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ORIGINAL ARTICLE

Controlling space, controlling labour? Contested space in food delivery gig work

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Abstract

The article investigates the control of the platform labour process by means of the digital production of space and how workers resist it. The segment of German platform-mediated food delivery is examined via qualitative interviews and auto-ethnography. It is shown how the platforms create different spaces to efficiently coordinate and control mobile delivery gig work. Steered by geolocalisation and geofencing, the couriers operate autonomously in spatial corridors defined by the platforms. The agency of the riders is thus limited, but they are occasionally able to undermine the platforms' spatial control and reinterpret it. The article shows that space is a central but contested instrument for controlling labour.

KEYWORDS

food delivery, gig economy, labour process, resistance, space, workplace control, labour geography

INTRODUCTION

During First World War, the then officer, Alfred Korzybski, led his unit into a devastating attack, where, instead of cutting off the enemy, they fell into a ditch that was not marked on the available maps. Remembering this experience, he stated that 'a map *is not* the territory, but, if correct, it has a

*[Correction added on 29 January 2021, after first online publication: [Technische Universität Darmstadt was added for Heiner Heiland.]

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similar structure to the territory, which accounts for its usefulness' (Korzybski, 1958: 58). However, there is a 'second text within the map' (Harley, 1989: 9), so that maps do not represent reality, but reflect the perspective and intentions of the cartographer. In the delocalised digital present, maps have lost their prioritised function in the constitution of space. Digital instruments offer new possibilities for producing space as well as controlling labour. However, the intersection of both processes – the digital control of the labour process through the production of space – has been analysed to a lesser extent.

This also applies to 'platform labour', which is characterised by both digital technologies and transformed spatial relations. The segment comprises a diverse spectrum of forms of labour differentiated via their relation to space. Accordingly, *crowdwork* describes work that is not bound to a specific location and mediated via platforms. *Gig work*, on the other hand, refers to platform-mediated jobs performed at specific locations (Schmidt, 2017).

Focusing on platform-mediated food courier work, this article analyses the most relevant segment of gig work in Germany. During the investigation (February to October 2018), two platforms were particularly relevant in Germany: Foodora in 34 and Deliveroo in 15 cities.¹ Since no information was communicated by the platforms, it can only be estimated that there were approximately 2,500–5,000 drivers in Germany in 2018.² Despite a largely identical labour process, the workers were connected differently to the platforms: Deliveroo worked exclusively with self-employed and Foodora with (temporarily) employed drivers. This, together with the reluctantly accepted works councils in some cities, fit Foodora into the 'German model of industrial relations' (in other countries riders are mostly independent) and its coordinated German economy (Silvia, 2013). In contrast, Deliveroo tried to establish the freelancer model with market-bound labour relations that prevails in liberal economies and is common in platform economies. This challenges the category of the company and thus the German Works Constitution Act, which regulates occupational health, safety and co-determination.

At the heart of platform-based food deliveries is 'the annihilation of space by time' (Marx, 1953: 423), representing the execution of the 'last mile' (i.e. the transport of ordered meals to customers). This service has proven to be resistant to rationalisation and comprehensive control and is therefore the most cost-intensive part of logistics. By using digital technologies, however, the territoriality of workplaces is expanded and at the same time, logistical labour processes are subject to increased control (Levy, 2015). This is also the case with platform-mediated food delivery. The platforms are confronted with the challenge of efficiently coordinating restaurants (supply), customer (demand) and rider (courier work). These actors are distributed throughout space and connected to the platform via the app alone (see Figure 1).

