



Platform companies on the internet as a new organizational form. A sociological perspective

Ulrich Dolata* and Jan-Felix Schrape

Department of Organizational Sociology and Innovation Studies, University of Stuttgart, Institute of Social Sciences, Seidenstr. 36, Stuttgart 70174, Deutschland

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Today's internet is shaped by privately operated platforms that not only organize economic processes but also coordinate and regulate broader societal contexts. Against this background, this conceptual paper develops a sociological notion of platform companies and the platforms they operate as a new type of enterprise that consists not only of economic features (business and revenue models, exploitation patterns, market relations) but also of action-orienting rules, institutional infrastructures and social relations between a great variety of individual, corporate and collective actors that clearly reach beyond economic contexts and far into society. To this end, we specify the often fuzzy talk of 'the platforms' by drawing an analytical distinction between (1) the platform-operating companies as organizing cores whose goal is to operate a profitable business; (2) the platforms belonging to them as technically mediated market and social action spaces that provide the basis for not only economic but also genuine social activities on today's internet; and (3) the institutionalized coordination, control and exploitation mechanisms implemented by the platform operators, linking these two constitutive levels of the platform architecture.

Keywords: Internet platforms; platform companies; social action spaces; coordination; commodification; regulation; socio-technical change

1. Introduction

Today's internet is shaped to a considerable extent by privately operated companies of various kinds – the most important being the leading internet corporations that organize economic activities and social relations on a large scale, complemented by a wide number of smaller companies offering more specific services. These companies, which are the focus of the following considerations, differ significantly from each another. The big internet corporations Alphabet (Google), Amazon, Meta (Facebook) and Apple, whose offerings form the infrastructural and institutional basis of today's web, have greatly diversified their business. They have established a broad spectrum of business areas and services, which they have expanded into networked socio-technical ecosystems that extend well beyond their traditional fields of activity and their immediate corporate contexts. In contrast, numerous smaller companies – such as Uber, Airbnb, Spotify, Netflix or Zalando – offer more specific services on their platforms. As a rule, the latter comprise singular and specialized offerings that are either directly market- and consumption-oriented, such as travel bookings, mobility services, video-on-demand

*Corresponding author. Email: ulrich.dolata@sowi.uni-stuttgart.de

services and shopping portals, or communication-oriented, such as Twitter, TikTok or Snapchat (Table 1).

To characterize the way these companies provide services, organize markets and coordinate social activities on the internet, the term ‘platform’, which had already circulated, for example, in the information systems field (de Reuver, Sorensen, and Basole 2018) and in economics (Rochet and Tirole 2003) for some time, was introduced and has been proliferating in social sciences since the second half of the 2010s as a very inclusive and indeterminate umbrella term. The central concern of this article is to contribute to clarifying the often fuzzy talk about ‘the platforms’ from a sociological perspective. With regard to the aforementioned companies, the article asks to what extent they can be understood as a distinct and new form of organization: What are the structuring peculiarities of internet-based companies and their platforms? What are their unique features that set them apart from other organizational forms?

Of course, we are not the first to address these questions. Quite early on, based on select cases such as Uber, Davis (2016, 513) suggested that the company of the future would be an ‘enterprise as web page, in which the firm is a set of calls on resources that are then assembled into a performance’. Rahman and Thelen (2019, 198) associated with the emergence of internet corporations the rise of a ‘new vanguard firm: the twenty-first-century ideal type of the *platform* firm’. Gawer (2021, 111, 2022), for her part, has recently characterized ‘platforms and ecosystems as dominant organizational forms in the digital age’. However, the existing literature on internet-based platform companies largely focuses on the study of economic issues, such as new types of business models, economic implementation and governance strategies or the restructuring of value chains and market relations.

In contrast to (but also building on) this research stream, we subsequently conceptualize the constitutive socio-economic and socio-technical architectures of internet-based platform companies from a decidedly sociological perspective: as a complex and multifaceted interplay of organizing and rule-setting core companies and the market and communication platforms operated by them, which we do not simply understand as technical infrastructures or as hubs for economic transactions, but as more or less expanded social action spaces in which social actors of the most diverse backgrounds act and interrelate with one another in specific figurations. In a nutshell, our thesis reads: Internet-based platform companies represent a new form of enterprise featuring unique characteristics of *social* embeddedness.

From this perspective, commercial internet platforms can be described neither as primarily software-based, modular, programmable and algorithmically structuring technological infrastructures (Helmond 2015) nor, in an exclusively economic sense, as multisided markets in which the platform operators act as intermediaries or matchmakers, bringing together at least two different parties (Evans and Schmalensee 2005, 2016; Haucap and Stühmeier 2016). More instructive with regard to the questions raised are recent research findings, especially in the field of strategic management research, that deal in a more comprehensive way with the specific organizational architectures and the economic mechanisms characteristic of platform companies. In this context (overview: Cusumano 2022; Gawer and Cusumano 2014; McIntyre et al. 2021), the platform has been conceived of not only as a ‘multisided market’ but also as an ‘ecosystem’ or a ‘meta-organization’ that is typically ‘populated by autonomous individuals or organizations who independently make decisions within the rules and resources of the platform’ (Kretschmer et al. 2022, 409). This line of research provides

Table 1. Core economic data of selected platform companies 2021.

