Platformized Cities and Urban Life
An Introduction

Sybille Bauriedl & Anke Strüver

The increasing platformization of everyday life has recently become a subject of research across the social sciences. This edited volume aims at collecting and strengthening critical research on platform urbanism. Urban scholars have advanced this concept to examine the significance of changing everyday practices and power shifts brought about by the expansion of platform operators into all areas of urban life, such as domestic and rental services, deliveries of meals and groceries, and mobility. Platform urbanism can thus be understood as a special mode of using and producing urban spaces as its inherent mechanisms take on an increasingly central role in refashioning relational dynamics between code, commerce, and corporealities (Barns 2019; Sadowski 2020a; 2020c; Lee et al. 2020).

The task of critical platform research lies in engaging with the socio-spatial and normative implications of platform-mediated urban life. Platformization reconfigures existing digital socio-spatial orders and exacerbates inequalities in cities (Elwood 2021). Moreover, platforms do not only challenge existing regulatory frameworks (Graham 2020); they also increasingly shape ways of imagining urban futures and experiencing urban space in what may be called platform-mediated practices of placemaking. Hence, the inclusion in or exclusion from the newly created networks of data, value, and work produces new forms of precarity, injustice, and (in)security.

However, beyond a mere 'techno-dystopian' stance, critical platform research also needs to emphasize the call to understand platforms as well as contested sites of social creativity and everyday appropriations (Leszczynski 2020; Elwood 2021; Richardson 2020; Pentzien 2021). Rather than yet another critique of *Uberization* or *Airbnbization* in cities, this volume comprises critical debates of the actual consequences of digitalization for socio-technical relationships between citizens, cities, and urban infrastructures with reference

to platform urbanism and beyond. In this introduction, we summarize these trends along four themes: practices of platformization, platform-mediated work, spatial dimensions of platformization, and an outlook on alternatives to platform capitalism.

Practices of platformization of urban life

In this book, we focus on *lean platforms* because this is the fastest growing platform type in recent years and they radically transform urban everyday life, labor conditions, and relations. Lean platforms such as Airbnb and Care.com have strongly transformed the supply of public and private services, especially in cities. In contrast to product platforms (such as Amazon and Zalando), lean platforms do not provide goods but services on demand. They are 'lean' in the sense that they seem to rely not on material infrastructures but capitalize from software and data analytics. Most of the workforce of these companies are freelancers. With the spread of lean service platforms in urban spaces, they have a massive short-term and long-term impact on urban economic and social relations, urban consumption patterns, supply infrastructure, and working conditions.

By lean platforms, Nick Srnicek (2017) refers to a distinction between four types of platforms: (1) advertising platforms that offer information for free and sell income to other companies, such as Facebook and Google, via the placement of advertising and the sale of personalized data, (2) cloud platforms, such as Google, that provide IT infrastructure rental to ensure digital communications, (3) product platforms that offer physical or immaterial goods such as music, movies, or cars on demand (e.g., Spotify, Netflix, DriveNow), (4) lean platforms that, unlike product platforms, do not appear to own any goods, and thus no capital, but nevertheless control the availability and the selling and sharing mode, such as Uber, the world's largest taxi company, which owns no vehicles, and Airbnb, the world's largest accommodation provider, which owns no real estate. These platforms own as little as possible and try to outsource costs as much as possible. The only asset of lean platforms such as Uber and Airbnb is the software they use to mediate the work of independent contractors. The core of lean platform business models is based not on strategies of superabundance but of depletion. The goal is the rapid flow of goods and labor when they are needed (called *on-demand services*). Lean labor workers are more often freelancers than

employees, which represents huge savings in labor costs to these companies. Lean platforms generate informal as well as precarious work that is offered, coordinated, and monitored online.

Digital-savvy people often view the promise of flexibility, low-threshold availability, and multiplication of services of lean platforms positively. However, this assessment depends on digital competence and equipment with digital devices. The barriers to using platforms reflect the digital divide based on age, knowledge, income, and access to the labor market. When van Dijck, Poell, and de Waal (2018) describe platformization of everyday urban life as part of an evolving *platform society*, this does not apply to the entire urban society. Not everyone uses digital platforms mediating information, goods, and services, but everybody is influenced by the implications of service platforms on the housing and labor market and the use of public space. We call this phenomenon *platformized urban life*.

The term *platform* thus expands beyond its technological definition as a programmable interface to encompass the platform as an organizational form for a data-based business model (Srnicek 2017; van Doorn/Badger 2020) and a mode of governing (Barns 2019). Platforms are quasi-commodities that appear in the form of undemocratic institutions under corporate control. Platforms as intermediaries and infrastructures are positioned to capture and control data. Globalized companies use the internet to access people and their digital devices, which are available almost always and everywhere. There are intermediary platforms that exclusively provide digital content and do not offer any products or services of their own, whose business model is based solely on data extractivism and personalized advertising, and there are platforms that offer goods and services themselves. Data has become the central source of profit for all these platform companies.