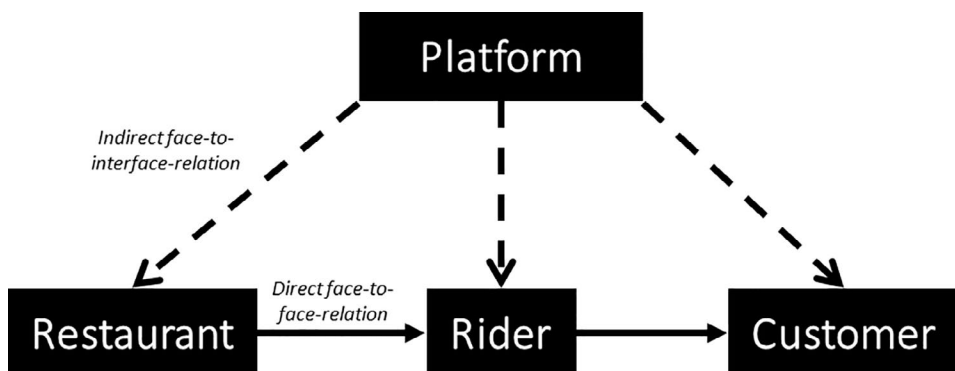


FIGURE 1 Indirect and direct interactions on foodtech platform

Several studies investigate the control regime which enables the efficient coordination of the labour process in such a context (Waters and Woodcock, 2017; Shapiro, 2018; Griesbach *et al.*, 2019; Veen *et al.*, 2019; Heiland and Brinkmann, 2020). As Veen *et al.* (2019) show, three distinct features are relevant: technological infrastructure, information asymmetries and obfuscated performance management systems. The apps of the platforms act as 'point of production' (Gandini, 2019) and allow to monitor the labour process in real time. Additionally, the platforms determine when and which information is passed on to the riders, and furthermore, the applied performance management systems are only partially transparent to the workers. Heiland and Brinkmann (2020: 132) further emphasise the unilateral and top-down structure of the digital communication structures. These do not allow the riders to deviate from the paths given in the app, so that 90 percent of a sample of German riders stated that they feel being at the mercy of technology.

Given such a comprehensive control regime, Veen *et al.* (2019: 400) observe that '[c]ollective expressions of agency within the Australian food delivery sector were also largely absent'. In Europe, however, platform labour in general and food delivery labour in particular is 'one of the most vibrant and exciting areas of labour organising' (Joyce *et al.*, 2020: 1; see Cant, 2019; Heiland, 2020; Heiland and Schaupp, 2021; Tassinari and Maccarrone, 2019). So far, the focus of analyses has been on visible and collective forms of resistance. The riders' individual agency is scarcely examined.

Furthermore, the spatial aspect of this kind of labour is ignored, although it is a central characteristic since 'bike messengers ...cannot be understood outside of an analysis of space' (Kidder, 2009: 307). Couriers are characterised as 'hunters of space' (Leigh, 2018), looking for the most efficient route. '[T]hrough their use of the city ...messengers construct their social world and make sense of their lives' (Kidder, 2009: 309). Barratt *et al.* (2020) investigate the labour geography of food delivery gig work, but focus on the characteristics of the Australian labour market and thus remain on a national scale. The micro-geographies and their contested relevance for the control regime of this particular platform labour have not yet been explored. As this article shows, this reflects the predominant type of analysis, which either rarely includes space (labour process theory) or does not take into account the workspaces of the concrete labour process (labour geography).

The following analysis of interviews and extensive auto-ethnography shows that space is a control element, produced by the platforms and contested by the workers. By demonstrating this, the article extends the perspective and scope of labour process theory (LPT) and labour geography. Furthermore, it opens a nuanced view on the agency of riders, focusing on the less analysed individual organisational misbehaviour.

THEORY OF LABOUR AND SPACE

Space is at 'the very heart of social theory' (Giddens, 1981: 91). Durkheim (2001) and Simmel (1992) already understand space not as a pre-social but as a constructed category, and for Elias (1992) space is an 'intellectual synthesis'. Lefebvre (1991) focuses on space as something that each society produces specifically and like a commodity. And Foucault (1984: 252) analyses 'disciplinary spaces' and states that '[s]pace is fundamental in any exercise of power'. Castells (1983: 311) notes that 'space is not a "reflection of society," it *is* society', making the analysis of space a transdisciplinary paradigm (Soja, 2008: 242).

A specific space is the workspace (Markus, 1993). Work is at the focus of LPT. The core LPT (Thompson, 1990) critically analyses the antagonistic relations between capital and labour and the challenge to transform labour power into profitable work (Marx, 1962: 187–188) as well as the associated managerial strategies to control the labour process (Braverman, 1974). Later works emphasise

that the labour process is permeated by resistances and represents a ‘contested terrain’ (Friedman, 1977; Burawoy, 1979; Edwards, 1979; Ackroyd and Thompson, 1999). Such resistances occur less in the form of direct class struggle (Edwards, 1986: 7), but are day-to-day and micro-political ‘mole work’ (Hegel). They can be traced back to a habitual striving for autonomy (Ackroyd and Thompson, 1999: 73) and can be opportunistic or even affirmative towards the management’s goals (Burawoy, 1979). Control and resistance are in a dialectical relationship and ‘distinct forms of misbehaviour are the characteristic artefacts of distinct managerial regimes’ (Ackroyd and Thompson, 1999: 74–75). LPT seems particularly suitable to analyse platform labour (Gandini, 2019). However, space is rarely the focal point of interest.