| | Revenue (in billion U.S. dollars) | Net income (in billion U.S. dollars) | Employees | Ranking on Fortune Global 500 (2022)* | Ranking on Forbes Global 2000 (2022)** | Core business |
|-------------------|-----------------------------------|--------------------------------------|-----------|---------------------------------------|--|------------------------------------|
| Amazon | 469.82 | 24.88 | 1,608,000 | 2 | 6 | E-commerce (>85%), cloud (13%) |
| Apple | 365.82 | 94.68 | 154,000 | 7 | 7 | Hardware (>75%), services (23%) |
| Alphabet | 257.60 | 76.00 | 156,500 | 17 | 11 | Advertising (>75%), cloud (15%) |
| Microsoft | 198.30 | 72.70 | 221,000 | 33 | 12 | Software (55%), cloud (45%) |
| Meta Platforms | 117.93 | 39.37 | 85,553 | 27 | 34 | Advertising (>95%) |
| Netflix | 29.70 | 5.12 | 12,135 | 115 | 241 | Subscriptions (video) |
| Uber | 17.46 | -0.50 | 29,300 | 210 | 712 | Mobility services |
| Zalando | 10.35 | 0.23 | 17,000 | - | 1706 | E-commerce |
| Spotify | 9.67 | -0.34 | 9,058 | - | 1394 | Subscriptions (audio); advertising |
| Airbnb | 5.99 | -0.35 | 6,132 | - | 1419 | Accommodation service |
| Delivery Hero | 5.86 | -0.57 | 45,445 | - | - | Delivery service / commissions |
| Twitter | 5.08 | -0.22 | 7,500 | - | 1668 | Advertising |
| Just Eat Takeaway | 4.49 | 1.04 | n.a. | - | - | Delivery service / commissions |
| Snap | 4.12 | -0.48 | 5,661 | - | 1622 | Advertising |

* ranked based on the companies' annual revenue.

** ranked based on the four equally weighted measures of revenues, assets, market capitalization and net income.

Sources: Annual reports, Fortune Global 500, Forbes Global 2000, press reports (own compilation).

important insights which we can build on regarding the structural constitution, the lines of authority or the governance patterns typical of platforms on the internet.

Nevertheless, in our opinion, it is too narrow an approach to look at the socio-technical structuring of platform companies and the platforms they operate from an economic-centered perspective – especially because the internet platforms in question not only organize economic processes but also structure and regulate broader social contexts. In particular, the platform ecosystems of the large IT companies have by now deeply penetrated societal interrelations and, through their rule-making and structuring activities, are changing the overall institutional structures of modern societies in many respects (Van Dijck, Poell, and De Waal 2018; Dolata 2022). Against this background, a deeper understanding of commercially operated platforms and platform companies calls for a sociological contextualization – something that has been lacking so far.

This is where our article ties in. The salient takeaway of this paper is that internet companies and the platforms they own need to be understood as a new type of enterprise, namely one that consists not only of economic characteristics and market relations between economically relevant actors but, at the same time, of action-orienting social rules, institutional settings and social relations between a great variety of individual, corporate and collective actors that reach well beyond economic contexts and far into society. To this end, we specify the often vaguely used notion of ‘platforms’ in making an analytical distinction between

- (1) the platform-operating companies as *organizing and structuring cores* whose goal is to operate a profitable business;
- (2) the platforms belonging to them as more or less extensive, strongly technically mediated *social action spaces* not only for economic but also for genuine social activities; and
- (3) the institutionalized *coordination, control and exploitation mechanisms* implemented by the platform operators, linking these two constitutive levels of the platform architecture.

Drawing on social science literature, market reports, case studies and empirical research findings, our conceptual paper proceeds as follows: In Section 2, we introduce our basic analytical model of internet-based platform companies and the platforms belonging to them as a hybrid two-level configuration. While platform companies are business organizations in an almost archetypical sense, the platforms they operate constitute socio-technically structured social, market, consumption or service spaces in which social actors interact based on technically mediated social rules, albeit in a varied and idiosyncratic manner. In Section 3, we address the specific mechanisms of coordination, control and exploitation that characterize this hybrid configuration. In Section 4, we draw a conclusion and discuss the scope and societal scale of internet-based platform companies as a novel type of enterprise.

2. Platform companies and platforms as a hybrid two-level configuration

In order to capture the complex structure of the type of enterprise under investigation, we begin with a basal analytical distinction between (1) the platform-operating companies as organizing and structuring cores whose goal is to operate a profitable business and (2) the platforms belonging to them as more or less extensive, strongly technically mediated and volatile market and social action spaces that provide an institutional framework for the

activities of a wide variety of social actors on today’s internet, at times extending far beyond the immediate corporate contexts of their providers (Figure 1).

This basic distinction is inspired by a formal definition of Baldwin and Woodard (2009, 19), who described the fundamental architecture of platforms as the interplay of a stable, rule-setting core and a variable and volatile periphery, held together by ‘rules governing interactions among different parts’ (see also: Kretschmer et al. 2022, 407). In contrast to their definition, however, we consider the organizing platform companies to be the stable and rule-setting core and the platforms they operate as relatively flexible and volatile social action spaces.

2.1. First level: platform companies as organizing cores

The companies that operate internet platforms form the organizing core of this hybrid and sometimes very extensive socio-technical configuration. They have in common that they exhibit all the typical characteristics of formal organizations – and that they could not be, for example, described as ‘partial organization(s)’ (Ahrne and Brunsson 2019) that lack essential organizational features.

