly took place in marketplaces, harbours,

and the city itself. During the emergence of the capitalist mode of production, riots served as a way for the working classes to reject being turned into proletariats and the privatisation of communal goods and land. In the early 19th century, these riots increasingly moved toward factories, such as with the “ludism” movement, and were eventually replaced by strikes. These strikes were no longer focused on reducing commodity prices, but on increasing the value of labour power, which had become essential to the capitalist system. The year 1848 marked the climax of this transition from riots to strikes.

Clover (*ibid.*) suggests that a new era of transition began during the crisis of industrial capital and the logistical revolution. This was signalled by the 1968 world insurrection and marked a shift from production to circulation, from the factory to the city, and from strikes to riots. It comes as no surprise, then, that uprisings in recent decades, from the Parisian banlieues to the Arab Spring, from the Occupy movement to the Spanish encampments, and from the 2013 Brazilian revolt to the more recent uprisings in Ecuador, Chile, Colombia, and Hong Kong, have centred around issues like access to public transportation and the city in general, rising fuel prices, and basic necessities. These struggles have led to a proliferation of road blockades, barricades, attacks on

connecting infrastructure, occupation of urban squares, and massive destruction and looting of goods. Even the French Yellow Vest movement, which blocked roundabouts and interrupted strategic flows for logistical reproduction outside the strictly urban sphere, is evidence of how struggles are accompanying the transformation of space toward forms of planetary urbanisation (Benvegnu and Cuppini, 2020). From this perspective, perhaps it is possible to see signs of a “neo-Luddism” in the current struggles of platform couriers, in their subjective impulses and concrete practices? These challenges point to the possibility of bringing about a transformed everyday life that can be generalised (Lefebvre, 2003), a transformation that starts from the P towards the G. This is the strong meaning that Henri Lefebvre gives to the concept of revolution.

Be that as it may, the transformations we have described here towards a “formless labour” (Oliveira, 2003) have also produced a “formless class struggle” (Neblina, 2022). These concerns will inevitably be at the forefront of national discussion and in the future of Brazilian metropolises. A broad research effort combined with ways of politically interacting with this situation have yet to be realised. We hope that this text, a contribution in the sense of offering an analytical framework, can help in this endeavour.

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Notes

- (1) See, for example, the recent case in which Amazon plans to launch an internal company communication app in which the words “union”, “wage increase”, “representation”, among others, will be prohibited from use. Available at: <https://www.jacobinmag.com/2022/04/amazon-warehouse-staten-island-ldj5-union-drive>.
- (2) Although, in the original formulation in *Das Kapital*, the term “collection” already indicates that value is the expression of the confrontation between different commodities, its replacement by the term circulation here seeks to denote a recent transformation in the regime of capital accumulation.
- (3) A TEU (Twenty-foot Equivalent Unit) represents the load capacity of a standard shipping container: 20 feet long, 8 feet wide and 8 feet high.
- (4) A *bico* is an expression used in Brazilian Portuguese to refer to an extra or unofficial job: a filler job.
- (5) *Viração* is an expression “native” to the Brazilian peripheries. Its recurrent use designates a huge range of activities that take place on the fine line between the legal and the illegal, the formal and the informal. These are activities that replace the form of stable, long-term Fordist labour and are aimed at guaranteeing the reproduction of individuals in a context where labour is scarce.
- (6) According to testimony presented on December 12, 2022 at the CPI (Parliamentary Inquiry Commission) of Apps of the São Paulo City Council, the proportion of motorcycle accidents in the trauma sector at USP’s Hospital das Clínicas rose from 20%, between 2015 and 2016, to 80%, between 2020 and 2021. Around 70% of those injured were providing services for delivery apps. For more information about that, check Ribeiro (2022).
- (7) The negative position of delivery workers regarding the regulation of their activity is not unanimous, but it already signals a position that has been consolidating in the movements of the class, as evidenced by the survey “Where is human labour going in the digital age?”, carried out by the World of Work and Social Theory Research Group (UnB). The survey, answered by 247 app delivery workers between April and June 2023, revealed a demand for rights normally associated with the social security provided by formal jobs, such as “additional hazard pay (57.49%), sick pay and accident pay (55.06%)”, while the majority of respondents prefer to be recognised as “self-employed or self-employed” (60.3%) or as “Individual Micro-Entrepreneur” (23.9%). In addition, “only 10.12% said that a signed work permit should be on the agenda of the public debate” related to regulating the work of delivery riders (see Festi et al., 2023, n.p.).
- (8) A Portuguese neologism derived from the word “brake”. It means that the delivery riders stop their activities and “brake” the deliveries. It has been widely adopted by workers in the sector.