With the Hawthorne studies in the 1920s, the link between the design of the workspace and the workers’ productivity is at the beginning of sociological analyses of labour (Mayo, 2005: ch. 3). And although the centralisation of the labour process in factories was for control reasons (Marglin, 1974: 82) and the restructuring of the labour process by Taylor and Ford was based on a reorganisation of the industrial space, the spatial aspects of workplaces do not play a central role in LPT. Thompson and Smith (2009: 923–924) state that there is a ‘need for a temporal and spatial dynamic to be introduced back into the LPT [and]... a requirement to see how ICTs *decentre* work from a single physical site and open to working to any space’ (see also Rainnie *et al.*, 2010; Coe, 2015). Baldry’s call to reintegrate the working environment ‘into analysis as part of both the objective conditions of the labour process and the subjective mechanisms of control and subordination’ (1999: 536) was followed by research dedicated to the topic (Baldry *et al.*, 1998; Barnes, 2007; Baldry and Barnes, 2012; Bilisland and Cumbers, 2018). In these seminal analyses, space is not a neutral container, but is constructed purposefully with the intention of control. They show how the labour process is formed by architecture and interior design, since ‘the use of space must be seen as an instrument of managerial control’ (Baldry *et al.*, 1998: 165).

However, as in the Hawthorne studies, the focus is primarily on the objective and tangible physical work environment such as architecture, lighting and temperature rather than space as such. And where space is analysed, a top–down perspective prevails. Space is usually conceived as a unilateral form of power, so that ‘space is *done* to workers: workers are subjected to specific architectural and managerial constructions of space’ (Halford, 2004: 2). The connection between workplace and space is thus no longer a ‘neglected territory’ (Baldry, 1999: 551), but is still rarely in focus. This is particularly true of the contested micro-geographies of the labour process. In geography, space is inevitably more than a ‘background scenery’ (Herod *et al.*, 2003: 176). A capitalist system does not operate in space, but through the spatial organisation of society (Harvey, 1982, 1989; Lefebvre, 1991). Thus, capital’s success is based on its ability to construct a space that fits to its intentions: ‘Capitalism is always transforming space in its own image’ (Smith, 1984: 157). According to Harvey (1982), the results are spatial fixes. These describe the ‘crisis-induced creation of new spatial configurations through the spatial redistribution of capital and jobs’ (Wissen/Naumann, 2008: 395). In other words, spatial fixes are particular geographies by means of which capital influences the circumstances of its reproduction: for example, materials and also workers must be available at the right time and must be able to reach the production site.

In this tradition of critical geography, labour is a neglected category and the perspective of capitalist accumulation is adopted (Harvey, 1982; Massey, 1984). Workers are understood either as an ‘inactive’ factor or as subordinate and suppressed variable capital, which is ‘an aspect of capital itself’ (Harvey, 1982: 381). This changes with Herod’s labour geography (1997) which focuses on workers as actors, who ‘*actively produce economic spaces and scales* in particular ways’ (Herod, 2001: 46). The production of space by capital is therefore not unilateral and uncontested by the workers. As Herod (1997: 25) stresses, it is necessary to recognise ‘working class people’s capacity for proactive geographical

praxis', which facilitates 'their social reproduction and hence survival' (Herod, 1997: 15). This is identified as 'spatial fix of work', which includes 'the manipulation of space by workers and unions' (Herod, 1998: 5). Space is therefore not only unilaterally produced via the logic of capitalist accumulation, but also via workers' contestation of it, who 'agitate for different spatial configurations of capitalism' (Rainnie *et al.*, 2010: 300). Thus, there is a continuing conflict between a spatial fix of capital and a spatial fix of labour. While this does not imply a power symmetry between the two sides, it emphasises that workers are active spatial agents. It has to be analysed how the concrete relationship between the two spatially fixes is and which agency each side holds. Hence, the focus of labour geography is on 'understanding that what occurs on the shopfloor is shaped by what goes on outside the factory or office gates' (Rainnie *et al.*, 2010: 299). That social structures and space are based on practice is a commonplace, especially in Marxist theories. Both Lefebvre and Harvey emphasise that space only (re)produces itself through practice (Harvey, 1982; Lefebvre, 1991). However, in analyses within this paradigm, actual practice is neglected and is usually attributed to a one-dimensional reproduction of capitalist structures (Löv, 2008: 29–30). The focus of labour geography has therefore been predominantly on collective and often union-led labour struggles (Herod, 2001; Castree, 2008; an exception is Hastings and MacKinnon, 2017). Platform labour is only occasionally and recently coming into the focus of geography (Johnston, 2020), so that '[u]rban studies scholars have been rather late to the discussion' (Stabrowski, 2017: 328).

In summary, labour process and space remain two interdependent but usually separately analysed variables. There is a science of labour, with a weak conceptualisation of space, and a science of space, with a weak conceptualisation of labour. As Jordhus-Lier *et al.* (2019: 72–73; also Rainnie *et al.*, 2010) note, labour geography and LPT have a shared neo-Marxist theoretical basis, but have so far mostly been connected in the context of a 'branching out' to analyse global production networks (Newsome *et al.*, 2015). Only few analyses connect both with focus on the workplace (Ellem, 2016; Hastings and MacKinnon, 2017). Complementing this, Jordhus-Lier *et al.* (2019: 71) suggest to "'zoom in" on the workplace'. This article intends to further zoom in to examine the contested micro-geographies and their relevance for the control of the labour process.