Platform companies are not identical with their platforms but represent, rather, the organized places of strategic decision-making and the management of the platforms they own. They have clearly defined internal organizational, decision-making and control structures that are more or less differentiated depending on their size and more or less hierarchical depending on the company culture. They have permanent core workforces in formalized employment relationships, without whose work neither the companies themselves nor the platforms they operate would be able to function. Their spectrum ranges from basic activities in finance, sales and marketing to highly qualified activities in strategic management and operational control, in research, software and design development or in the areas of maintenance, renewal and improvement of IT infrastructures. In the case of retail companies such as Amazon or Zalando, there is also the staff from the company-owned warehouses and logistics centers.

One specific feature of platform companies, regularly highlighted in the literature, is that they have outsourced essential means of production (fixed assets) and constitutive

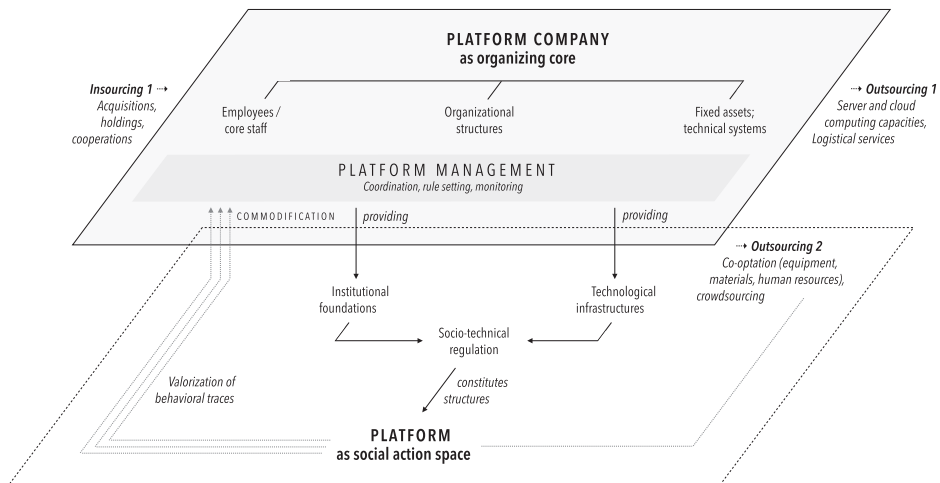


Figure 1. Platform company and platform as a hybrid configuration. Source: own reflections.

work services from their corporate contexts, at times in radical ways, and that they pursue an asset-light business model. ‘Platforms leverage physical assets, R&D, workforce, salesforce, market research, and the creative energies of customers not by making or buying but by the strategy of co-opting’ (Stark and Pais 2020, 53; see also Grabher 2020; Schüßler, Kirchner, and Schor 2021). However, this characterization does not apply at all to the leading internet corporations Alphabet, Amazon, Meta and Apple. And it applies only to varying degrees to smaller internet-based platform companies.

The *leading internet corporations* – and thus by far the most important platform companies worldwide (Table 1) – all operate in a decidedly asset-heavy manner. They not only have extensive corporate headquarters and sizeable in-house research and development (R&D) centers but also maintain their own data centers, server farms and network infrastructures, as well as – in Amazon’s case – countless warehouses and logistics centers where the majority of their employees work and in whose expansion they invest heavily (Dolata and Schrape 2018, 85–108). Alphabet’s 2021 annual report, quoted here as an example, reads as follows:

We continue to make significant R&D investments in areas of strategic focus across Google Services, Google Cloud and Other Bets. We also expect to continue to invest in land and buildings for data centers and offices, and information technology assets, which includes servers and network equipment, to support the long-term growth of our business. (Alphabet 2022, 29)

In addition, all leading internet corporations are engaged in a massive insourcing of technologies, patents and know-how, research, production, logistics and platform capacities via their engagement in development alliances, open-source communities (Schrape 2019) and, above all, sprawling acquisition strategies (Nadler and Cicilline 2020, 406–450; Rikap and Lundvall 2021, 23–42). More pointedly, the leading internet groups own all assets essential to their business – including all relevant intangible assets such as patents, copyrights and trademark rights. Moreover, their business is primarily based on the work of their internal employees – and not on contributions from co-opted workers, who of course also exist. All this does not substantially distinguish them from long established industrial or commercial groups.

For more specifically tailored *smaller platform companies*, the picture is somewhat, but not entirely, different. These have indeed outsourced labor and means of production from their corporate contexts, in some cases on a large scale. In terms of labor, this applies to the high number of formally self-employed and volatile workers who work as drivers for mobility services such as Uber or as interchangeable couriers for delivery services (Gegenhuber, Ellmer, and Schüßler 2021; Grabher and van Tuijl 2020). In addition, it applies to real estate (Airbnb), vehicles (Uber) or the server and cloud computing infrastructures on which the majority of platform businesses are based. For example, Airbnb’s booking or Netflix’s streaming services run entirely on Amazon Web Services (AWS).