In his book *Platform Capitalism*, Nick Srnicek (2017) describes platforms as large monopolistic companies that focus their attention on data to extract, use, and control them on a large scale and thus achieve dominance in the trade of personalized information. The platform itself is the economic asset of these companies. Platform companies are focused on rapid growth through network effects and venture capital and seek to evade government regulation (see Gennburg in this volume). The economic interest is aimed at network effects through the expansion of services, brand dominance, and the marketing of by-products (especially personalized data on consumption behavior).

The foundation of the growth of platform companies are the increasingly inexpensive digital technologies of the 21st century, the ever-increasing

amount of data through digital communication, and the enormous demand for data to optimize production processes or to predict and influence consumer preferences. In addition to these material conditions, however, the neoliberal framework was crucial for the development of a booming platform economy. The digital economy developed in an economic period characterized by international competition, overproduction, and price pressure. The global financial crash in 2008 was a driver for platform companies. The post-crash landscape of austerity, entrepreneurialism, and privatization in many urban sectors has provided the perfect conditions for new flows of (venture) capital to start digital platforms that want to operate core services in terms of living, working, traveling, and consuming. The low interest rates on the capital market gave start-ups access to capital and many people were involuntarily self-employed due to job loss or debt and had to rely on informal work or micro-tasking. Moreover, in response to the financial crisis, many national governments implemented a neoliberal restructuring that led to intensified precarious employment and the privatization of care work. This provided lean platforms with both a large freelance supply and a demand for household-related services. The usual reactions of ICT companies were the outsourcing of costs, flexibilization of modes of employment, and wage dumping. Srnicek calls this *cross subsidization*, arguing that part of the business model of platforms is fine-tuning the balance between what is paid, what is not paid, what is subsidized, and what is not subsidized (Srnicek 2017: 46; see also Dowling as well as Ecker in this volume).

Mega platforms such as Uber, Airbnb, and Lieferando were founded in the immediate aftermath of the global financial crash (Sadowski 2020b; 2020c). Huws et al. (2019) point to an enormous growth in the global spread of online platforms, with an exponential growth between 2016 and 2019. In their research on 13 European countries, they found that the use of online platforms for obtaining and supplying services was widespread. Due to the lockdowns related to the Covid-19 pandemic, which started during the spring of 2020, the use of some service platforms received an additional boost: food delivery platforms have benefited from the lockdown of restaurants (Ecker/Strüver 2022) and childcare and private tutoring platforms have taken the pressure off parents with children in homeschooling. The new service of platform-mediated grocery delivery (e.g., Gorillas and Flink) were only established in major cities after the lockdown, competing with supermarkets to deliver groceries to customers' doorsteps within no time (see Orth in this volume). The expansion

of the platform economy can therefore be understood as a consequence and accelerator of a neoliberal growth model.

Platform-mediated work

Digital labor platforms that organize and mediate short-term services, i.e., services as work on demand, are increasingly becoming part of urban socio-technical and socio-spatial everyday life and thus do not play out only in the cloud but also on the ground. As part of the 24/7 services-to-go economy, they are constitutive of the contemporary *real-time city* (Kitchin 2014), and "today's pivot towards the platform is motivated by the need to theorise contemporary platform intermediation in ways that overlap with broader theorisations of infrastructures, cities, and markets" (Barns 2019: 1; see also Huws 2020; Mörtenböck/Mooshammer 2021). This platform pivot is accompanied by the widespread use of smartphones and mobile internet, which have moved 'the internet' to people's pockets and mediate socio-economic and socio-spatial relations in new ways. However, service platforms still rely on 'old' ways of organizing societal (and individual) lives along gendered, racialized, and classed divisions of labor, especially of tasks related to care and social reproduction.

In general, platforms' profit is generated by economies of scale and that is why platforms strive for growth (*growth-before-profit logic*) to benefit from network effects in the long run. Next to mediating services, platforms compete on collecting and analyzing data. Extracting huge data sets enables platform companies to offer faster consumable services (e.g., ride-hailing, food delivery) or better matches (care services), resulting in, or so it is *assumed*, satisfied workers and customers on the one hand, and satisfied investors on the other. However, lean platforms rely on data less to exploit it as a commodity than to organize and optimize the respective service offered, i.e., data about customer demands and the spatial distribution of demand as well as the control, management, and surveillance of workers (Altenried 2021). Since platform companies are usually funded with venture capital – surplus capital seeking to make profit in times of very low interest rates – the growth-before-profit logic is one resting on network effects and monopolizing a special sector (Srnicek 2017), i.e., on competition between platform companies and their supply of services (see Ecker in this volume, also in comparison to less typical platform models).