It is therefore necessary to use the established theoretical instruments of LPT, while taking into account the concepts of labour geography. The meso- and macro-focused insights of the latter have to be applied to the micro-level of the labour process and LPT. Just as workers are not subject to control regimes in the labour process without opposition and without agency, they resist the constructions of space and spatial practices of capital. The labour process is contested and so is space. At the same time, it is located in organisations or at least controlled by them. Organisations and especially corporations are private 'ruling associations' (Weber: 'Herrschaftsverband'). Relationships in the workplace are part of 'a basic social relation between entrepreneurs who exercise authority and workers who must obey' (Bendix, 1956: 13). The constitution of the specific space in which work takes place is thus located in a contested field in which the spatial fix of labour and that of capital compete with each other. The questions are to what extent and how management can control the labour process through the construction of space and the control of workers' spatial practices, and whether and if so, how workers are able to resist.

METHODS

The research methods are not only decisive for the results, but at the same time determine the problem (Burawoy, 1998: 30). Thus, it is quite possible that the neglect of space and other aspects of labour are due to a limited methodological toolkit. For this reason, both an etic and an emic viewpoint were

adopted, that is an 'emtic orientation' (Onwuegbuzie, 2012), linking reactive and non-reactive instruments in a multi-method design. Guided interviews, ethnography and content analysis were triangulated in order to increase the results' scope, depth and consistency (Fielding and Fielding, 1986: 33). Using these methods, a multiple-case study (Yin, 2018) of two platforms in Germany, Deliveroo and Foodora (see above), was conducted. The comparison and contrasting of the insights into their labour processes and spatial practices therefore allows a profound analysis of this kind of platform labour in Germany in general. During the survey period from February to October 2018, 35 semi-structured interviews were conducted with food couriers in seven different German cities. 17 of these interviewees had experience as former managers of the platforms, or they were either a 'senior rider' or a member of a workers' council, which provided them with top-down insights into the platforms' organisation of the labour process. The interviews lasted an average of eighty minutes and focused on the backgrounds and motivations of the riders, the labour process and possible resistances. A theoretical sampling was used in order to develop object-related theoretical concepts (Glaser and Strauss, 1967). Of those interviewed, five were female, eight had no German citizenship, the average age was 27 and most had a school education qualifying for university. The sample reflects the social structure of the riders found in a quantitative survey (Heiland, 2019). 21 worked at Foodora and 14 at Deliveroo and 17 of the riders also had management responsibilities or were previously part of the management.

However, the sole access via interviews is insufficient for two reasons. First, interviews are not only a stimulus but also an intervention that detaches the interviewee from the very same practice that the researcher aims to analyse (Burawoy, 1998, S. 14). Thus, only retrospective and abstract content can be investigated which the interviewees are actually aware of. Second, digital artefacts, which are central in platform-mediated courier work, are not available for interviews. Therefore, more than 500 hours of participating observation and observing participation (Wacquant, 2006; Parkin, 2017) were conducted. They were carried out in five different cities to explore regional differences. Since Foodora employs its riders in individual cities, work was carried out for this platform in two cities. Self-employed courier work was done for Deliveroo in four of the five cities.

Using participating observation, couriers were accompanied at work and during meetings in all five cities, allowing for observation of courier work non-reactively and in practice. With the help of observing participation as a form of auto-ethnography, courier work was carried out, acquiring a nuanced first-hand understanding of the labour process. In this way, the app and its (spatial) coordination and control of the labour process could be explored by means of targeted stimuli using 'a sequence of experiments that continue until one's theory is in sync with the world one studies' (Burawoy, 1998: 17–18). This method allows a direct access to the phenomenon, but is also bound to the researcher and to concrete time and places. Therefore, the complementation and control of the results with the insights from the interviews are of central importance to ensure the generalisability of the results.

Due to the fact that courier work is located all over the city, riders rarely come across each other. Hence, online chat groups and forums are of special importance. Through these autonomously organised channels, riders exchange information about everyday life or work-related subjects or they discuss critically the working conditions and organise protests. Therefore, in addition, six local or supra-regional communication channels were analysed as part of a virtual ethnography (Hine, 2000; Beaulieu, 2004). In all chat groups, the role of the author as both rider and researcher were made transparent at the beginning.

Investigations were completed as soon as—following the criterion of theoretical saturation—no new knowledge could be gained, so that a 'conceptual representativeness' was achieved (Saunders *et al.*, 2018). Subsequently, the transcripts of the interviews, field notes and chats were coded (following Reichertz, 2003). In a first theoretical coding, the different concepts of labour geography and LPT were considered and corresponding categories were formed. The data were then abductively coded

with regard to the specificity of the phenomenon. In the following, quotations are attached to identifiers. 'I' represents an Interview, 'FN' field notes and 'CH' a comment from a chat. The following numbers first identify the transcript and then the respective paragraph.