The latter involves a significant volume of outsourcing of relevant production resources. However, the quality of such material outsourcing processes varies. Simple means of production, such as vehicles or real estate, can easily be outsourced from the corporate context. This has long been typical for larger cab companies or tour operators and is also a central component of the business models of Uber, Airbnb or Booking.com. Platform companies can co-opt these outsourced means of production just as decentrally as flexibly via their digital platforms. This does not, however, apply to more complex

means of production, especially not to the outsourced server and cloud computing capacities that form the actual material basis of the platform businesses of these companies. These are core components that cannot be co-opted on a situational and flexible basis but are instead rented on the basis of longer-term contracts from large providers such as AWS, Google Cloud Platform or Microsoft Azure while belonging as central technical infrastructures to the operational core of these platform companies.

The operating core also includes strategically relevant areas such as own research and development (R&D) activities, which are also central to the research-intensive smaller platform companies. In 2021, for example, Twitter invested about 28%, Uber about 20% and Netflix about 8% of their revenue in R&D (Netflix 2022, 39; Twitter 2022, 45; Uber 2022, 54). The R&D departments of these companies work primarily on technical improvements to their service offerings and the continuing development of their platform infrastructures (Ziegler 2022). Retail platforms such as Zalando also have their own warehouses and logistics centers. In addition, smaller platform companies such as Uber, Airbnb or Spotify are pursuing insourcing strategies through acquisitions. Spotify, for example, acquired, among others, the platform The Echo Nest in 2014, whose expertise has been instrumental in professionalizing its curated playlists and recommendations, and has also purchased several start-up companies since 2018, such as Anchor FM, Cimlet Media and Cutler Media, intending to expand audio podcasts as a new business segment alongside music streaming (Eriksson et al. 2019). In short, even smaller platform companies cannot do without their own production resources, which they either own or rent.

A similarly differentiated picture emerges for the outsourcing of paid labor. For crowdwork platforms, mobility providers, accommodation agencies or delivery services, on which the existing social science literature focuses, such outsourcing practices are a constitutive and central component of their business models (Kirchner, Dittmar, and Ziegler 2022, 112f.; Schor et al. 2020). In principle, the outsourcing of labor is anything but new and can be interpreted as a direct continuation, intensification and radicalization of the deregulation and flexibilization of work and labor relations observed in recent decades (Huws 2016). This radicalization takes place on digital work platforms by means of algorithmic rule-setting, coordination and monitoring, focusing on a reservoir of co-optable workers that the companies can utilize in extremely variable and seamlessly controllable ways (Frenken and Fünfschilling 2020). However, such an extreme outsourcing of paid labor cannot be generalized and considered a constitutive feature of all platform companies. As seen from their annual reports, the core activities of streaming platforms such as Netflix and Spotify, communication platforms such as Twitter or retail platforms such as Zalando are not supported to a comparable extent by variable external labor.

Against this background, the claim of the emergence and spread of ‘web page enterprises’ which almost exclusively obtain their material resources and labor from the outside, as postulated by Davis (2016; Davis and DeWitt 2021, 1694f.) using the Uber example, is not tenable. This postulate does not apply at all to the leading internet corporations, and even smaller, more specifically oriented platform companies cannot manage without their own core workforces and internal labor services that are crucial to support their business, or without their own or long-term leased assets that cannot be co-opted from their platforms on a situational basis.

The organizational foundations outlined above form the basis on which the platform companies’ actual core activities – the (further) development, structuring, regulation and control of the platforms they operate – can unfold. In the platform companies, the

fundamental social structures and rules are developed and inscribed in the technical infrastructures that provide the general framework for the activities and interaction possibilities of their platforms' users, including the possibility of sanctions and exclusion in the event of rule violations. Thus, the platform companies do not merely function as coordinating intermediaries offering neutral (technical) mediation services but, rather, as rule-setting and rule-enforcing actors (Dolata 2022; Gillespie 2016). In addition, they also collect all interaction and transaction data that initially arise as raw material through the seamless observation of user behavior on their platforms, which is only brought into a commodifiable form through its further processing in the companies (Zuboff 2019).

Coordination and rule-setting, monitoring and exploitation of data, coupled with the ability of the platform companies to quickly, substantially and largely uncontrollably adapt the social and technical rules they establish to changing environmental conditions and business perspectives: this is the very heart of platform management and work in platform companies – and is constitutive of the substantial and systematic power imbalances that open up between platform companies and all the actors who interact on their platforms. The distinctive quality of internet-based platform companies that distinguishes them from other business organizations offering products on external markets thus lies less in their internal organizational structure than in the fact that, as organizing and rule-setting cores, they enable, structure, observe and commercially exploit market interactions and social relationships on the platforms they operate, some of which extend far beyond their immediate organizational context.

2.2. *Second level: platforms as social action spaces*

While platform companies can be characterized as organizations in an almost archetypal sense, this does not apply to the platforms they operate. The latter are not 'evolving organizations' (Gawer 2014, 1240), seeing that they lack essential organizational characteristics such as intentionality, goal orientation and strategic capacity to act. Nor are they an 'organization of organizations' (Kretschmer et al. 2022, 407) since they are used not only by organizations and organizational units but also by a considerably broader and heterogeneous range of social actors, including individual users, corporate actors and social collectives (Dolata and Schrape 2018, 9–13). Thus, internet-based platforms are rather to be described as more or less expansive social action spaces with a strong technical foundation and reliable institutional basis, in which the activities of a great variety of actors are embedded.

