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PLATFORM MECHANISMS

INTRODUCTION

In the summer and early fall of 2011, the Occupy protests in New York and Boston were starting to gather momentum. Yet, despite the vibrant protest activity, the dominant Twitter Occupy hashtags #OccupyWallStreet and #OccupyBoston never made it into Twitter's trending topics lists of either New York or Boston. Some protestors began to suspect a conspiracy to ban the Occupy movement from public discourse. They accused Twitter of manually manipulating its trending topics feature (Gillespie 2012; Lotan 2011). As it turned out, Twitter was not part of any conspiracy; rather, the protestors inadvertently stumbled across the intricate methods through which the platform algorithmically organizes user content. In contrast to common perception, trending topics reflect not simply the frequency of a particular term but rather its increase in usage. Only a dramatic increase will land a term in the trending topics top ten (Lotan 2011).

While social media are often portrayed as activist "tools," Twitter is by no means the only platform that frustrates activists' efforts to gain public visibility. In August 2014, during protests in Ferguson, Missouri, following the killing of an unarmed black teenager by a white police officer, it was Facebook that was accused of algorithmically burying activist activity. At the time, the sociologist Zeynep Tufekci

(2017) noticed that while updates about the Ferguson protests and especially about the excessive use of police force were omnipresent in her Twitter timeline, no such updates appeared in her Facebook News Feed. This was especially striking as she was connected with largely the same people on both platforms. Yet, apparently, the user activity triggered by the Ferguson protests did not meet Facebook's criteria of algorithmic relevance.

What these brief anecdotes show is that social media platforms are never neutral "tools": they make certain things visible, while hiding others. To understand the outcomes of the algorithmic filtering process in these examples it is necessary to untangle how various platform technologies in congruence with economic models and user practices shape social activity across economic sectors and spheres of life. Together they are articulated in three platform mechanisms we have labeled "datafication," "commodification," and "selection." The interplay between these mechanisms can be decisive for the actors involved. For example, the protestors in the above anecdotes strongly depend on public attention. Social media virality can transform a small protest into a national movement, whereas invisibility condemns it to obscurity. Thus, platform mechanisms affect the fortunes of social movements, as they do of many other social actors: from apartment hosts on Airbnb to taxi drivers on Uber and from newspapers on Facebook to students on Coursera.

This chapter analyzes how platform mechanisms work through the interplay between *technologies*, in the form of data structures, algorithms, and interfaces; *commercial strategies*; and *user practices* developed by individuals, as well as by corporations, state institutions, and societal organizations (Van Dijck and Poell 2013). To understand how the rise of online platforms affects the organization of society, it is essential to systematically untangle how platform mechanisms upend established institutional arrangements and at times put traditional public values under pressure. Such mutual shaping of platforms and society is not predetermined or irreversible. On the contrary, platform mechanisms can work very differently depending on how technologies, economic models, and practices are deployed and implemented. Currently, the Big Five platform corporations very much shape the core technological infrastructure, dominant economic models, and ideological orientation of the ecosystem as a whole. Moreover, they steer how sectoral platforms, societal institutions, companies, and billions of users interact. Notwithstanding the concentration of economic resources, standard-setting power, and ideological dominance of these core platforms, we will argue throughout this book that alternative articulations of key platform mechanisms are possible.

DATAFICATION

According to Mayer-Schönberger and Cukier (2013), “datafication” refers to the ability of networked platforms to render into data many aspects of the world that have never been quantified before: not just demographic or profiling data volunteered by customers or solicited from them in (online) surveys but behavioral meta-data automatically derived from smartphones such as time stamps and GPS-inferred locations. More specifically with regard to online platforms, every form of user interaction can be *captured* as data: rating, paying, enrolling, watching, dating, and searching but also friending, following, liking, posting, commenting, and retweeting. In early studies, such data were often considered a by-product of online platforms; as platforms matured, technology companies gradually transformed into data firms, turning data into prime resources. Datafication endows platforms with the potential to develop techniques for predictive and real-time analytics, which are vital for delivering targeted advertising and services in a wide variety of economic sectors.

While datafication can be understood as a techno-commercial strategy deployed by platform owners, it can concurrently be regarded as a user practice. Platforms systematically collect and analyze user data; they also constantly *circulate* these data through application programming interfaces (APIs) to third parties and through user interfaces to end users, enabling them to trace the activities of friends and colleagues, keep track of public events, and participate in the online economy. The first part of this section focuses on the capturing of user data and the second part on the circulation of these data.