Lean platforms providing services on demand and the conceptual frameworks of techno- and platform capitalism (Srnicek 2017; Elwood 2021) are often tied to the idea of a new era, neglecting their historical roots and developments. We will not join the major narrative of disruption by platform technologies and thus not approach platform-mediated labor as a fundamentally new form of labor. It rather seems to be an extension of neoliberal deregulation and flexibilization. In the sphere of care work, for example, platforms change not the tasks as such (cleaning, cooking, caregiving) but outsource them as single gigs: in 'lean' neoliberal societies, domestic care work is split up into micro-tasks, i.e., cooking, caring for children, and cleaning are separated from each other – and each of these tasks can be bought on platforms on demand. This changes, first and foremost, the relationships between clients and workers to formal but anonymous non-commitment as well as the competition for clients and over hourly wages and work standards (see Keller in this volume).

Most lean labor platforms for reproductive services offer a commodified response to those who can afford it (Huws 2019). These platforms take advantage not only of the digitization of society but also of the supply deficits due to the care crisis. Emma Dowling (in this volume) emphasizes that there are several

> "ways in which new care platforms offer solutions to the care crisis. First of all, they respond to the crisis of the neoliberal subject and the imperative for permanent productivity and optimization. [...] Second, new care platforms intervene in the crisis of social reproduction within the family and household, or society more generally. Especially where women are no longer available in the household as a resource for care [...]."

As such, the platforms present themselves as solutions for the care crisis and Dowling asks how they insert themselves into the political economy of care across the domains of state, market, and society in response to the ongoing care crisis.

Contexts of emerging digital labor platforms: Neoliberal capitalism and austerity urbanism

Digital platform economies result *from* capitalism's crises tendencies and are considered a social and economic 'fix' in cities. Many contributions in this volume bring crises and their fix into dialogue with urban everyday life by way

of relational analyses of technocapitalist economies and their sociospatiali-
ties (Elwood 2021). This is due to the fact that platforms result *in* new urban
temporalities and mobilities and thus new forms of proximity, both in spatial
and temporal terms. In order to stress new urban configurations, we follow
Srnicek's (2017) willful neglect of digital platforms' surveillance affordances or
data mining techniques (see, e.g., Zuboff 2019) in this introductory chapter.
We rather allude to the economic history of capitalism, including its basic
principles such as profitability and its reliance on exploitation.

Service labor platforms target cities because of their population density of
both consumers and potential workers, the latter often singled out by gender,
race, and migration status, and thus need to be viewed in relation to neo-
liberal capitalism and austerity urbanism. Austerity programs have shifted
economic crunches and hardship to local scales (to both urban and private
households) and continue to turn social relations into market relations. The
neoliberal deconstruction of urban social services by austerity policies and
the fiscal crisis of the local state have been addressed as austerity urbanism
for about a decade (Peck 2012; Theodore 2020). In the context of the plat-
formization of daily urban life, this is an expression of "the politics of every-
day austerity at the street level, where the effects of public-service cutbacks,
job losses and increased exposure to socioeconomic risks are experienced in
daily life, in workplaces, in households and the public sphere" (Peck 2012: 632).
Yet, the combination of 'workplace' and 'household', i.e., private households
as workplaces, has been neglected in research on austerity urbanism so far.
This invites us to look in more detail at, for example, lean labor platforms as
mediators of care tasks playing a central role in both platform and austerity
urbanism as the crises related to contemporary austerity politics shift respon-
sibility for the social and the economic to (very) local systems of support (see
Dowling and Tristl/Strüver in this volume for care services in private house-
holds, and see Roelofsen/Goyette and Berfelde/Kluzik in this volume for the
ways short-term rentals can become part of social reproduction). In general,
and beyond the particular care services sector,

> "the reach of austerity extends beyond mere fiscal restraint and deep into
> neoliberal modes of governance. Take, for example, the ongoing malregu-
> lation of labor markets. In the name of greater labor market flexibility, the
> power of trade unions has been systematically eroded, social safety nets
> for the unemployed have been reduced or eliminated, and the standard

employment relationship has been substantially deregulated." (Theodore 2020: 4)

These developments therefore represent important parameters for platform-mediated labor and platformized urban life.

Modes of intermediation in urban everyday life: Entangling life, labor, and leisure

Lean labor platforms as mediators of service tasks are based on the triadic relationship between workers, clients, and platforms, although most platforms obscure the fact that they are not regular employers or employment agencies but merely brokers or intermediators for tasks as single gigs. Moreover, the algorithmic management of platform-mediated work is invisible and tied to "information asymmetries" (Pollio 2021: 51) between platform providers, workers, and clients. In sum, Huws (2020: 9) has described this type of model of work organization as "logged labor":

> "First, the component labour processes are broken down into separate 'tasks', much as a felled tree is broken down into separate logs, which (although these tasks may in practice require considerable tacit skills to deliver) are treated as standardized and interchangeable from the point of view of execution and reward. Second, the management and control processes are mediated by online platforms, with the worker or service user required to be online (or 'logged on') in order to be notified of what work is available and the progress of its delivery. Third, the very fact that every aspect of service delivery is managed online means that each interaction leaves a digital trace, generating data that can be used not only to record and track current activities but also to build ever more sophisticated algorithms to enhance the efficiency of future ones. Both workers and users are therefore subjected to close surveillance, meaning that the activities are also 'logged' in the sense that was historically used to describe the tracking of movements in ships' logs or other types of logbook."