ANALYSIS

The platforms state that the algorithm alone is responsible for the organisation of the delivery process. In doing so, they use a narrative of the digital economy in which algorithms serve as a signum of the current social transformation which are able to initiate new leaps in productivity. In fact, the production of space proves to be far more relevant to the coordination of labour, as shown below. In the following, it is first shown how the platforms produce and continuously adapt different spaces for the involved actors. Then, it is demonstrated how the platforms provide the couriers with a controlled autonomy but keep the structure of the working spaces flexible and non-transparent. And it is pointed out how the riders undermine these spaces and use them for collective actions and how the platforms try to prevent this.

Production of space as necessity

As mediators of logistical services, food delivery platforms had to define and produce spaces. They were only present in urban centres in which they find a sufficient number of restaurants, customers and riders. The challenge was to coordinate these three interdependent groups without the possibility to exert immediate influence on them (see Figure 1) – with exception of the employed riders. To meet this challenge, the platforms produced different spaces for each group.

The platforms cooperated with restaurants in previously defined parts of the cities and they determined the delivery areas from which these restaurants could receive orders. Customers could only order from restaurants located within 3 km around their location. The space in which they acted was thus dependent on their individual position. However, if the demand for deliveries exceeded the supply of riders (e.g. on weekend evenings or in bad weather), the platforms could influence the efficiency of the labour process by changing the space:

If there is a lot going on, ...the order radii for customers are automatically shortened. This means they get fewer restaurants to choose from. Which again means that the distance between the customer and the restaurant is shrinking, the courier is there faster, therefore ...getting the work done faster

(I21: 144).

Furthermore, the platforms created specific spaces for the couriers, too. Depending on the size of the city, either one or more zones were set up in which the riders acted. Within the scope of the available shifts, the riders could choose in which part of the city they wanted to work. This distribution of couriers allowed the platforms to optimise their planning: 'The forecast knows in which districts more orders are placed than in others. Based on this, shifts are distributed and drivers are assigned to them' (I24: 112). Relevant factors were also the time of the day, weather and major events. Riders had either committed themselves to a certain number of monthly shifts (employed) or had a vested interest in obtaining shifts (self-employed). Depending on local labour markets, and especially in summer, there could be more riders

than shifts, forcing couriers to choose other shifts or zones. Result was a balanced distribution of the riders according to the demand in the various zones.

Additionally, at the beginning of their shifts, riders could only log in at specific points of the delivery zones. These ‘starting areas’ or ‘log-in points’ placed the riders and allowed the platforms to distribute the couriers in space in correspondence to the forecast. These ‘log-in points’ were ‘located so that there are as many restaurants as possible around them’ (I12: 18). This specific placing of riders made the system more inflexible but more predictable and controllable for the platforms.

The platforms’ spatial fix: controlled autonomy via non-transparent spatial corridors

As will be shown below, the platforms produced a spatial fix with flexible and non-transparent spaces in which the riders could act autonomously. The riders were autonomous with regard to the chosen route. This allowed the platforms to exploit the riders’ individual spatial knowledge, as a chat-comment shows: ‘If I only followed the map in the app, every order would arrive five minutes later’ (CH1: 53). This autonomy was limited, since the riders were tied to delivery zones whose specific boundaries were not transparent to them. On neither of the two platforms nor in any of the cities were the riders provided with a map of the zones: ‘[W]e don’t even know what the boundaries of the zones are. They are secret’ (I6: 29), said a rider. A former manager described: ‘There was a map for a while. It was forbidden for me to spread it further, ...because it was supposedly strategic material’ (I21: 148). Despite the lack of knowledge about the boundaries of the zones, riders developed a feeling for them. Because, as explained before, couriers were closely related to the space they moved in (Kidder, 2009). They synthesised their everyday experiences into a unified space and created cognitive maps (Kitchin, 1994): ‘I learned by experience. Riding for more than one year I know it more or less’ (I7: 31), as could be seen in the field notes:

After two months I know the borders of the zone. This allows me to better plan the work and its end. I also complain more about inappropriate orders when they are in other delivery zones

(FN4: 17).

However, this *praxis* knowledge was precarious: ‘Two weeks later, orders regularly cross the zone border. When I complain, I am told that more roads have been added to the zone’ (FN9: 3). The borders were modified continuously, as a former manager confirmed: ‘[Some zones] have been much edited especially at the outer edges. Partially expanded and better tailored’ (I21: 140). The platforms regularly redrew borders to make the labour process more efficient or to gain new customers. A rider with management responsibilities said: ‘They just experiment around, create flexibility’ (I16: 160). The riders were not informed and noticed this only in their work practice when they must integrate such changes into their cognitive maps and their everyday work routine: ‘We only notice how far from a zone one can deliver’ (I6: 31).