Capturing

Collecting data about consumers and citizens is by no means a new practice. Public institutions and corporations have historically depended on demographic and audience data (Driscoll 2012; Hacking 1990; Napoli 2011; Turow 2012). With the rise of online platforms comes both an intensification of data collection practices and, as we will discuss next, a commodification of activities, exchanges, relations, and objects that previously were not quantified or were informal, ephemeral activities. Personal interactions and everyday economic exchanges are now captured through the standard datafied practices of friending, liking, sharing, rating, and recommending. And by virtue of integration with sectoral platforms, a whole new range of practices, such as playing, renting, driving, and learning, are tracked by infrastructural platforms as well.

The technological architecture of platforms premeditates real-time gathering and analysis of user data through standard buttons and through the deep integration

of data analytics software in third-party apps and websites. Every activity of every user can be captured, algorithmically processed, and added to that user's data profile. Posting a message or review, rating a ride or an apartment, clicking a like or retweet button, and following, friending, or unfriending other users are often regarded as mere social activities; but they are also data signals that allow platform corporations to profile demographic, behavioral, and relational characteristics of users (Andrejevic 2013a; Kitchin 2014; Nieborg 2017; Van Dijck 2014).

Behind seemingly lightweight forms of social interaction hide complex technological infrastructures where data are continuously aggregated and analyzed to more effectively connect users with services and advertisements. For example, anytime a user clicks a "social plugin" such as the "like button" on an external website or on Facebook itself, this activity is processed in a number of ways. First, it is displayed on the user's News Feed, which makes the liked object available for further engagement. Subsequently, additional activity data flow back to metrics associated with the liked object. These are still the publicly visible data flows. Processed as aggregate data, though, user activity is invisible to end users. Through Facebook Insights, webmasters and administrators of Facebook pages and groups are provided with such aggregated data, including total number of likes, shares, and unique users, as well as the overall demographic characteristics of the user base. Most importantly, the Facebook corporation itself algorithmically processes all user data produced through liking, sharing, commenting, etc. (Gerlitz and Helmond 2013). Facebook recycles these data in the form of targeted advertising, "Trending topics," "relevant" content, and as a constant stream of friend suggestions. Thus, the ability of citizens and societal organizations to monitor public activities and sentiments is fundamentally based on the systematic and automated collection and analysis of *every* form of user activity.

An important part of the attractiveness of online platforms lies in the assertion that data are "raw" resources merely being "channeled" through online veins, allowing a wide variety of actors to monitor how users think, feel, experience, and intend particular things. From this perspective, platforms such as Facebook, Uber, and Coursera capture and measure these sentiments, thoughts, and performances. However, data are never completely untouched or unstructured to begin with, or as Gitelman (2013) emphasizes, "raw data" is an oxymoron; data are always already prefigured through a platform's gathering mechanisms. Platforms do not merely "measure" certain sentiments, thoughts, and performances but also trigger and mold them, most visibly through their user interfaces (Gitelman 2013, 2–3; Kitchin 2014). While features such as "rate," "answer," "comment," "share," "like," "retweet," "friend," and "follow" appeal to basic human emotions and interactions, the underlying technologies greatly shape how users interact with each other and what kinds of data

signals they produce. The way in which services are developed and media objects circulate on the basis of such signals in turn depends on the algorithms used to “weigh” the different signals. In short, platform data are not raw but precooked. Datafication means that online activity is to a high degree technologically standardized to enable the automated processing of user signals.

The economic and public value of datafication is especially located in the *real-time* dimension of data streams. Platforms claim they can instantaneously track individual and group behavior, aggregate these data, analyze them, and translate the results to users, marketers, and advertisers, as well as to a wide variety of public institutions, organizations, and corporations. Real-time analytics of social media data are, for example, increasingly deployed in political campaigning and civic engagement, providing politicians and activists insight in personal preferences, trending topics, and evolving public sentiments. These insights, in turn, allow these actors to modulate their “message” to more effectively target voters and supporters (Karpf 2016; Kreiss 2016; Tufekci 2014).

Circulating

Platforms can function as an ecosystem because data are constantly exchanged between a wide variety of online services. Positioned at the center of this ecosystem, the Big Five infrastructural platforms very much control the circulation of data to and from sectoral platforms, websites, apps, and the mass of users. The main way in which they do so is through APIs, which allow third-party applications to access platform data. As Qiu (2017, 1720) explains, through APIs third parties “can remix and remake proprietary data owned by corporations such as Google, Facebook, and Twitter into new applications and programmes.” A prominent example of this is the set of Google Maps APIs, which is used by large numbers of third-party applications to gain access to geographic data and interactive maps. In this way, rich application ecosystems grow around each major platform and its different APIs, enabling other actors to participate in the platform economy. APIs effectively function as platform-governing instruments, providing “controlled” access to data. This means that third-party applications and programs can only use part of the data captured by the platform (Bucher 2013). Third parties can often only gain more extensive access through engaging in formal partnerships (e.g., Acxiom, Experian, and Quantium) or by gaining access to paid data services, which have become a core part of platform business models.