References

- ABÍLIO, L. C. (2019). Uberização: do empreendedorismo para o autogerenciamento subordinado. *Psicoperspectivas: individuo y sociedade*, v. 18, n. 3.
- _____. (2020). Plataformas digitais e uberização: globalização de um Sul administrado. *Revista Contracampo*, v. 39, n. 1, pp. 12-26.
- _____. (2021). “Informalidade e periferia no Brasil contemporâneo”. In: MARQUES, L. (org.). *Trajatórias da informalidade no Brasil contemporâneo*. São Paulo, Fundação Perseu Abramo.
- ANTUNES, R. (2018). *O privilégio da servidão: o novo proletariado de serviços na era digital*. São Paulo, Boitempo.
- _____. (2020). “Trabalho intermitente e uberização do trabalho no limiar da indústria 4.0”. In: ANTUNES, R. (org.). *Uberização, trabalho digital e indústria 4.0*. São Paulo, Boitempo.
- ARBOLEDA, M. (2020). *Planetary mine. Territories of extraction under late capitalism*. Londres, Verso.
- ARRIGHI, G. (2007). *O longo século XX*. Rio de Janeiro, Contraponto.
- BECK, U. (1996). *The brave new world of work*. Nova York, Polity Press.
- BENVEGNO, C; CUPPINI, N. (2020). “Tout le pouvoir aux ronds points!” Una “lente logística” sui gilets jaunes. *Alternative per il socialismo*, n. 58, Roma, Castelvecchi.
- BLANK, J. (2014). Para uma crítica radical do capital e das suas forças produtivas. *Libertas*. Universidade Federal de Juiz de Fora, v. 11, n. 1, pp. 1-25.
- BONACICH, E; WILSON, J. B. (2008). *Getting the goods: ports, labor, and the logistics revolution*. Ithaca, Cornell University Press.
- BRENNER, N.; SCHMIDT, C. (2015). Towards a new epistemology of the urban? *City*, v. 19, n. 2-3, pp. 151-182.
- CLOVER, J. (2016). *Riot. Strike. Riot. The new era of uprisings*. Londres, Verso.
- COMITÊ INVISÍVEL (2016). *Aos nossos amigos*. São Paulo, N-1 Edições.
- COWEN, D. (2014). *The deadly life of logistics: mapping violence in the global trade*. Minneapolis, University of Minnesota Press.
- CUPPINI, N. (2018). A cidade enquanto sistema logístico. *Lugar Comum*. Rio de Janeiro, n. 52, pp. 299-310.
- DELFANTI, A. (2021). Machinic dispossession and augmented despotism: digital work in an Amazon warehouse. *New Media & Society*, v. 23, n. 1, pp. 39-55.
- DE STAVOLA, F. (2021). El smartphone de Foucault: poder, trabajo y subjetividad en las plataformas digitales de entrega a domicilio: el análisis de la app latinoamericana Rappi. *Arxius de Ciències Socials*, n. 44, pp. 49-64.
- _____. (2022). *Al sur de la plataforma: trabajo y capital en la APP latinoamericana Rappi*. Tese de doutorado. Cidade do México, Universidad Nacional Autónoma de México.
- DENNING, M. (2010). Wageless life. *New Left Review*, n. 66.
- DINIZ, N.; GONÇALVES, P. P. (2022). As cidades dos galpões: dinâmicas e contradições da urbanização logística. *e-metropolis*, n. 49, ano 13, pp. 7-15.