The division of delivery zones was based on and named after existing urban districts. Despite this reference, there was no congruence between urban and delivery districts. A rider with management duties described:

I always have to explain to drivers who are upset that they have logged in to [one urban district] and then landed in [another]. The delivery area will then be [like a specific urban district], but we have an overlap with [another]. Just forget the political map. That does not interest logistics at all. You put a different map on it, which shows a different topic. The map is not the fucking territory. ...Of course, the borders are different.

(I16: 158)

In some cases, the platforms' spaces overrode the riders' cognitive maps. The latter were formed through spatial experiences and official declarations of urban areas as specific districts. During the courier work, the riders made spatial experiences, which were assigned to existing city districts by the platforms, but which were not congruent with its official classification, since streets were assigned to other neighbourhoods. As a result the riders' cognitive maps evolved and the subjective synthesis of space moved away from its objective description: '...that changes our perception, because we think we are in [district A], but we are in [district B] and it is only the Deliveroo-[district A]' (I6: 29), and another said: 'for Foodora, [district name] is different than for me' (I23: 50).

Additionally, the borders of the zones overlapped, so that the riders felt that 'the borders are actually fluid' (I13: 61), because the riders' delivery areas were incongruent with the customers' spaces. A customer living at the edge of the zone would be supplied by couriers of both delivery zones. The riders called this 'zone-borrowing'. Furthermore, important 'key-restaurants' were equipped with individual delivery radii: 'McDonalds and others are premium partners and they can choose their delivery areas. It's not about efficiency, it's about the McDonalds restaurants wanting their orders distributed as evenly as possible' (I25: 149). This could lead to situations where riders were in the immediate vicinity of a restaurant chain, but had to pick up the order from another store on the outskirts (FN7: 14; I25: 149).

In conclusion, the platforms produced specific spaces in which they continually changed borders within which the couriers had to act. Borders were flexible, nonspecific and non-transparent. Simultaneously and since knowledge about maps has always been a power resource of which only specific parts were communicated (Landes, 1983: 110), the platforms established spatial information asymmetries to control the labour process. Since courier labour is dispersed in space, the influence and production of this space were an effective instrument of control. The spatial fix of the platforms did not express itself in clearly defined placements of the riders. Instead, the platforms defined spatial corridors in which the riders could place themselves. Thus, their cognitive mapping had only limited autonomy and could merely take place in a framework controlled by the platforms.

Labours' spatial fix and capitals' answer

Despite the control of the delivery labour process through the production of non-transparent spaces, the riders carried out their work alone. The following shows how this was used by the workers as a power resource and to produce their own spatial fix which allowed them to bypass the control of the platforms. A challenge of mobile work for companies is the dispersion of workers and thus the lack of knowledge about their actual location (Levy, 2015; Bakewell *et al.*, 2018). A rider with management tasks described: 'You have the problem that you have a decentralised workforce. Trust is zero on both sides' (I16: 38). This enabled the workers to act autonomously, as they could escape the companies' spatial control and surveillance, as one rider explained: 'You can just turn off your mobile. ...you are unobserved. ...if you don't want to be "connected" with them, with your mobile [snaps] everything is gone, complete connection between you and your employer' (I4: 15).

The platforms tried to counter this by means of permanent GPS localisation of the riders, which was at the same time essential for an efficient courier labour process. Accordingly, the couriers could not use the rider app without active GPS signal: '[T]hey always tell you that they can track you down with the GPS, so you feel very controlled' (18: 110). The constantly updated knowledge of the workers' position was a prerequisite for control and placings of the riders through the platforms. The dispersion of riders in space as a zone of uncertainty and their spatial fix was devalued by the platforms and the riders thus deprived of a power resource.

A former manager described that the geolocation of the riders at the beginning was primarily an instrument of a 'logic of efficiency' (Friedberg, 1997): 'The system at that time ... had a map with the points of the logged-in couriers. ... [T]here were no restrictions for logging in' (I21: 48). This was used by some riders: 'Some discovered that you only get an order if you're relatively close, they somehow logged in and then went out of the city and to the lake' (I21: 46). Later, the couriers' GPS signal was no longer just for allocating assignments, but also followed a 'logic of control'.