The most visible way for end users of platforms to circulate data is through their graphical user interfaces (Berry 2011; Gerlitz and Helmond 2013; Van Doorn 2014). Every platform offers its users a broad range of metrics. Social media typically allow

users to see who liked and shared their messages, photos, or videos, and survey what their “friends” and “followers” have been up to. E-commerce and collaborative consumption platforms provide insight into what other users or customers have searched for or bought (“customers who bought this item also bought . . .”), as well as how they have rated particular products and services (“four out of five stars”). These metrics are more than simply instrumental. Prominently displayed, they have an affective quality, prompting users to take action. Like, share, retweet, buy, and rate buttons enable further data collection and enhance user profiling and personalized advertising services.

It has been argued that the continuous data exchange through platforms enables a new kind of consciousness—an “ambient virtual co-presence” where users are aware of what others are doing, experiencing, and exchanging (Ito and Okabe 2005). This can especially be observed in the news sector, where the continuous stream of updates and emotions has been understood as a form of “ambient journalism” (Hermida 2010). Metrics provide insight in unfolding public events and evolving public sentiments, as will be extensively discussed in chapter 3. Particularly during large public events, such as elections, protests, or natural disasters, the many posts, status updates, pictures, and videos on online platforms comprise a constant flow of news updates, ostensibly providing insight in how users “feel” about an event. In those situations, platform data appear as a sort of primary news source and barometer of public sentiments, with users simultaneously acting as news consumers, eyewitnesses, reporters, opinion makers, and editors (Bruns 2011; Murthy 2013; Poell 2014).

Data streams involve end users and platforms but also engage a wide variety of societal institutions and organizations. The question of how societal organizations are going to integrate datafication mechanisms in people’s daily routines is crucial to the realization of key public values in the coming years (Kennedy 2016). Do newspapers and online news sites organize the selection and production of news around “trending topics,” or do independent editorial judgments remain the guiding principle? Do educational platforms promote datafication in every step of the learning process, or is this process primarily controlled by teachers and schools? And how are city governments building on datafication in the development of smart city applications? Do they use traffic data from commercial platforms such as Uber, or do they collect their own data?

In sum, the mechanism of datafication is beginning to play a central role in the configuration of social relations. Platform corporations expand their collecting and processing of data to track and predict an ever wider variety of users’ performances, sentiments, transactions, informal exchanges, and activities. The social, economic, and public value of data exchange is inscribed in its real-time and predictive character,

allowing platform operators to *directly* track and influence streams of traffic, public opinions and sentiments, or, for that matter, students' cognitive advances. The business models of these platforms, in turn, inform how platforms technologically steer the flow of data. This brings us to the mechanism of commodification.

COMMODIFICATION

The mechanism of commodification involves platforms transforming online *and* offline objects, activities, emotions, and ideas into tradable commodities. These commodities are valued through at least four different types of currency: attention, data, users, and money. Commodification is intensified by mechanisms of datafication as the massive amount of user data collected and processed by online platforms provide insight into users' interests, preferences, and needs at particular moments in time. It also ties into mechanisms of selection as these users are connected with personalized services and advertisements (Andrejevic 2013a; Fuchs 2013; Turow 2012). Commodification includes, but does not equal, business models of singular platforms; rather, the mechanism plays out in the multisided markets created through the platform ecosystem, which connects the infrastructural core with sectoral platforms and a large variety of complementors.

Commodification mechanisms are simultaneously empowering and disempowering to users. Particularly those platforms we have labeled as connectors allow, on the one hand, individual users to market their personal assets or experiences online—be it their apartment, ride, eyewitness report, or video. They help commodify user activity, enabling users to become entrepreneurs in their own right. From this perspective, platforms potentially shift economic power from legacy institutions, such as hotels, taxi companies, newspapers, and universities, to individual users. On the other hand, the same platform mechanisms of commodification involve, as critical political economists have pointed out, the exploitation of cultural labor, the (immaterial) labor of users, and the further precarization of on-demand service workers (Van Doorn 2017b; Fuchs 2010; Moulrier-Boutang 2011). Furthermore, these mechanisms lead to a concentration of economic power in the hands of a few platform owners and operators, particularly the ones dominating the core of the ecosystem, because they can strategically position themselves as aggregators and gatekeeping mediators (Fuchs 2013; Srnicek 2016). But how exactly does that work?

