Platform Logic: An Interdisciplinary Approach to the Platform-Based Economy

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Digital platforms are not just software-based media, they are governing systems that control, interact, and accumulate. They also solidify markets; that is, social networks of exchange that do not necessarily leave data traces, into infrastructure, that is, material arrangements of traceable activity. This article examines the forms of domination found in this digital platform model, and corrects some existing simplistic theoretical conclusions about digital platforms. It first provides a schematic overview of digital infrastructures of governance, and the attendant systemic mechanics they engender. It then argues that we need a more syncretic, interdisciplinary approach to the platform-based economy. The shifting emphases of different academic disciplines in relation to digital platforms are only partially grounded in their different normative biases; they can also be attributed to use of different disciplinary lenses. The field of information systems management and design studies is chiefly concerned with direct, technical interplatform affordances and connections, and with providing observations of certain systemic attributes of digital platforms. Critical political economy, by contrast, mainly considers the emerging transnational, geopolitical formations of platform capitalism. The interplay between these different systemic mechanics is summarized and presented here in the concept of “platform logic.”

KEY WORDS: platform management, platform regulation, platform power, platformization, media ecology, infrastructure, multi-sided markets, big data

数字平台并不仅仅是基于软件的媒体，它们还负责控制、相互影响和积累的治理系统。同时还可以巩固市场，也就是说，相互交流的社交网络并不会将数据跟踪留给基础结构，这也是可追溯活动的重要安排。本文检验了该数字平台模型中发现的主导形式，并纠正了现存的一些被过分简化的数据平台理论总结。文章首先为数字管理的基础结构，以及结构产生的系统性力学提供了严谨的概述。之后本文认为：我们需要整合跨学科方法来对待平台经济。关于数字平台，不同学科之间的影响转移部分基于各种不同的规范性偏见；它们也可能因为使用了不同的学科观点。信息系统管理和设计研究主要与直接的、技术性的平台间功能可见性和关联相联系，同时还和数据平台的某些系统属性相联系。相比之下，批判性政治经济主要考虑兴起的跨国性平台资本主义，以及该主义形成的地缘政治。本文简要总结了这些不同系统性力学之间的相互影响，并以“平台逻辑”的概念进行呈现。

关键词：平台管理，平台规定，平台动力，平台化，媒体生态学，基础结构，多边市场，大数据

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Las plataformas digitales no solo son medios basados en software, también son sistemas de gobierno que controlan, interactúan y acumulan. Adicionalmente, solidifican los mercados, es decir, las redes sociales de intercambio que no necesariamente dejan rastros en la infraestructura, es decir, los arreglos materiales de actividad rastreable. Este artículo examina los métodos de dominación que se encuentran en este modelo de plataforma digital y corrige algunas nociones teóricas simplistas que ya existían acerca de las plataformas digitales. Esto provee un panorama esquemático de las infraestructuras digitales de gobernanza, y de la mecánica sistémica inherente que estas mismas afectan. Después argumenta que necesitamos un método interdisciplinario más sincrético para la economía basada en plataformas. Los énfasis cambiantes de las diferentes disciplinas académicas en relación a las plataformas digitales están solo parcialmente basados en sus diferentes seísmos normativos; también se le puede atribuir el uso de diferentes enfoques disciplinarios. El estudio de la gestión y diseño de sistemas de información se concentra principalmente en el funcionamiento y las conexiones inter plataforma de carácter directo y técnico, y en proveer observaciones de ciertos atributos sistémicos de las plataformas digitales. La economía política crítica, en contraste, principalmente contempla las formaciones emergentes, transnacionales y geopolíticas del capitalismo de plataformas. La interacción entre estos diferentes mecanismos sistémicos se resume y presenta claramente aquí en el concepto de 'lógica de plataformas'.

PALABRAS CLAVES: Gestión de plataformas, Normativa de plataformas, Poder de las plataformas, Plataformización, Ecología mediática, Infraestructura, Mercados multilaterales, Macrodatos

Introduction

In recent years, considerable academic scholarship has addressed digitization (Peters, 2016), informatization (Kallinikos, 2006), datafication (van Dijck, 2014), and, more recently, platformization (Helmond, 2015). Digital platforms, as an instance of digitization proper, are infrastructural arrangements that situate digital operability on proprietary systems that are, to some degree, programmable and/or customizable by the system users, making possible one- or multisided market exchanges. As surfaces on which social action takes place, digital platforms mediate—and to a considerable extent, dictate—economic relationships.

The academic literature on digital platforms is heterogeneous as regards the conditions for digital platform structures and what is at all knowable about them; various different aspects of the ontology, epistemology, and societal power of digital platforms tend to be addressed. By combining a critical political economy and policy/governance studies perspective with insights from science and technology studies, economic theory, information systems (IS) research, and media theory, this article focuses on specific material aspects of digitization alongside a sociological understanding of the politics that emerge from these infrastructural arrangements (Boullier, 2016; Cohen, 2016; Langlois & Elmer, 2013; Pasquale, 2015). Since digital platforms are simultaneously mediators and economic facilitators, I will employ a definition that commits in equal part to media studies and political economy.