Lean labor platforms allow for the mediation of gigs, such as food delivery or cleaning tasks, faster, anonymously, and across a larger spatial scale, e.g., within an entire city (Ecker/Rowek/Strüver 2021). This is but one example of why these types of platforms present themselves as technological fixes for societal crunches and individual time and money crises (Fraser 2016; Huws 2019;

see Dowling in this volume). Yet, platform labor is mostly unregulated labor and platforms "constitute an underworld that is not meant to be seen by platform users/customers" (Mezzadra 2021: 42). What is more, platform technologies enable an extension and intensification of what counts as work, both spatially and temporally: platforms entangle labor, life, and leisure because of the 24/7 availability via platforms' apps. Marisol Keller (in this volume) illustrates this vividly based on her auto-ethnographic research as a platform cleaner in Zurich, Switzerland. While apps seem to make it easier to find a cleaner – easier than asking friends and advertising in the neighborhood – the app-mediated (supposed) flexibility to work when, where, and for how long one wants results, however, in a kind of 24/7 standby situation for workers: their work is not limited to the cleaning job as such but also comprises constant attention for the app (new job offers, request for time changes, etc.) and having an inviting platform profile and good reviews from previous jobs. More attention thus needs to be paid to how workers incorporate and embody digital labor platforms and "how digital technologies both produce and mitigate such 'precarious' working geographies [gigs mediated via platforms] by folding in life 'beyond' work" (Richardson 2018: 246; see also Mos 2021 and Tristl/Strüver in this volume). Platform labor thus takes place in the app, on the ground, and in social media profiles (see van Doorn 2017; Ticona/Mateescu 2018). The accounts and affordances of apps, however, are experienced and embodied by workers and clients alike. For the clients, the platform is often reduced to the interface of the app – the app appears as enabler, facilitator, and as a kind of sentient access tool to flexible and convenient mobility, meals, and more. But, obviously, it is not the app that does the work or the platform that provides the service, but it is humans that do the work and provide the services that take time, take place literally, and make or change space: "Urban space becomes workplace, coordinated by 'digital platforms' that connect consumers to a service or commodity through a mobile application or website." (Richardson/Bissell 2019: 283) Spatial distance, for example, is essential for meal and grocery delivery time – and also for reaching private homes for cleaning or caregiving gigs. This means that proximity counts both in terms of urban spatiality and temporality. However, food delivery platforms, both for ready-made meals and for groceries, also change the character and materialities of local urban neighborhoods by dark/ghost/cloud kitchens and by empty or even closed-down restaurants, new grocery hubs, etc. (Ecker/Strüver 2022; see also Orth as well as Ecker in this volume).

Against disruption – against universalization

As mentioned above, we do not advance the idea that platform-mediated labor is a fundamentally new form of labor related to – and relying on – digital technologies. We rather suggest contextualizing it as part of neoliberal flexibilization on the one hand, and as extending the history of gendered and racialized informal work, especially in the sphere of domestic care services, on the other. However, going "beyond disruption" (Ticona/Mateescu/Rosenblat 2018) includes going beyond universalization as well: although the dominant *narratives* tied to the platformization of work seem to be universal and more or less the same 'everywhere', it works out differently in different social, national, and urban contexts. Kavita Dattani (2021), for example, argues against the universal framework for urban platform economies based on Uberization: "the techno-masculinist logics of on-demand domestic work platforms, which are built into the attempt to 'Uber-ise', have disregarded the socio-spatial relations of the city" (2021: 376). She illustrates this with her case study on domestic work platforms in New Delhi, which did not work out at all because female domestic workers do not always have access to smartphones, are often (digitally) illiterate and cannot engage in mobility across the city due to lack of transport and fear of unknown public spaces (for a similar argument, based on research on platform gigs in Kenya and South Africa, see Hunt et al. 2019). This is to say that, even though cities and societies in the Global North and South alike have been hit by austerity and structural inequalities by neoliberalism, resulting in even more precarious flexibility and everyday crises, context-sensitive research is urgently needed. Thus, despite this book's focus on Europe, it is always necessary to be "reflective of elsewhere" (Thieme 2018: 536) as the chapters by Krisch, Roelofsen/Goyette and Tristl/Strüver in this volume illustrate.