Multisided markets

As microeconomic studies show, the economic exchange enabled by platforms (e.g., search engines, video game platforms, social media networks) takes place within

a structure best understood as a *multisided market* (Boudreau and Hagiu 2009; Nieborg 2015; Rieder and Sire 2014; Rochet and Tirole 2006). In such an economic configuration, a platform aggregates, facilitates, and controls the connections and transactions between distinct groups of users: end users are connected with advertisers as well as with service providers or complementors, ranging from micro-entrepreneurs to news organizations and universities. Of course, there is a strong hierarchy between platforms in their ability to do so successfully. The Big Five platforms dominate the market for infrastructural services, complemented by a few rapidly rising sectoral platforms, as we explained in chapter 1.

To succeed as a multisided market, a platform must link as many users to their respective sides; one dominant strategy to bring end users on board is to offer them free access to the platform, while advertisers and service providers are offered low-cost tools to target end users. Examples of such tools are the Uber app, through which drivers are connected with riders, and the data analytics tools offered by Facebook and Google. As Rieder and Sire (2014, 200) point out, “if these subsidies and/or investments are well designed, powerful network effects and economies of scale can lead to a situation in which the appeal of one side of the market is strong enough to capture the entire market on the other.” This effectively means that multisided market structures have a strong tendency toward monopoly. Attracting and connecting large numbers of end users, service providers, and advertisers can generate huge revenues but also require enormous investments. Only a few platform corporations have successfully balanced these requirements.

Platforms as multisided markets function through a number of business models, which involve the commodification of user data, services, and goods. One of the key ways in which user data and attention are commodified is through *personalized advertising*. Not surprisingly, Facebook and Google, companies with access to vast amounts of user data, have built extensive advertising networks (Fuchs 2013). In contrast to the traditional mass media model, platform advertising revolves not only around audience commodification—selling the time audiences spend consuming particular media content to advertisers—but also around the commodification of user data that can be personalized and aggregated in certain time–space locations (Nieborg 2017). In platform-based advertising models, advertising is dissociated from particular content; instead, it is targeted at specific users whose behavior and interests are tracked across the media landscape, in real time and increasingly across different media devices (Couldry and Turow 2014; Turow 2012). Content is, in this economic model, often provided for free to facilitate the collection of user data and to maximize the number of users. Content is typically also not produced by the platform itself but generated by users—individuals or professionals.¹

The commodification of user data also takes place through the development of *data services*. While most platforms offer data services for free to ensure the participation of third parties in the platform market, a few specialized platforms generate revenue through these analytics services. Particularly prominent are large data companies, such as Acxiom, CoreLogic, and Datalogix, some of which collaborate with the core infrastructural platforms.² In specific sectors, such as the news industry, we can also observe the emergence of dedicated data services. Companies such as Chartbeat, NewsWhip, and Parse.ly specifically aim to assist editorial decision-making. The health sector has also seen the quick rise of specialized data services, for instance, OptumHealth, Verisk Analytics, and Oracle Enterprise Healthcare Analytics. These tools and services draw data from different sources to provide news and health organizations with detailed insights into user activity.

Besides advertising and data services, the commodification of goods and services involves monetary transactions. In some business models, platforms primarily generate revenue through *commissions* and *transaction fees*. This model is typically employed by connective service platforms, such as Uber and Airbnb; where Uber charges on average 25% commission over each fare, Airbnb charges a 3–5% service fee from hosts and a 5–15% transaction fee from guests (Airbnb 2018; Edelman and Geradin 2016; Henten and Windekilde 2016; Rosenblat and Stark 2016).

An important variant of this business strategy is the freemium model. In this model, the basic version of a product or service is provided free of charge, but a premium is charged for additional features and functionality.³ Over the past years, different types of content producers, particularly the game industry, have experimented heavily with freemium. The freemium model is also prominently applied by massive open online courses and by some fitness and health apps, discussed in chapters 5 and 6. Coursera, for example, lets students enroll for free but offers extra services for a fee, such as certificates of completion and proctored exams.

Commodification strategies create platform dynamics that enable and shape economic exchanges while concurrently defining the active participation of a wide variety of users. Charging transactional fees rather than subscription fees or selling data and advertising without charging fees—each choice generates a different dynamic. While there are substantial differences between sectors in how such dynamics take shape, in general we can observe that economic processes across sectors are increasingly being oriented toward *and* determined by platforms. It is precisely through this reorientation and shaping of economic relations that multisided markets are constructed and formerly independent economic actors are transformed into platform “complementors”—complementary to platforms, that is. The news sector, as discussed in chapter 3, provides a case in point. Whereas news organizations previously functioned as two-sided markets in their own right—connecting readers

and viewers with advertisers—they now increasingly have to monetize their content through the commodification mechanisms imposed by the platform ecosystem.