- EASTERLING, K. (2014). *Extrastatecraft. The power of Infrastructure Space*. Londres, Verso.
- FESTI, R.; GONTIJO, L.; GONÇALVES, N.; FRAGOSO, L. (2023). Que pensam os entregadores sobre a regulação laboral? *Outras Palavras*. Disponível em: <https://outraspalavras.net/trabalhoeprecariado/o-que-pensam-os-entregadores-da-regulacao-laboral/?s=08>. Acesso em: 14 ago 2023.
- FOUCAULT, M. (2004). *Nietzsche, la genealogía, la historia*. Valencia, Pre-Textos.
- GAGO, V. (2018). *A razão neoliberal: economias barrocas e pragmática popular*. São Paulo, Elefante.
- GAGO, V.; MEZZADRA, S. (2015). Para una crítica de las operaciones extractivas del capital. Patrón de acumulación y luchas sociales en el tiempo de la financiarización. *Nueva Sociedad*, n. 255, pp. 38-52.
- GRAHAM, M. (2020) Regulate, replicate and resist - the conjunctural geographies of platform urbanism. *Urban Geography*, v. 41, n. 3, pp. 453-457.
- GRAPPI, G. (2016). *Logistica*. Roma, Ediesse.
- GROHMANN, R. (2020). "Plataformização do trabalho: características e alternativas". In: ANTUNES, R. (org.). *Uberização, trabalho digital e indústria 4.0*. São Paulo, Boitempo.
- HARNEY, S.; MOTEN, F. (2013). *The undercommons: fugitive planning and black study*. Wivenhoe, Minor Compositions.
- HARVEY, D. (2000). *Condição pós-moderna: uma pesquisa sobre as origens da mudança cultural*. São Paulo, Loyola.
- HEILAND, H. (2020). Workers' voice in platform labor: an overview. *WSI Study*, n. 21. Dusseldorf, Hans-Böckler Stiftung.
- HILDYARD, N. (2016). *Licensed larceny. Infrastructure, financial extraction and the global South*. Manchester, Manchester Capitalism MUP.
- HUMS, U. (2016). Logged labour: a new paradigm of work organisation? *Work organisation, Labour & Globalisation*, v. 10, n. 1, pp. 7-19.
- INTO THE BLACK BOX (2018). *Manifesto de crítica logística*. Disponível em: <http://www.intotheblackbox.com/manifesto/manifesto-de-critica-logistica/>. Acesso em: 6 mar 2023.
- JAPPE, A. (2006). *As aventuras da mercadoria*. Lisboa, Antígona.
- JORDÁN, R.; RIFFO, L.; PRADO, A. (2017). *Desarrollo sostenible, urbanización y desigualdad en América Latina y el Caribe. Dinámicas y desafíos para el cambio estructural*. Santiago, Cepal.
- KURZ, R. (1993). *O colapso da modernização*. Rio de Janeiro, Paz e Terra.
- _____ (2014). *Dinheiro sem valor*. Lisboa, Antígona.
- _____ (2018). *Crise do valor de troca*. Rio de Janeiro, Consequência.
- LEFEBVRE, H. (1976). *The survival of capitalism: reproduction of the relations of production*. Nova York, Allison & Busby.
- _____ (2003). *Critique of everyday life*. Londres, Verso Books.
- _____ (2013). *La producción del espacio*. Barcelona-Madrid, Capitan Swing.
- LYSTER, C. (2016). *Learning from Logistics*. Berlin, Birkhäuser.