All internet platforms can initially be understood as hardware- and software-based, programmable and algorithmically structuring technological infrastructures through which information is exchanged, communication is organized, work and markets are coordinated, a broad spectrum of services is offered, or digital and material products are distributed (Kitchin 2021; Plantin and Punathambekar 2019). At the same time, however, all commercial internet platforms are characterized by an action-orienting institutional basis that is shaped by social rules which the platform-operating companies define and provide, both as terms and conditions or as community standards. These social rules are inscribed as comprehensively as possible in the technical foundations of the platforms, for example, in the form of default settings, standard functions and, above all, algorithmic structuring, rating, ranking and control systems (Gillespie 2014; Gillespie et al. 2020; Yeung 2018).

On the one hand, commercial internet platforms are an elementary component of the companies to which they belong and without which they could not run their business. Then again, they extend clearly beyond the companies organizing them. As distinct

social action spaces, they form a second level within this hybrid configuration that is more or less closely coupled to the platform companies as organizing cores (Figure 1). On this second constitutive architectural level, individual, corporative and collective actors of all kinds communicate, act and interact in specific figurations and on the basis of the technically inscribed platform rules and norms. The extraordinary quality of social embedding is the decisive characteristic feature of this new form of company.

However, this general characterization of internet platforms as social action spaces needs to be further refined, since the various privately operated platforms differ significantly from each another in terms of their design and orientation as well as their size and reach (Table 2).

Of all the platforms discussed here, the big social media platforms have the broadest reach. In the case of Facebook, Instagram or YouTube, these platforms are an integral part of the networked socio-technical ecosystems of the leading internet corporations. These platforms are typically characterized by an extremely low-threshold access and plural figurations of actors. Social media and social networking platforms are open to the most diverse commercial and non-commercial expressions and activities of virtually all social actors that society has to offer (Hepp 2019; Rosen 2022). Therefore, they can be described as *social spaces in a very inclusive sense* that organize and structure elementary patterns of social exchange on today's internet. In other words, with their technically mediated sets of rules, structuring, selection, monitoring and sanctioning mechanisms, these platforms have taken over essential social order and regulation functions in the internet realm. This is an entirely new, historically unprecedented phenomenon: with their digital platforms, individual companies constitute nothing less than the structural and institutional foundations of a private-sector sociality on the internet, and in doing so, they are, in some cases, assuming quasi-sovereign tasks of rule-setting and enforcement – on an international scale (Dolata 2022; Van Dijck 2020).

The dominant exploitation logic pursued by large platform companies – such as Meta (Facebook, Instagram, WhatsApp), Alphabet (YouTube) or Twitter – with their social media and social networking platforms is primarily an indirect one. The evaluation and processing of the behavioral traces left behind by their users as raw data material serves these platform operators mainly to generate advertising revenue. In contrast, most of the other privately operated internet platforms are organized directly and decidedly as commercial offerings (Table 1). Consequently, the spheres of social exchange and activity that these platforms offer are much more focused and take on the economically more immediate form of market, consumption and service spaces for products, content, services or work.

Some of these platform companies operate *market spaces* in the form of company-owned marketplaces where third-party providers can offer their goods or services independently. Prominent examples of such market spaces are Amazon Marketplace, app stores for IT consumer devices, booking platforms such as Airbnb and Booking.com or crowdwork platforms such as Upwork (Barwise and Watkins 2018; Howcroft and Bergvall-Kåreborn 2019; Lupton 2020; Törnberg 2021). The market spaces for commercially active influencers embedded in the major social media platforms are also part of this. The basal actor figurations in these multi-sided marketplaces are triangular. The operators of the company-owned marketplaces take on the role of intermediaries who not merely technically enable and moderate independent market actions between third parties (suppliers and buyers) as 'matchmakers' (Evans and Schmalensee 2016) but also define the market rules and competitive conditions as well as the distribution and remuneration structures; develop product information, rating and control systems; guarantee secure forms of

Table 2. Platforms as social action spaces – a typology

| | Social spaces | Market spaces | Consumption spaces | Service spaces |
|-------------------------|--|---|---|--|
| Examples | <i>Facebook, Instagram, YouTube, Twitter</i> | <i>Amazon Marketplace, App Stores; Airbnb, Upwork</i> | <i>Amazon, Zalando; Netflix, Spotify, Apple Music</i> | <i>Uber, Lyft; Just Eat Takeaway, Delivery Hero</i> |
| Targeted actors | Full spectrum of social actors | Customers;co-opted providers | Customers; cooperating providers | Customers |
| Actor figuration | Plural | Triangular | Bilateral | Bilateral |
| Access | Low-threshold; specific rules for users and commercial providers | Low-threshold on the customer side; platform operators define access or exclusion criteria for commercial providers | Low-threshold or dependent on subscriptions on the customer side; commissioning or licensing of external offers | Open on the customer side; low-threshold access for commercial providers |
| Reach | Constitution of social order on the internet | Organization and regulation of proprietary markets | Organizing and structuring of consumption offers | Organizing and structuring of services |
| Economic basis | Personalized advertising; Commodification of behavioral traces | Commissions; sale of own products; Commodification of behavioral traces | Retail sales; subscription fees; advertising; Commodification of behavioral traces | Fees; commissions; Commodification of behavioral traces |

Source: own reflections

payment; and decide on the inclusion and exclusion of suppliers (Kirchner and Schüßler 2020, 217–222; McIntyre et al. 2021). Access to these market spaces is open to consumers, who are at the same time actively involved in the rating and control structures of the platforms. The commercial providers who engage in these marketplaces with their offers are co-opted by the market operators and are committed to their guidelines.