Lean platforms and their mediation of services are rooted in the history of informal gendered and racialized care work – and these particular platforms currently profit from the care crisis (see, e.g., Altenried/Dück/Wallis 2021; Flanagan 2019; Huws 2019; Schwiter/Steiner 2020; and see Duffy 2007 for its historical patterns). Furthermore, as we have argued earlier (Bauriedl/ Strüver 2020), especially the development of gendered care work as part of the dominant division of labor is linked to a spatial division and to the invisibility and marginalization of domestic care work at home as an effect of the societal organization of work in capitalist structures (see Akteurinnen für urbanen Ungehorsam in this volume). Although the increasing commodifi-

cation of care work – driven by the Covid-19 pandemic – have made it more public in terms of societal debates, it is still tied to gender norms, especially to notions of female subjectivities and their assumed caring responsibilities (see Weeks 2011; Federici 2019). Platform-mediated care work thus *challenges* the classification of such work as informal and unpaid work, but it neither resolves the problem of its invisibility nor the vulnerability as outcome of its flexibility. Moreover, digital platforms do not change the necessity of house-work, i.e., the burden of the tasks as such (cleaning, cooking, caregiving), and they still rely on spatial as well as on a gendered and racialized division of labor as we summarized in a contribution on the techno-capitalist pro-duction of private and public spaces: "In a nutshell, it could be said that the invisibility of care-work and the interdependencies of gendered, racialised and classified inequality are a prerequisite for and intensified by platforms." (Bauriedl/Strüver 2020: 273)

Stressing the history of paid care services, including its interdependent spatial, gendered, and racialized dimensions, also requires considering the differences between on-demand platforms for food delivery and ride-hailing on the one hand, and marketplace platforms for cleaning and caregiving tasks on the other. Whereas work related to the former becomes more visible when turned into gigs mediated by platforms, work related to the latter remains invisible. Moreover, platform work is always based on flexibility and precarity, but it differs in terms of algorithmic management and control (applied in mobility and delivery services on demand) versus the importance of reviews, rating systems, and trust (applied in marketplace platforms for care services but also short-term rentals). And, while race, ethnicity, and nationality have always played major roles in the composition of the workforce of all these services, segregation in the sense of racialized work has intensified through platform labor (Ticona/Mateescu/Rosenblat 2018).

There is yet another approach to platform work as migrant work, that is, in the way of expanding income opportunities. Both Moritz Altenried (2021) and Niels van Doorn (2021) point out (with reference to Berlin) that, despite its pre-carity, platform work can be a transitory entry gate for migrants/refugees, es-pecially newly arriving migrants without language skills: due to the platforms' quick ways of recruiting and few requirements regarding qualifications, they provide income opportunities immediately upon arrival. Of course, the gen-eral problems around these kinds of work – first and foremost, its contin-gency, labeled as flexibility, and lack of social security – remain, i.e., migrants are even more easily exploited because of their desperate situation during

their formal recognition processes as full citizens and the 'stepping-stone' of platform work often turns into a 'dead-end' (van Doorn 2021).

Moreover, with respect to lean platforms' proposed flexibility to work when, where, and how long one wants, Hunt et al. (2019: 11) have criticized the assumption that the flexibility of platform care work improves women's social and economic positions: it might enable them to combine paid and unpaid domestic work in more efficient ways, but "it fails to recognise or challenge women's disproportionate unpaid care and domestic workload relative to that of men, and therefore accepts a situation in which the gig economy simply offers women a way to fit in still more hours of work. Yet the redistribution of unpaid care is a prerequisite for women's economic empowerment". Speaking of empowerment thus again refers to the need to avoid universalization. Platform work exacerbates social inequalities, and its analysis requires us to be sensitive to how it works out in different social and national, but mostly urban, contexts.

Platform urbanism: Spatial dimensions of platformization

While lean platforms are inherently spatial, they most often are also highly urban. They are basically an urban phenomenon. Even if the services of lean platforms are mediated digitally, physical space is crucial for the provision of the service. Economically successful lean platforms require a definable space with the largest possible number of potential platform users of their services (customers) and service providers (workers). They need and benefit from the population density and spatial proximity of customers and workers in cities. Especially food delivery platforms, such as Lieferando, Mjam, or Gorillas, depend on short distances between customers and workers, since only the delivery as such, regardless of the distance, is paid for. As mentioned above, delivery work is often equivalent to migrant/refugee work. This is an additional aspect of why lean labor platforms are expanding particularly in large cities. The number of people who are forced to accept precarious work from gig to gig – e.g., due to a temporary residence permit – is very high in most European cities (Sadowski 2020b; Altenried/Dück/Wallis 2021).