The type of coupling of the riders to the platforms made a key difference. When without order, riders were told to move to the zone centre where the 'starting area' was located. In its vicinity were many restaurants, so that the couriers had only short distances in the case of a new order and the delivery process was accelerated. While this was a recommendation for freelancers, it was an instruction for employees, verifiable by geolocation:

I delivered something ... and rode slowly back towards the city centre. ... And then I got the message: "Where are you actually going?" ... I just wasn't taking the most direct way. I only wanted to go to [another district] first and see if there is an order I can take directly
(I26: 142)

As shown, the riders were autonomous with regard to the choice of the route and their movement in space. Simultaneously, however, the platforms created geo-fences that did not have to be identical to the delivery zones, as the observing participation shows:

More than two kilometres after I leave the delivery zone, I receive a message that I have left the delivery area assigned to me and should return to the zone centre, otherwise I will be logged out automatically. After another kilometre the app logs me out. ... I have to drive back five kilometres to the zone centre to be able to log in again
(FN5:11).

This shows the platforms' spatial fix. The control of labour via space was not realised by concrete placements, but by the constitution of spatial corridors controlled via geofencing in which the workers could act. When spatial deviations of a certain degree occurred, a warning was issued and the riders could be sanctioned by logging them out.

Surveillance and control cannot be total and nevertheless the couriers were able to establish their own spatial fix. In chats, riders regularly discussed places in the delivery zones where mobile service was poor or one received few orders – these places were used by employed Foodora riders and were avoided by self-employed Deliveroo riders. Some riders went further and contested spatial control with a spatial fix of labour that allowed them autonomous agency beyond the corridors set by the platforms. They used fake-GPS apps which made it possible to change the individual GPS signal and thus to send a position other than the actual. The riders used it to counteract the platforms' spatial fix and to act independently from it. Those who were not in the starting area on time changed their GPS position and thus prevented sanctions, wage deductions or deterioration of individual performance statistics. The tool could also be used to 'control where you work at least a little bit' (I14: 140) and

to influence work intensity, as one rider described: ‘The people who don’t want any work, put their signal far out and the people who want to have orders put their signal back in, so they no longer seem far outside’ (I16: 118).³

This points to the different rationality associated with the different coupling of riders to platforms and leading to different spatial fixes of labour. The employed and paid-per-hour drivers at Foodora used the app to transfer their signal to the edge of the delivery zone with the goal of ‘hiding from orders’ (I14: 146). Since the algorithm distributed orders primarily according to the riders’ proximity to the restaurant, these couriers increased the likelihood of receiving fewer or no orders.

In contrast, fake-GPS was used by self-employed Deliveroo couriers who had an interest in getting as many orders as possible:

They have a fake-GPS, so they can trick the app. When they are in a different part of the city, they can send themselves back to a cool area when they have been sent too far away (I11: 162).

In this way, the riders regained their dispersion in space as a zone of uncertainty and thus the possibility of escaping the platforms’ spatial corridors. These micro-political games show the conflict between the spatial fix of capital and of labour and both constantly readjusted their strategies to regain control, as an (employed) driver described:

At Foodora it is like a game: What can you find to make your work a bit more relaxed until they discover it. ... This trick, you go to a restaurant, pick up the order, swipe “picked up”, put your GPS on the restaurant and deliver it and then the app thinks for some reason you’re still waiting for the food although you already have it. Now that’s been fixed for a long time. You could sit down and wait an hour (I18: 190).

In summer 2018, this loophole was closed by both platforms. Only with sufficient expertise and effort is it still possible to influence the GPS signal.

Conflict concerning space

The following section shows the use of the riders’ spatial fixes to organise collective protests and the efforts of the platforms to prevent them via their own spatial fix. Collective action is always ‘a process ... of organizing over space’ (Southall, 1988: 466). With the lack of co-location of the delivery labour process, the workers are spatially fragmented, making the emergence of workers’ voice difficult (Nicholls, 2009; Heiland, 2020): ‘Things are systematically arranged in a way so you do not see each other, so that little bonding can occur. ... That’s why you have no big protests, no big dissent’ (I26: 184). Nonetheless have platform-based courier services been associated with riders’ protests from the beginning (Woodcock, 2016; Cant, 2019). In Germany, protests did happen too and works councils were elected in some cities. Central aspect when organising these protests were the use and reinterpretation of the platforms’ spatial fix. With the request to ‘move to the zone centre’ and the establishment of ‘starting areas’, the spatial fix of the platforms focused on an efficient labour process. Simultaneously, however, this created concrete places where the riders could meet and exchange experiences. Organisation of the protests took place in closed chat groups, which were established parallel to the platforms’ communication structures. But for the emergence of these communication channels and the recruitment of allied riders, personal contact was central:

After the first two hours, I meet the other riders working in this zone several times on the road or in the usual restaurants. As the midday peak in orders ebbs away, we all meet at the [zone centre] and have a few minutes to talk. One of the riders asks if we were in one of the chat groups and if we were interested in chatting about working conditions and organising resistance

(FN 4: 13).