Then again, numerous other digital platforms function primarily as competing *consumption or service spaces* in which the platform operators act not as intermediaries but directly as market players, offering consumers their own, commissioned or licensed products, content or services. Retail platforms such as those of Amazon or Zalando, streaming platforms for audio and video content such as Spotify and Netflix, as well as mobility platforms such as Uber or delivery services such as Delivery Hero fall into this category. In terms of their basic services, the latter are structured similarly to common courier and parcel services and directly control associated logistics and labor resources (Heiland 2021; Huws and Frapporti 2021; Schor et al. 2020). In all these cases, sales actions between two major groups of actors (providers and customers) dominate the activities on the platforms, complemented by the involvement of customers beyond the direct act of consumption, especially in the platform-specific rating and ranking systems. Accordingly, these platforms are more closely linked to their organizing cores than social media platforms and company-owned market spaces. This applies not only to the respective core business carried out by the platform operators themselves but also to the organization of paid labor, which is typical for mobility and delivery services, for example. The gig workers there, often subject to precarious and volatile working conditions, do not offer their services to various third parties, as is the case in crowdwork platforms, but to the platform company itself, which coordinates, monitors and sanctions their activities along exhaustive performance specifications in an extremely detailed and hierarchical manner (Watson et al. 2021; Wood 2020).

Overall, the systematization outlined here shows that the technically mediated social action spaces spanned by the platform companies take on very different socio-structural forms and must be viewed in a correspondingly differentiated manner. Spectacular and historically singular are, above all, the far-reaching social media platforms operated by the large internet corporations, which constitute essential foundations of sociality on the internet, as well as the large company-owned marketplaces, which can be characterized as privately regulated and socio-technically constituted market orders on the web.

3. Regulation and commodification: coordination, control and exploitation mechanisms

One crucial question remains unanswered up to this point: Are the outlined platform architectures characterized by a specific form of coordination and control of social action that fundamentally differs from other economic entities that likewise clearly extend beyond the essential corporate context? While industrial or innovation networks, for example, are characterized by contractually secured cooperative relationships, and nexus-of-contracts firms by mutually negotiated and contract-based supply or distribution structures between independent organizations (seminal: Freeman 1991; Jensen and Meckling 1976; Nohria and Eccles 1992), the platform architectures outlined here are more extensive, the actors involved more heterogeneous and the socio-technical patterns of regulation – i.e. the platform-specific coordination, control and exploitation mechanisms – significantly more complex. It is not only economic processes in the narrower sense that need to be organized and coordinated here but also social relationships that are

broadly diversified. And it is not just different organizational units that need to be coordinated via contracts and informal agreements, as is typical for networks, but a large number of individual, corporate and collective actors whose idiosyncratic activities need to be embedded via platform rules and regulations.

The basis of the interplay between the two levels of the platform architecture – this is often underestimated in the social science discourse – is formed by *non-negotiable contractual relationships* between the platform companies and the users of their platforms, which are set unilaterally by the companies in the form of detailed terms and conditions and have to be accepted by the participants. Only by agreeing to these terms and conditions do the latter gain access to the platforms and at the same time submit to the general rules that apply there. This applies to individual users as well as professional influencers, software developers in the app stores or merchants on proprietary marketplaces. At the same time, the terms and conditions, with their far-reaching transfers of rights to the user-generated content and data left by all platform participants, form the essential basis for the business of every platform company. It is only on this contractually secured basis that the seamless observation, systematic data processing and economic valorization of the behavioral traces of all participants become possible. From a jurisprudential perspective, Cohen sums up this relationship as follows:

Platforms use contracts systematically to facilitate and protect their own legibility function, extracting transparency from users but shielding basic operational knowledge from third-party vendors, users, and advertisers alike. The particular form of the access-for-data contract extended to users—a boilerplate terms-of-use agreement not open to negotiation—asserts a nonnegotiable authority over the conditions of access that operates in the background of even the most generative information-economy service. (Cohen 2019, 27)

Terms and conditions as contractual relationships thus form the primary link between the two levels of the platform architecture: On the one hand, they regulate the conditions of access and structure the possibilities of action for all participants on the platforms. And on the other hand, they form the legal basis for the economic exploitation activities of the platform companies.

This strong and asymmetrical contractual basis, which is characteristic of all commercial internet platforms, is complemented by specifying rules of action that enable and structure the activities of the platform participants. This rule-setting includes: the aforementioned community standards characteristic of social media platforms; affiliate programs on the basis of which professional vloggers operate on YouTube or influencers on Instagram, TikTok or Twitch; developer guidelines and software development kits in app stores; market and compensation rules in proprietary marketplaces; and tightly meshed performance (control) systems of mobility or delivery service providers. These *platform-specific rules of action* exhibit four typical features:

- First, the platform rules are not negotiated between different actors, as is the case in innovation networks between organizations, but are immediately set by the platform-operating companies in the form of hierarchical instructions (Cohen 2017). The fact that they are disputed and – as shown, for example, by the periodically flaring disputes about working conditions on delivery or mobility platforms – at times contested (Schüßler, Kirchner, and Schor 2021) does little to change the fundamental pattern of a top-down specification of the frameworks of action that apply on the platforms.