Urban development in digital times

Digitization in cities is characterized by strong dynamics in the constellation of driving actors and an increasing importance of platform companies. The early phase of digitization in cities was driven top down in public-private partnerships between city governments and IT corporations such as Cisco and IBM, which installed software and digital infrastructures for municipal management tasks (traffic control, waste disposal, etc.) and monitored them in control centers. City governments started to invest in digital tools and platforms with the task to optimize urban infrastructures and services. In particular, competition-oriented city governments guided by the ideal of an *entrepreneurial city* regard any type of digitalization and platformization as a pillar of their urban development strategy. This phase of a so-called smart urbanism (Marvin/Luque-Ayala/McFarlane 2016) differs from platform urbanism by its governmental mode and the greater influence of platform services on ordinary and everyday urban life. The goal of lean platforms is not to remedy deficits in municipal services but to diversify the range of services and thus generate additional demand (Barns 2019; Stehlin/Hodson/McMeekin 2020; Lee et al. 2020). Smart urbanism and platform urbanism can also be distinguished by their influence on everyday urban life, as Sadowski argues:

> "Smart urbanism is primarily about optimizing oversight of city systems through state procured, corporate provided 'solutions', whereas platform urbanism aims to transform and/or take over the operations of city services that tend to be more market or consumer oriented. These two models don't necessarily supersede or even compete with each other, but rather work simultaneously in different spaces." (Sadowski 2020b: 449)

However, these two models do not serve all necessary services in cities in the same way. Services that cannot be profitably commercialized by platform companies or can only be offered profitably in specific areas of the city remain the responsibility of established providers. Lee, Mackenzie, Smith, and Box therefore "note a concerning dynamic where city administration becomes 'locked in' to specific corporate products and interests, and thereby 'locked out' from alternatives" (2020: 116; on alternative practices of smart cities, see Exner/Höflehner in this volume).

Production of various urban spaces by platformization

Lean platforms are not only relevant for urban life and everyday practices as a new business model or community project but as a political-economic technology (Zuboff 2019) that produces platformized urban spaces. Lean platforms transform the supply structure in cities in various ways: (a) many goods and services are available on demand and any smartphone owner can order ready meals, groceries, or domestic care services at any time and thus compete with stationary providers; (b) short-term housing platforms displace tenants in tourist-attractive neighborhoods; and (c) platforms that mediate services with travel distances for delivery privilege inner-city neighborhoods over disadvantaged neighborhoods in the suburbs. The platformization of urban life takes place in a spatially exclusive way.

Moreover, platform economies *integrate* spaces and bodies into new relationships of use and commerce. This integration is accompanied by a *disintegration* of existing spatial patterns, i.e., the (re)production of space also affects *placemaking* as the re-inscription of spaces into new relationships. The home or spare room as a short-term rental, for example, changes perceptions and symbolic values of urban living (see Roelofsen/Goyette and Berfelde/Kluzik in this volume). Meal delivery platforms, on the other hand, may use their socio-spatial data on economic geographies to engage in property management or business development themselves (as is already obvious with so-called dark/ghost/cloud kitchens; see Richardson 2020; Ecker/Strüver 2022).

Home (as a private space) is turned into a working space for some (care workers) and public streets become working space for others (deliverers of meals and goods, bike and scooter chargers, or ride-sharing drivers). Delivery platforms visibly occupy the streets as moving advertisement columns embodied by their riders. What stays invisible, however, is the infrastructure of constantly processed information on the platform, delivering app-generated user data and behavioral profiles that are not only used to make profitable predictions of the future demand of services but mainly serve the interests of platform CEOs and shareholders (see Akteurinnen für urbanen Ungehorsam in this volume).

Capitalization of (public and private) urban space

A recurring theme in the discussion of platform urbanism is the capitalization of urban spaces (Leszczynski 2020; Sadowski 2020b; Barns 2019; Rossi 2020). Platform companies have become huge global players within only a few years and they "are increasingly acting as sites for a contemporary urban politics, through the appropriation of 'the local'" (Barns 2018). They have turned into a mode of urbanism just by the number of their users. As global companies, they promote universal expectations of an urban quality of life. Platforms invent affective notions of place and the local. A global platform such as Airbnb offers a commodity that is commercialized as an authentic experience to live and stay anywhere in the world like a local (Crampton 2009; and see Michel/ Schroeder-Bergen in this volume). Platforms are more than market participants; they are market makers in the sense that they marketize 'idle resources' into maximally productive assets and unlock the value of latent space in existing places (Sadowski 2020b). Moreover, "platform companies use [both public and private] urban spaces as a profit terrain" (Pollio 2021: 48).

However, the dynamics of platform urbanism should not only be reduced to the logic of capital extraction. Following Barns (2018), we understand the city as a specific product of the historical relations of capitalism and the specific spatiality of the city as a basis for progressive political action. Instead of producing a territorial spatial pattern, platforms intervene in the production of space by reconfiguring potential uses of existing spaces and creating new spatialities (Barns 2019). Data-driven planning strategies reconfigure not only the actions of city dwellers, urban infrastructures, and services but also the socio-material reality of buildings and places (see Kropp/Braun/Boeva in this volume).