Consequently, the emerging platform economy creates new dependencies and hierarchies. Drawing from a constant stream of user data and advanced technological infrastructures, platforms are more effective than traditional public institutions at linking students with teachers, readers and viewers with news and advertisements, patients with medical institutions, and drivers with riders. Around these platforms, complex systems of interdependencies emerge, with platforms developing into primary gateways to consumers and citizens upon which legacy corporations and institutions become dependent. Thus, while taxi drivers, news organizations, and universities evidently still find ways to reach people without the mediation of platforms, it becomes increasingly more difficult to ignore the evolving online infrastructure that offers one-click convenience and efficiency.

The efforts by individual and institutional users to promote themselves, their content, and their services tend to intensify the commodification of user data, goods, and services by platforms. More clicks means more data traffic, and more traffic means more power to platform operators, particularly the Big Five; data and attention are transformed into value by means of personalized advertisements and transaction fees. While user commodification and platform commodification mutually reinforce each other, there is clearly a huge disparity in power relations. As platform operators develop and control the interfaces, algorithms, and data flows that facilitate and shape the exchange through infrastructural connectors, they can set the economic rules of the game.

SELECTION

Datafication and commodification are closely related with the ways in which platforms steer user interaction through the *selection* or *curation* of most relevant topics, terms, actors, objects, offers, services, etc. Traditionally, experts and institutions, directed by professional norms, played key roles in such selection processes. Journalists determine what is and is not news, guided by their independent professional judgment. Expert reviewers help tourists to make a choice between hotel rooms on offer. And experienced teachers decide which assignments fit a course and which courses fit a curriculum. Online platforms replace expert-based selection with user-driven and algorithm-driven selection. Users now filter content and services by “rating,” “searching,” “sharing,” “following,” and “friending.” Hence, platform “selection” can be defined as the ability of platforms to trigger and filter user activity through interfaces and algorithms, while users, through their interaction with these coded

environments, influence the online visibility and availability of particular content, services, and people.

From the perspective of users, selection through platforms appears more democratic than expert-based selection. However, selection is not only shaped by user practices but also constituted through often black-boxed techno-commercial strategies. Platforms curate content and user activity through a wide range of interface features and algorithms, the predilection and steering of which are anything but transparent to users. As Gillespie (2014) explains, algorithmic organization has become paradigmatic in a media environment dominated by platforms: we now rely on algorithms just as we used to rely on credentialed experts, even though we know very little about the mechanisms defining those choices. We will now discuss three types of selection that are often at play in platform dynamics: personalization, reputation and trends, and moderation.

Personalization

Platforms algorithmically determine the interests, desires, and needs of each user on the basis of a wide variety of datafied user signals, personalizing the user's stream of content, advertising, and contact suggestions. Personalization depends on "predictive analytics": the ability to predict future choices and trends on the basis of analyzing historical patterns of individual and aggregate data. Although platform algorithms determine what each user gets to see and is offered in his or her Google search results, Facebook News Feed, or Uber app, these automated choices are notoriously difficult to analyze or audit. As carefully protected trade secrets, they always remain partially hidden from view. Moreover, they are constantly modified in response to evolving business models and user practices. And they are performative in that they only act in combination with continuously changing user data, which means that the kind of selection they generate cannot be predicted beforehand (Bucher 2016; Chun 2011; Mackenzie 2005; Seaver 2014). Consequently, it is impossible to determine how platform algorithms exactly work. Researchers can only observe their workings and logics indirectly through various methods: by reverse engineering, by looking at documentation provided by platforms themselves, and through ethnographic research and interviews with software developers and engineers.

Drawing from these kinds of sources, we learn that algorithmic personalization builds on signals of both the individual user as well as larger user aggregates. This is most evident in the case of Facebook's News Feed algorithms. In a 2013 interview, Lars Backstrom, one of Facebook's News Feed engineers, made clear that the Feed's algorithms distinguish between different levels of affinity, measuring how close each

user is to friends, to people they follow, as well as to pages and groups. This measurement is based on personal interactions but also on global exchanges that can outweigh personal signals. Backstrom explains, “For example, if we show an update to 100 users, but only a couple of them interact with it, we may not show it in your News Feed. But if a lot of people are interacting with it, we might decide to show it to you, too” (quoted in McGee 2013). Facebook is trying to strike a balance between private conversation and public communication, between personalization and popularity. In this algorithmic balancing act, time decay also plays a crucial role—recent interactions weigh heavier than older ones—allowing Facebook to identify and highlight trending topics to its users (Bucher 2012). This kind of algorithmic balancing takes shape differently on each platform, depending on its business model. Moreover, it is an evolving process as Facebook and other platforms constantly change how they weigh different signals and what signals they take into account.