- Second, these initially genuinely social rules are translated as comprehensively as possible by the platform companies into technical or algorithmic structurings and action orientations, thereby comprising a socio-technical institutionalization that can hardly be overridden in everyday usage practice, or only with a great deal of effort (Ulbricht and Katzenbach 2019).
- Third, the platform companies have considerable scope for curation, that is: far-reaching possibilities for permanent readjustment of both the socio-technical structuring of their platforms and the rules of the game that apply there. Those readjustments are regularly made by the platform operators, for example, in the terms and conditions, in search algorithms or in the rating and ranking systems, whereby both the idea of social reality presented on the platforms and the framework conditions for the actions of private and professional actors become reconfigured in rapid succession. Frenken and Fünfschilling (2020, 107) have referred to these basic patterns of dynamic structuring and institutionalization as ‘re-coding capacity’, providing platform companies with ‘the ability to continuously adapt the course of institutionalization in largely autonomous manners’.
- Fourth, the platform companies not only set and develop the rules that are to apply on their platforms but also monitor compliance with them and – more broadly – observe the behavior of all platform participants and their interactions almost seamlessly.

This continuous observation is done via a two-level system characterized by centrally designed monitoring and control mechanisms and by the systematic active involvement of users and providers in the platforms’ evaluation architectures. In other words, internet platforms are characterized by both – by forms of a centralized ‘algorithmic bureaucracy’ (Kirchner and Schübler 2019, 144) and by procedures of a decentrally designed ‘non-bureaucratic control’ (Stark and Pais 2020, 55) embedded within them.

The first level includes, for example, monitoring compliance with community standards alongside sanctions such as deleting accounts or reducing the visibility of content (Gillespie 2022), monitoring providers on platform markets (Adner, Puranam, and Zhu 2019) or recording and monitoring employee performance of mobility or delivery services (Heiland 2021; Lane 2020). These are forms of centralized hierarchical observation and control that converge in the platform companies and are implemented by them.

In addition, all platforms are characterized by a second level of decentralized monitoring and control systems through which evaluation and monitoring activities are delegated to the platform participants, understood to include users as well as the professional providers of products or services (Frenken and Fünfschilling 2020, 106f.). To this end, the platform companies provide rating systems of various kinds through which all participants can monitor, rate, rank or classify each other – including the reporting of questionable content or accounts. The platform participants are thus integrated into the monitoring and control systems of the platforms as decentralized co-controllers – and are in turn subject to supervision by the platform companies, which not only provide the corresponding ranking and rating systems but also evaluate the data traces of the co-controllers stored there and feed them into their exploitation contexts.

Contractual relationships as the legal basis, rules as a framework for action, and observation and control systems for monitoring compliance with these rules and for monitoring user behavior: pre-structured in this way, the platforms as social action spaces become the companies’ central resource pool from which they establish a specific *economic exploitation mechanism*. At first glance, the commercial starting points of the platform-operating

companies have remained quite clear and unspectacular over the years. They focus on advertising, trading, subscription models, brokerage fees and the preparation and sale of data resources (Täuscher and Laudien 2018) in a way that hardly differs from the early 2000s (Zerdyck et al. 2000, 136–176). This is true not only for smaller platform companies such as Airbnb, Uber, Spotify, Netflix or Twitter but also for the leading internet corporations (Table 1).

What is new and unprecedented, however, is the central foundation on which the business of all platform companies considered here is based: the technical possibility and economical implementation of an ubiquitous commodification of individual and collective behavioral traces, which extends profit-oriented valorization strategies to areas of society and, in particular, people's everyday behavior that had previously been not (or not fully) amenable to capitalistic exploitation (Couldry and Mejias 2019; Crain 2021). This *commodification of user behavior* takes place in a close interplay between the two levels of the platform architecture.

In a first step, with all their activities on the platforms (e.g. as user-generated content and communication flows, or in the form of ratings, likes and rankings), the users leave behind their day-to-day life traces as exploitable data material. However, they mostly do so not, as has often been argued, in the form of unpaid digital labor (Fuchs 2018, 678; Hardy 2014, 136–156; critical overview: Gandini 2021) but, more trivially, through the more or less conscious disclosure of the most diverse facets of their everyday behavior. In this way, they initially provide no more than indispensable raw material that is passed on to the platform companies for further processing through the assignment of rights of use, yet which, as a mere accumulation of behavioral traces, does not yet have any value or commodity character.

In a second step, this raw data material is aggregated, refined and processed into a valuable asset by the platform companies themselves, where the actual productive and value-creating work takes place. The activities and expressions of the platform users, which often provide usable data traces unintentionally and in passing, are evaluated, aggregated and made commercially usable in organizationally complex and technically demanding processes. It is only through these processing and refinement activities in the platform companies themselves that the dispersed digital behavioral traces become a commodity that has value and becomes economically relevant for third parties as tradable data sets or personalized advertising options, and also for improving the quality of the platform's own search, matching and curation offerings (Gregory et al. 2021).