Materialities of urban platforms

Critical urban research has traced the diverse manifestations and ambivalences of digitized and platformized urban development (Söderström/ Paasche/Klauser 2014; Bauriedl/Strüver 2018). Lizzie Richardson argues that "the platform is a flexible spatial arrangement that does not have a fixed territory but rather draws on other territorialized networks to actualize in urban form. The capacity for the platform to act occurs through its ability to articulate together more or less territorialized urban elements" (2020: 458). Platforms do not reorganize transport or housing through new physical

infrastructures but through novel technologies of coordination of those already existing. In this sense, platforms are "simultaneously embedded and disembedded from the space-times [they] mediate" (Graham 2020: 7). For example, the case of the grocery delivery service Gorillas in Berlin shows that the company's very business model relies on a neighborhood-based network of warehouses, embedding the platform on a very local level (see Orth in this volume). At the same time, the service model is disembedded from regulations of their delivery service's business hours and does not have to provide break rooms for their riders.

Some platform services need material urban infrastructures. They occupy existing public infrastructures such as roads and parking lots, supplementing them with necessary materialities. Rabari and Storper (2015: 28) have used the term *digital skin* of cities for "the widespread implantation of sensors into urban and household environments, together with ubiquitous mobile broadband communication technologies that can transmit both deliberate communications and automated user data". This digital skin is rather invisible as a surface layer, although its effects are everywhere to be seen. Graham forcefully highlights that digital urban infrastructures become visible and a matter of concern primarily in moments of glitches, disruption, failure, and collapse (Graham 2010; see Wiechers in this volume). According to Agnieszka Leszczynski, these glitches can be productive moments for changes in social norms as soon as they make the contradictions and dissonances of digital platform practices in everyday use perceptible (Leszczynski 2020). Urban residents are not only and always passive data subjects. They can act within platform environments in order to recognize their political power within a ubiquitous techno-political environment (see Bignami/Hanakata in this volume).

Navigating between critique and creativity: Alternatives to platform capitalism

In the future, technological and digital sovereignty in the sense of data and algorithmic transparency for both cities and citizens must be a central element of urban digital transformation strategies. Cities such as Madrid and Barcelona are currently demonstrating how democratic autonomy of urban politics and economies can develop as an alternative to the neoliberal entrepreneurial city. This includes the de-privatization and municipalization of

platforms for public services (e.g., energy and water supply, transport, health-care, education) in order to coordinate them in democratic and sustainable ways. These kinds of *platform communalism* or *platform municipalism* (Piétron 2021; Thompson 2021) are complementary techno-political programs to platform cooperatives, to collaborative platforms based on and enabled by the technological sovereignty of the cities and citizens.

Platform cooperatives

Urban platform economies also comprise those that pursue not capitalist but common and cooperative concerns. Accordingly, they are based on different business models than profit-oriented platforms: cooperative-organized ownership models, for example, rely on members depositing capital rather than investment or venture capital. They aim for transparent and fair interactions rather than competition and market dominance and, often, rely on *user* ownership, e.g., workers, or even both clients and workers (Pentzien 2021). Moreover, they are not concerned with data extractivism and manipulation but with learning from the data generated as a community (crowd knowledge) and with including cooperative norms into their algorithms (Schor 2020; Scholz/ Schneider 2017). Because, in addition to the principles of outsourcing as well as the high intermediation fees, the gig model of lean labor platforms entails disciplining and discrimination by data: the data produced by platform transactions are reused as knowledge resources in the sense of a data-centered and exchange-value-centered logic of exploitation – far beyond the actual function or interaction of the platform, and platform capitalism is executed by black box algorithms. To be able to counter this capitalist-exploitative variant of platforms, Trebor Scholz demands: "What we need is a new story about sharing, aggregation, openness, and cooperation; one that we can believe in." (Scholz 2016: 26)

New stories can be found in both theories and practices of collaborative commons and cooperatives, for example, on non-hierarchical peer-to-peer communities (Bauwens/Kostakis/Pazaitis 2019) whose work are now facilitated by digital technologies but in a decentralized and radical democratic way based on solidarity. Such projects aim for structural alternatives to extractive capitalism – and they replace exchange value and shareholder value by use value and thus share(able) value: "In this way, commons-centred communities backed by political (municipalities), social (intentional communities) and entrepreneurial (cooperatives) rationales can be envisioned to slowly ex-

ert increasing control over the means of production." (Gerhard 2020: 696f.; see also Sutton 2019 for a detailed reflection on civic cooperatives and cooperative cities, and see Gennburg in this volume)