Through algorithmic personalization, as well as by giving users extensive options to select, search, filter, and follow, online platforms appear to realize Nicholas Negroponte’s (1996) dream of the Daily Me. Around each user, platforms construct a completely personalized environment of services, information, and people. While a dream of convenience for Negroponte, personalized information environments are a nightmare to others, who worry about the societal consequences of personalization. According to scholars such as Cass Sunstein (2009) and Eli Pariser (2011), personalization can lead to social fragmentation, enclosing users in “filter bubbles” which bar them from being exposed to a wide variety of societal values and perspectives. These concerns, more extensively discussed in chapter 3, were again ignited in the aftermath of the 2016 US presidential elections. In the educational sector, a personalized algorithmic approach to learning may benefit individual students but may inadvertently diminish the emphasis on collective teaching and learning experiences. While we share these concerns, it is important to realize that personalization is precisely the reason so many people are attracted to platforms. Customization and personalization also empower users as consumers and citizens, enabling them to quickly find the most attractive offer and the information they are interested in.

Reputations and Trends

Platform selection mechanisms not only personalize what each user gets to see but also identify “trends” among the larger user population and determine reputations of users. Many platforms offer users lists of “trending topics,” which are usually not simply a reflection of the most shared content, used words, or bought items but an algorithmic selection of the content, words, and items that generated the largest increase in user engagement. In other words, platform algorithms have a propensity

for virality or spreadability (Cheng et al. 2014; Goel et al. 2016; Jenkins, Ford, and Green 2013). Through cross-fertilization between platforms and followers, particular content and issues can “go viral.” The ability to reach millions of people was previously the exclusive privilege of mass media. How and when exactly this snowball effect sets in is the result of an intricate interplay between global user activity and algorithms. Particularly large infrastructural platforms have vested interests in boosting user traffic in order to raise advertising attention and data exchange.

Platforms also play a crucial role in determining the “reputation” of users and services. Users are constantly asked to review each other’s behavior and performance, for instance, as deliverers, drivers, guests, teachers, or hosts.⁴ In turn, these metrics are fed back to users, allowing them to quickly assess whether it is a good idea to engage in an economic exchange with another user (Ert, Fleischer, and Magen 2016; John 2013; Zervas, Proserpio, and Byers 2015). It is through such selection mechanisms that connectors try to construct interpersonal trust. Reputation rankings provide both consumers, who step into a stranger’s car or house, and micro-entrepreneurs, who offer their private space, some minimum assurance that the other can be trusted. While hospitality services and transportation network companies still portray their users as a “community,” the massive scale at which these platforms operate make traditional community-based modes of interpersonal trust irrelevant. And as global operators cannot guarantee the safety and quality of the services offered through their platforms in the same way hotels and taxi companies can, they employ reputation ratings to make up for the lack of institutional guarantees.

Reputation metrics are not simply a reflection of the quality and standing of a service provider; their efficacy is shaped and defined by the platform operators that design these systems in the first place. Take Uber, whose rating practices will be discussed in chapter 4. Drivers who fall below a certain rating can be removed from the platform and lose their earning capacity through the platform. In this way, these metrics stimulate drivers to sustain and improve their reputations. So more than instruments of trust-building, reputation metrics are increasingly deployed as instruments to reinforce particular user behaviors, steering activities in key public sectors (Baym 2013; Marwick 2013; Rieder 2016; Van Doorn 2014).

Platform trends and reputation metrics have become vital in today’s economy. Consequently, it is not surprising that many societal actors try to affect these selection mechanisms. Micro-entrepreneurs offering rides or accommodation try hard to get a high rating from their customers, and the same is true the other way around. It has been suggested that this dynamic can lead to inflated reviews as users are afraid to get a low rating if they are critical or shut the other out from future work (Bolton, Greiner, and Ockenfels 2013; Fradkin et al. 2015; Zervas, Proserpio, and Byers 2015). Systematic efforts to steer selection mechanisms are often also made during large

public events where users push event-related hashtags so that relevant messages can easily be grouped together and retrieved. And by mass retweeting, liking, and sharing particular messages, users greatly enhance the visibility of these messages (Bruns and Burgess 2015; Poell 2014). In doing so, they build on the technological affordances of social media networks, anticipating the algorithmic organization of user content in “trending” and “most relevant” content. This was clearly illustrated by the Occupy example in the introduction, in which activist groups tried to gain public attention via Twitter’s trending topic lists. And then there is the gray market of commercial third parties that “game” platform metrics. “Fake” Twitter followers, app store reviews, and Facebook friends can be bought for a small fee. State actors, on their part, can deploy “bot armies” to redirect attention, spread misinformation, and even attempt to gather people to engage in offline activities (Maréchal 2016; Tufekci 2017).