- MACHADO, L. (2019). Dormir na rua e pedalar 12 horas por dia: A rotina dos entregadores por aplicativo. *BBC News Brasil* (22 de maio). Disponível em: <https://www.bbc.com/portuguese/brasil-48304340#:~:text=V%C3%ADdeos-,Dormir%20na%20rua%20e%20pedalar%2012%20horas%20por%20dia,rotina%20dos%20entregadores%20de%20aplicativos&text=Um%20deles%20explica%3A%20%22Dou%20entrevista,e%20eu%20n%C3%A3o%20paro%20mais%22.> Acesso em: 6 mar 2023.
- MARX, K. (2011). *Grundrisse*. São Paulo, Boitempo.
- _____ (2013). *O capital. Livro I*. São Paulo, Boitempo.
- _____ (2014). *O capital. Livro II*. São Paulo, Boitempo.
- _____ (2017). *O capital. Livro III*. São Paulo, Boitempo.
- _____ (2022). *Capítulo VI* (inédito). São Paulo, Boitempo.
- MBEMBE, A. (2021). *Brutalismo*. São Paulo, n-1 Edições.
- MEZZADRA, S.; NEILSON, B. (2013). *Border as method, or, the multiplication of labor*. Durham, Duke University Press.
- _____ (2019). *The politics of operations. excavating contemporary capitalism*. Durham e Londres, Duke University Press.
- MLADENOW, A.; BAUER, C.; STRAUSS, C. (2016). “Crowd logistics”: The contribution of social crowds in logistics activities. *International Journal of Web Information Systems*, v. 12, n. 3, pp. 379-396.
- NEBLINA, Grupo de militantes na (2022). *Incêndio: trabalho e revolta no fim de linha brasileiro*. São Paulo, Contrabando.
- O’SHEA, C. (2014). *Logistical ecologies of the North American operational landscape*. Tese de doutorado. Cambridge/MA, Harvard University.
- OIT – Organização Internacional do Trabalho (2018). *As plataformas digitais e o futuro do trabalho: promover o trabalho digno no mundo digital*. Genebra, OIT.
- OLIVEIRA, F. (2003). *Crítica da razão dualista/O Ornitorrinco*. São Paulo, Boitempo.
- PEREGALLI, A. (2022). *IIRSA: entre integración regional y racionalidad logística*. Nova York, Peter Lang.
- RIBEIRO, P. V. (2022). Motociclistas são 70% dos internados no instituto de ortopedia e traumatologia do hospital das clínicas, diz médica na CPI dos aplicativos. *The Intercept_ Brasil*. Disponível em: <https://theintercept.com/2022/12/12/entregadores-de-apps-sao-70-dos-internados-no-instituto-de-ortopedia-e-traumatologia-do-hospital-das-clinicas-diz-medica/>. Acesso em: 6 mar 2023.
- RIZEK, C. (2022). “Periferias: revisitando fraturas e crises”. In: CARLOS, A. F.; RIZEK, C. (orgs.). *Direito à cidade e direito à vida: perspectivas críticas sobre o urbano e a pandemia*. São Paulo, IEA/USP.
- SASSEN, S. (2000). *Cidades na economia mundial*. Rio de Janeiro, Studio Nobel.
- SENGPIEHL, C.; OAKDEN, R.; NAGEL, P.; TOH, K.; SHI, P. (2008). The emergence of logistics cities: conceptual model. *Journal of Transport and Supply Chain Management*, v. 2, n. 1, pp. 58-77.
- SLEE, T. (2017). *What is yours is mine: against the sharing economy*. Nova York, OR Books.
- SRNICEK, N. (2016). *Platform Capitalism*. Cambridge, Polity.

- STERN, P. (2011). *The Company-State. Corporate Sovereignty and the Early Modern Foundation of the British Empire in India*. Oxford, Oxford University Press.
- STRAUSS, K. (2017). Labour geography 1: towards a geography of precarity. *Progress in Human Geography*, v. 42, n. 4, pp. 622-630.
- VAN CREVELD, M. (1977). *Supplying war: logistics from wallerstein to patton*. Cambridge, Cambridge University Press.
- WOODCOCK, J. (2020). "O panóptico algorítmico da deliveroo: mensuração, precariedade e a ilusão do controle". In: ANTUNES, R. (org.). *Uberização, trabalho digital e indústria 4.0*. São Paulo, Boitempo.
- ŽIŽEK, S. (2003). *El sublime objeto de la ideología*. Buenos Aires, Siglo XXI Editores.

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