When, in spring 2017, some couriers planned a works council election, the ‘starting areas’ where each of the riders would appear at least at the beginning of their shift were used for organising: ‘Most of the mobilisation and informing the riders went via the starting point. [One colleague] stood there, and I was sometimes there, and we addressed riders’ (I28: 39). In response, the platform changed its spatial fix. The corridor in which riders could act was expanded. One rider described that the ‘starting area’ included ‘originally a 300-metre radius. When we started to organise ourselves, it was tacitly increased to anywhere. ... I could log in at home. And there were people who live a kilometre in that direction. They could log in easily’ (I29: 134). As a consequence, the contacting of couriers was made difficult: ‘It is clear, at the full hour all people gather at the log-in point. But if the log-in point is 30 million hectares, no idea where they are’ (I29: 79).

DISCUSSION AND CONCLUSIONS

This article contributes to the literature on gig work, LPT and labour geography. It explores the neglected aspect that labour is never spaceless and that working space is no neutral container, but an intentionally created environment and as such an instrument of managerial control and object of resistance. Contrary to the common assumption that digitalisation leads to a decoupling of social processes from space, the article shows that at least in platform-mediated food delivery, the opposite is the case. Three aspects have been presented in this article.

First, LPT is suitable for analysing gig work, but it has rarely been used to analyse spatial aspects. The spatial control of labour processes is thus a blind spot. Labour geography, on the other hand, emphasises the construction of space and that space is always ‘the product of conflict’ (Massey, 2005: 153). Therefore, it differentiates between a spatial fix that serves the reproduction of capital and a spatial fix of labour that opposes its extraction. However, spatial control practices on the shopfloor and resistances to them remain unobserved. By combining both views, the article opens an analytical perspective, which is particularly relevant in the field of courier work.

Second, the article gives empirical evidence of the relevance of space in the labour process. In the current discourse on platform-mediated food delivery labour, space is not a relevant variable, although even digital work is not spaceless (Anwar and Graham, 2018). The results show that platforms produce specific spaces not only for coordination in the sense of a ‘logic of efficiency’ (Friedberg, 1997), but also following a ‘logic of control’. They construct various zones that function as corridors in which the couriers can act in forms of a controlled autonomy. The spatial knowledge of the workers is used and they are at the same time bound to specific spaces via geofencing. Deviation is sanctioned. In addition, the platforms establish information asymmetries as the borders of the zones are not communicated and are subject to regular changes. Thus, the relationship between couriers and the city and their cognitive maps are influenced by the platforms’ spatial fix.

Third, the article shows that form does not follow function. While collective resistances of the riders have been analysed from the perspective of LPT (Woodcock, 2016; Cant, 2019; Tassinari and Maccarrone, 2019; Heiland, 2020), the riders’ everyday micro-political and resistant practices have

been neglected. Instead, the focus is primarily on the control regime, without analysing 'organisational misbehaviour' (Ackroyd and Thompson, 1999) as its flipside. Looking at the interrelation between control and resistance, it becomes apparent that just as the map is not the territory, the spatial fix of capital is not congruent with that of the workers. Despite the platforms' control over space, the couriers create their own spatial fix that reinterprets, undermines and changes the platforms spaces. Using fake-GPS apps, the couriers manipulate the platforms' spatial control. Thus, the workers decouple themselves from the platforms' spatial fix and influence the intensity of the labour process – in which direction they do this depends on the type of their employment. Furthermore, the workers use the placements of the platforms to overcome their isolation and to organise protests.

Additionally, it was the ethnographic perspective that brought the relevance of spatial control and resistance practices into focus. For the analysis of space from an LPT perspective, the broad methodological instruments of ethnography thus appear to be an appropriate approach, which brings the neglected subject of spatial control to the fore.

Limitation to the study is primarily the focus on Germany. In other countries, the spatial control regimes differ, and so do the riders' spatial strategies. Thus, comparative research is required. Furthermore, as food platforms are restaurants without walls and courier work is genuinely spatial, generalisability is limited. Nevertheless, a spatial focus on platform labour and labour processes in general seems necessary.

In conclusion, it can be stated that space matters also in the labour process. Space is a source and a medium of power. Platform-mediated courier work cannot be adequately understood without analysing space. It remains to be clarified to what extent this applies to other, non-mobile forms of labour. At any rate, space represents a promising category of analysis that is more susceptible to manipulation, especially in times of digitisation. It is never just given and not identical with the control efforts of capital, it is always contested. Or in other words: 'the map is not the territory'.

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NOTES

1. Delivery Hero, Foodora's parent company, was sold to its competitor *take away* at the end of 2018. Deliveroo withdrew from Germany in August 2019, consolidating the industry. Germany is thus one of the first larger markets in which platform economies' tendency towards monopolies is taking hold.
2. This figure comes from members of the Supervisory Board, supplemented by sporadically communicated information from the platforms and estimates in the media.
3. Thus, the riders regain the autonomy that traditional couriers, coordinated by radio, have always used. The latter communicate their position themselves and can thus influence which and whether they receive an order or not.

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