Moderation

Finally, all major platforms actively moderate what content is shared and who can use their services. This selection mechanism tends to generate a lot of controversy as platforms are often seen to moderate either too little or too much. Prominent examples of *too much* moderation are the many instances in which Facebook and other social media filter historically and culturally significant content because it violates their regulations in terms of the depiction of nudity and graphic violence (Levin, Wong, and Harding 2016). When Facebook repeatedly deleted the iconic “Terror of War” picture of a fleeing naked child after a napalm bombing during the Vietnam War, its removal triggered controversy when a Norwegian news outlet objected to this practice. Also controversial is the deactivation of user accounts because of real-name policies (Youmans and York 2012). In these instances, platforms are blamed for censorship and power abuse. Vice versa, platforms are also frequently accused of moderating *too little* when they fail to promptly remove users and/or content that constitute a threat to public safety. Moreover, the widespread circulation of misinformation has also been considered a failure of platform curation (Manjoo 2017a). In other words, platform moderation practices constitute an intricate balancing act between different actors, interests, and concerns.

Central elements in this balancing act are platform regulations (terms of service), automated technologies, and moderation procedures. To identify users and content that potentially violate regulations, platforms increasingly employ automated detection technologies (Buni and Chemaly 2016). However, given the complexity and contentious nature of content moderation, this process can never be fully automated. Consequently, the major infrastructural and sectoral platforms also rely on

thousands of human moderators or editors to evaluate potentially violating activities and content (Goel 2017). Moreover, these platforms constantly call upon their users to “rate” and “flag” content and performances of other users. These ratings and flags are, in turn, employed to identify and remove contentious content and deactivate users who fail to meet ever shifting and opaque “community standards” (Buni and Chemaly 2016; Crawford and Gillespie 2016). Uber, for example, as discussed in the chapter 4, builds on user ratings to detect drivers who do not satisfy customer expectations.

These moderation practices should be understood within the larger commercial and regulatory environment of the online ecosystem, in which often contradictory economic, political, and social pressures are at work. Platform corporations, on the one hand, clearly have an economic incentive not to be overly restrictive in terms of the content and services exchanged through their channels as this would limit revenue from advertising and commissions. This economic incentive became particularly poignant during the 2016 US elections when so-called fake news widely circulated across social media platforms. Overall, platforms tend to especially respond to controversy: pressured by users and advertisers, they are usually highly motivated to moderate controversial content and practices. Hence, scandals over racist drivers and apartment owners have prompted companies such as Uber and Airbnb to take measures against discrimination. Similarly, in direct response to the 2016 fake news controversy, both Google and Facebook have taken measures against malicious publishers (Wakabayashi and Isaac 2017). The criteria for filtering content and blocking users are constantly evolving, driven by changing societal concerns and ideals.

Given the controversy generated by platform moderation practices, it is not surprising that the consequences of selection dynamics for the realization of key public values have become the object of intense public scrutiny. The deactivation of user accounts on connective service platforms has especially raised concerns about the security of basic labor rights on platforms such as Uber. On social media sites, moderation practices trigger concerns over access to crucial means of public expression. In turn, content filtering or lack of such filtering has set off alarm bells regarding the ways in which platforms potentially limit freedom of expression and undermine the quality of public debate. The extent to which platforms rely on human versus algorithmic moderation has received a lot of attention. Perhaps surprisingly, especially the use of human moderators to filter content has been considered an illegitimate intervention in what many consider user-driven processes, enabled by unbiased technologies. Of course, as Gillespie (2016) points out, algorithms also make choices on the basis of criteria specified by designers. These criteria, as in the case of human editorial processes, are fundamentally “expressions of human values.” Thus, when

considering platform selection mechanisms involving algorithms, human editors, or a combination of both, we inevitably need to question the *core values* that guide these mechanisms.

CONCLUSION

This chapter has described three closely related mechanisms and the ways in which techniques of measurement and calculation are integrated in specific modes of governance—a development that should be seen as part of a longer history of calculation and commensuration.⁵ To understand how datafication, commodification, and selection tie in with contemporary governance strategies, it is especially important to see how in neoliberal or advanced liberal democracies, calculative regimes of accounting, and financial management have been employed to enable what Miller and Rose (2008, 212–13) call a “degovernmentalization of the state.” Through budget disciplines, accountancy, audits, and performance measures, societal organizations and individuals are increasingly governed “at a distance,” while at the same time gaining a certain autonomy in decision-making and responsibility for their actions.