Platform cooperatives operate on the basis of democratically designed ownership models and governance structures. After all, the problematic aspects of platform capitalism have their foundations neither in the idea nor in the technology of the platform but in the profit-maximizing model of techno-capitalism: "It is not technology that is the cause of injustice, rather, technology is the symptom. Treating the symptom will just result in the production of new symptoms. It is the [normative algorithmic] infrastructure itself and its imaginaries that are racist, patriarchal, homophobic, exploitative, etc." (del Casino et al. 2020: 610) Therefore, diverse, alternative, and solidarity-based economies, e.g., non-financialized sharing, digital civic commons and, of course, cooperatives, offer opportunities to use digital platforms beyond the radical marketization of basic societal and social infrastructures and the mediation of human services as dehumanized gigs (see Huws et al. 2019: 24f. for household services provided by municipal platforms; see Pentzien 2021 for the fundamental problem of funding the co-op establishment process on the 'market', i.e., the building network effects and combating limited competitiveness during the initial phase on the one hand, and for various examples of successful platform cooperatives on the other).

Platform municipalism

The idea of platform cooperatives is complemented by techno-politics on the municipal scale and refers to public infrastructures in healthcare, education, mobility, etc., and to, for example, counterbalancing trends in which Uber has replaced public transport in US cities, not *for* people but *with* people (Piétron 2021). Techno-politics is part of digital urbanism but critical of both smart and platform urbanism. It is tied to technological sovereignty as it tries to apply technological affordances in democratic ways. It refers to commons-based ownership models and a right to city citizenship (not a national one) and replaces the notion of smart urbanism understood as a neoliberal urban operating system with a digital urbanism relying on social and democratic relations. In some municipalities in Spain, first and foremost in Madrid and Barcelona, techno-politics is tied to new municipalism; for example, the platforms DECIDE (Madrid) and DECIDIM (Barcelona) have facilitated citizen participation in urban planning and budgeting on a large scale. However,

these platforms "rely upon local activity taking place offline" (Smith/Prieto Martín 2021: 327). They are anchored in local communities in which technological sovereignty enables people to explore radical democratic interaction and diverse and solidarity economies beyond the capitalist hegemony, i.e., combining radical democracy with social and economic solidarity (Lynch 2020; Sutton 2019). However, because of this, the platforms are closely connected to people's everyday lives on the local scale and in the neighborhood. In this context, Franz (in this volume) points out – using various examples from Vienna, Austria – that the idea of using a platform to connect people is neither new nor bound to digital mediation but was and is rooted in ordinary urban places, which invite encounters in local neighborhoods. Against this background, she describes *analogue platform urbanism* as one relying on different intentions, characters, temporalities, and territories than techno-capitalist platforms – as invitations for social interaction.

New municipalism is also based on social interaction, especially on urban solidarities in the contexts of neoliberal austerity urbanism on the one hand, and capitalist platform urbanism on the other. Municipalism is about the democratic autonomy of municipalities over political and (more social) economic structures, i.e., beyond hierarchical relations and towards transformative social change. As such, *platform* municipalism is about the establishment of digital citizen platforms, moving away from data-driven governance by democratizing and socializing the coordination of urban infrastructures and economies (Thompson 2021; see also Krisch in this volume), contrasting the neoliberal ideas of e-participation and smart citizenship (Kitchin/Cardullo/di Feliciantonio 2019). Techno-politics is a commons-based radical democratic alternative to technocracy, which only tries to steer and control citizens' lives and participation (Smith/Prieto Martín 2021).

Empowerment and the platformization of everyday urban life

As mentioned above, platform urbanism can also refer to progressive facilitation, and initiatives based on solidarity and technological sovereignty necessarily include offline participation based primarily on social relations. Against this backdrop, as editors of this book, we are concerned with pushing forward critical and feminist digital geographies and exploring "possibilities of liberatory digital politics for re-making our technologies and ourselves as digital subjects" (Elwood/Leszczynski 2018: 640). Contrary to a reading of digital subjects as being mainly focused on self-optimization and individual responsibi-

lization, we like to stress the relevance of the caring social relations necessary to rebuild technological infrastructures in general, and platform economies in particular. In tying critical studies on platform urbanism to feminist digital geographies, we yet, and again, emphasize the role of urban everyday life as a central perspective when studying how platforms operate and interact with existing cultural, social, and political practices (Barns 2020; Elwood 2021). Feminist digital geographies are concerned with both epistemological and ontological approaches to datafied bodies, subjectivities, and space in everyday life. In our opinion, it is necessary to look beyond the platform as interface and beyond algorithms transforming workers and their labor. In the future, even more detailed research is needed that focuses on material inequalities 'in person and on the ground'. This relies on analyses of the co-constitution of digital and social structures, e.g., the relevance of care service platforms in times of care crises. The contributions to this volume provide essential examples of how digital platforms reconfigure urban space and reshape inequalities in and of urban life. They illustrate the ongoing transformation of everyday practices and power shifts brought about by the expansion of platform capitalism into all areas of urban life – and they comprise both fear and hope.

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