Taken together, the coordination, control and exploitation mechanisms typical of internet-based platform architectures are characterized by a strong hierarchical orientation in which elements of co-optation and orchestrated participation of users are embedded. In this hybrid configuration, the platform companies have a high degree of structure-giving, rule-setting and controlling power – as well as exclusive access to the raw data material left there. This power manifests itself in many areas – we think only of the position of workers in the gig economy or the closely managed commercial providers on proprietary marketplaces – but by no means always as rigid control, direct coercion or enforceable accountability. Instead, for the large number of rule-abiding users, it unfolds barely perceptibly and largely silently beneath the veneer of a (supposed) openness that also characterizes commercial internet platforms as market and social action spaces. The users, consumers and providers are voluntarily on these platforms; they can pursue their interests and businesses there and can collaborate, communicate or observe and evaluate each other at their own discretion. In doing so, however, they have to abide by rules over which they have virtually no influence; agree to surveillance

systems that are as comprehensive as they are opaque; and agree to the far-reaching expropriation of their statements and behavioral traces left on the platforms as raw data in exchange for access.

4. Conclusion: platform companies on the internet as a distinct organizational form

The aim of our considerations has been to contribute to building a hitherto missing sociological foundation of commercially operated platforms and platform companies on the internet. For this purpose, we conceptualized the socio-economic and socio-technical architectures of internet-based platform enterprises as a complex interplay of organizing and rule-setting companies and the market and communication platforms belonging to them, which we do not merely understand as technical infrastructures or as hubs for economic transactions but as more or less expansive social action spaces in which individual, collective and corporate actors from all societal domains act and interrelate with each another in specific figurations. In our view, such a genuine sociological perspective – which clearly distinguishes between (1) the platform companies as organizing cores, (2) the platforms operated by them as technologically mediated social action spaces, and (3) the coordination, control and exploitation mechanisms institutionalized there – helps to answer the question posed at the outset of this article as to what extent digital platforms can be grasped as a distinct organizational form characterized by novel features that set them apart from other types of company and modes of social coordination.

In sum, there are several arguments for conceiving the internet-based platform companies discussed here as a new corporate form. This applies first and foremost to their specific structuration, which in some cases extends far beyond their corporate core and deep into societal contexts. Primarily, platform companies do not maintain and coordinate cooperative or contractual relationships with other organizations, as is typical for intercorporate networks or nexus-of-contracts firms. Instead, they act as organizing, curating and controlling nuclei of more or less extensive market or social action spaces on which their core business is based. The most expansive in design are the large social media platforms, which are open to the activities of a wide variety of social actors and constitute nothing less than the foundations of sociality on today's internet, followed by the big corporate-owned marketplaces that dominate internet commerce.

The distinctive patterns of regulation, coordination and commodification implemented and institutionalized on the respective platforms as social action spaces also support understanding these platform companies as a novel form of organization. In all cases, the platform companies do not function as neutral intermediaries that simply establish connectivity between economic actors but as rule-setting and rule-enforcing entities that structure, curate, observe and evaluate the activities and interactions of all social actors on their platforms. This constitutes a specific and highly asymmetrical relationship between control and openness as well as between centrality and decentralization. The essential structures, rules and control mechanisms that characterize commercial platforms on the web have a strong hierarchical bias and are implemented top-down by the platform companies. On this basis, however, participants are given considerable decentrally distributed latitude for action and activity, which they can use in a varied and idiosyncratic manner – always, of course, based on the applicable platform rules and seamlessly monitored. This variety and indeterminacy of user activities, in turn, serves the platform companies as a central resource and prerequisite for their business, which is based on the data-

based commodification of both the individual behavioral and the organizational traces of action that all social actors leave behind on internet-based platforms.

Based on these investigations, internet-based platform companies, with their hybrid architecture and their specific coordination, regulation and commodification mechanisms, can indeed be classified as a new type of enterprise that not only shapes most of the economic exchange on the web but also structures the majority of social activities there. However, can we also assume that platform companies and their platform-based ecosystems are already or will become the ‘dominant organizational form in the digital age’ (Gawer 2022, 111) – as quoted at the beginning? We would not go that far. In particular, we would not generalize our findings beyond the internet economy.

For one thing, it needs to be emphasized once again that the platform companies themselves (as organizing cores) are structured as formal business organizations in an almost archetypal sense and that they attain their specificity only in the hybrid configuration with the platforms as social action spaces that they structure, regulate and exploit. Secondly, their macroeconomic significance has so far remained very limited. The specific organizational form that characterizes the interplay of platform companies and their platforms is, as for internet business models in general, ‘geared towards advertising and distribution, or, rather, the circulation sphere’ (Pfeiffer 2022, 57). Although quite a few internet-based platform corporations are by now among the globally most valuable companies in terms of market capitalization, their economic activities have contributed comparatively little to the gross domestic product and employment in the core capitalist countries (Barefoot et al. 2018; International Monetary Fund 2018). Even in the annual Fortune 500 and Forbes Global 2000 rankings of the world’s largest companies (Forbes 2022; Fortune 2022), dominated by industrial, commercial and financial groups, internet-based platform companies have not yet played a significant role, except for the leading internet corporations (Table 1). To date, little research has been done on whether the organizational principles of internet-based platform companies can be transferred to other core sectors, such as manufacturing, and to what extent they could trigger a corresponding organizational transformation of industrial companies.

All this weighs in favor of understanding internet-based platform companies for what we believe they are: a further step in the pluralization and differentiation of corporate forms that coexist in the varieties of capitalist core countries.

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Notes on contributors

Ulrich Dolata is Professor of Organizational Sociology and Innovation Studies at the University of Stuttgart (Germany).

Jan-Felix Schrape is Associate Professor at the Department of Organizational Sociology and Innovation Studies, University of Stuttgart (Germany).

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