It is in this framework of calculative regimes and deregulation that platform datafication takes shape. It allows for performance measurement, as well as the tracking of evolving sentiments, interests, and opinions in ever more spheres of life and in ever greater detail. This ongoing translation of every type of activity in data can be understood as a process of *commensuration*, which Espeland and Stevens (1998, 314) have defined as “the transformation of different qualities into a common metric” through “rankings, ratios, or elusive prices.” In the case of online platforms, commensuration takes the form of likes, shares, ratings, comments, friends, and followers, allowing operators to compare, sort, and rank types of activities which were previously considered incomparable and unquantifiable. From this perspective, platform mechanisms of datafication, commodification, and selection are continuous with long-term developments in the relationship between governance and quantification. They strongly correspond with the neoliberal reorganization of government and the penetration of market rationalities and principles in a wide variety of social activities. Platform mechanisms shape *every* sphere of life, whether markets or commons, private or public spheres.

As we will see in the following chapters, the identified mechanisms involve public institutions, corporations, and individuals, who are stimulated to maximize their performance and develop an entrepreneurial disposition in an online world. At the same time, the types of measurement and forms of tracking introduced by platforms, as well as the ways in which these are translated to specific business models and

economic strategies, do not necessarily support established market players. Platformization disrupts both collective public arrangements and entrenched market structures. By introducing new social categories and selection mechanisms, platforms reorganize value regimes and economies. As Espeland and Stevens (1998, 323) emphasize, “commensuration is political: it reconstructs relations of authority, creates new political entities, and establishes new interpretative frameworks.”

While the dominant articulation of the three identified mechanisms is ideologically continuous with the neoliberal reorganization of government in the United States and Europe over the past decades, this is not to say that the outcome of processes of platformization is predetermined. The challenge taken up by this book is precisely to examine how these processes take shape and how they can be shaped *differently* to include important public values. The starting point in addressing this question is the realization that the different types of actors involved have a choice in how they integrate platforms in their practices and routines.

Individual end users are most directly confronted with platform technologies embedded in interfaces and algorithms, guiding them to the most relevant, highest-rated, and most shared content and services. The tension between the techno-commercial selection strategies of platforms and the occasionally unpredictable tactics of users is important to explore. Ultimately, the fate of a platform is determined by the collective behavior of users. If many users decide to move to other platforms or pursue content and services offline, a platform can very well fail, unable to produce the necessary network effects and economies of scale. We will return to this point in the final chapter of the book.

We also need to consider *institutional users*: governments, corporations, news organizations, universities, and medical institutions that try to build on the platform ecosystem and integrate their activities in an online world. These kinds of legacy organizations and institutions have historically anchored selection procedures and criteria of relevance in professional routines, formal standards, or ethical criteria. For example, the medical institutions we will encounter in chapter 6 conventionally operate by means of strict protocols when handling patient data about symptoms or treatment; they carefully select appropriate testing and evaluation methods. Such procedures are challenged by online health platforms offering user-generated data that are shaped by commodification and selection mechanisms. If platforms bypass institutional users and their professional standards and procedures, this inevitably raises a number of issues—from privacy concerns to scientific integrity.

Similar kinds of challenges and questions emerge in the other sectors. In each specific case, the question is what the confrontation between established institutional procedures and the selection methods and commodification strategies of platforms means for the realization of key public values. What criteria are used to

determine what is news, and can this selection process be outsourced to algorithms, platform operators, and users? To what extent do ideals of socioeconomic equality inform the organization of transport? If education gets primarily approached as a data-driven process of personalized learning, what are the effects on institutional values defining education as a common good? To properly address such questions, it is vital to gain a precise understanding of how platform mechanisms work in specific sectoral contexts and how they steer individual users and become entangled with institutional procedures.

The Big Five tech companies exert mounting influence over how societies are organized through the platform ecosystem. Their infrastructural services set technological standards, determine economic models, and steer user activity for the ecosystem as a whole, shaping the interaction between sectoral platforms, societal institutions, companies, and citizen-consumers. While it is certainly possible to organize these relations differently, this is by no means a simple task. As we will argue, it takes much more than bottom-up commons-based initiatives, however innovative and technologically sophisticated they might be. To bring substantive change to the workings of the platform society, the infrastructural core of the ecosystem—the way it operates and is being operated—should become open to negotiation and allow other societal actors to influence its underpinning mechanisms. That is why we will now turn to four specific sectors—two mainly market-based and two predominantly public—to investigate how platformization is changing the precarious balance between various social actors in each sector; we will use datafication, commodification, and selection as analytical prisms to help understand how the ecosystem works to rearticulate power relationships.