The proliferation of digital platforms in many sectors of business and social organization has led commentators to speak of a budding “platformization,”
precipitating an emerging “platform society” (van Dijck, 2017), dominated by a certain type of software-based infrastructure. Singular digital platforms, in and of themselves, constitute particular infrastructures (Plantin, Lagoze, Edwards, & Sandvig, 2016) that are all different but have critical aspects in common. Arguably, they give rise to certain combinatory effects, both in terms of interoperability and when considered in aggregation. In this article, I employ a theoretical model that maps, schematically and tentatively, what I term “platform logic.” I argue that digital platforms enact a twofold logic of micro-level technocentric control and macro-level geopolitical domination, while at the same time having a range of generative outcomes, arising between these two levels.

The main output of this article is its resulting stack model (micro–meso–macro) through which future case studies can be mapped, making for a much more succinct understanding of the “platform society,” especially in terms of political economy. Further, the article serves as an attempt to bridge the conceptual gap between different disciplines and authors: While digital platforms are understood in certain ways in management and design studies, the computational humanities (e.g., Wendy Chun, Anne Helmond, David Colombia) or more popular critics (e.g., Tim Wu, Lawrence Lessig, Evgeny Morozov) tend to approach them in somewhat different ways. If it is true that political economy tends to criticize “platform imperialism” in a somewhat totalizing way, without explaining its technical causes or reasons, committing to the more management-oriented discourse on digital platforms helps for a more bottom-up mode of understanding. Alas, since there are so many interpretations of the “platform” concept to begin with—not to speak mention the heterogeneity of political perspectives this seems to result in—my synthesis cannot be performed without some form of generalization and reductionism, hence my recourse to a rather skeletal stack model, which nevertheless carries analytical potential that I hope future studies will add to.

**Digital Platforms: A Definition**

Digital platforms have been at the center of business and management discourse for at least a decade (Evans, Hagiu, & Schmalensee, 2006; Parker, Van Alstyne, & Choudary, 2016). Narrowly defined, a platform is a digital infrastructure (software-based but sometimes also hardware-based) intended for users to apply either computer code in the conventional sense (i.e., to run applications or fetch data from it), or to apply a set of human uses (delimited, formalized, and patterned by the design of the platform in question). Digital platforms are surfaces for technical innovation, on top of which new actors can develop additional services or products; in many ways they are utilities that generate new societal functions and business opportunities. Economically, so-called multisided markets (Rochet & Tirole, 2003, 2006) are enacted on platforms, enabling transactions between actors who would otherwise struggle to find each other—they are a surface on which mediated exchanges can take place: “The common element is that different types of users (sellers, buyers, advertisers, etc.) come
together to reduce transaction costs” (Martens, 2016, p. 17). Importantly, individuals are not only users but also “inputs,” since their participation creates value for other users (cf. Jullien, 2008, p. 2). In an ontological sense, a platform can be envisaged as a (technologically and materially constituted) “stage” that gives actors leverage, durability, and visibility. A platform is a topos; a place where residence is held, enabling strategic (in contrast to tactical) advantages. Gillespie (2010) provides a succinct typology, with an eye to media studies in particular, going beyond the merely computational definition (i.e., a system in which computer programs can run), to emphasize the architectural (a surface or structure on which action can take place), the figurative (a [metaphysical] foundation for opportunity, action, and insight), and the political (a set of principles on which a societal actor takes a stand in appealing to the public).

A digital platform automates market exchanges and mediates social action—but as relationships are turned into material infrastructure, existing arrangements are lent a degree of immutability and traceability, rendering what previously would have been informal exchanges into much more formalized rules of engagement. In my definition, I exclude open infrastructure (i.e., protocol- and/or standard-based), focusing instead on those arrangements that involve specific, designated software setups that are proprietary to the platform owner (with the required hardware often proprietary too), with clear rules of engagement, and defaults and setups that put considerable limits on (while often also involving rents on) usage, modification, and adaptation of the system in question. Hereby, my definition differs from Gillespie’s much broader, more eclectic definition of platforms, and from those definitions in the IS literature that include, for example, open-source systems, while I am more sympathetic to definitions such as those made by, for example, van Dijck (2013, p. 29), who notes that “a platform is a mediator rather than an intermediary,” because it shapes sociocultural performance rather than merely facilitating tools. Importantly, it is debatable whether some digital media infrastructures should be labeled platforms (singular). If one uses a narrow definition, infrastructures like Netflix and Spotify are hardly uniform platforms; in sheer technical and user-experience design terms, they are more like cable TV packages (one-way broadcasting, albeit personalized) than “Web 2.0” platforms (two-way user exchange). However, in economic terms, they are platforms in that they facilitate complex multisided market exchanges (between media consumers, licence holders, content creators, telecoms operators, investors) by way of digital automation (Eriksson, Fleischer, Johansson, Snickars, & Vonderau, 2017). Further, those corporate-owned digital media platforms that are intended to enable user-based sharing and creation (e.g., YouTube, Facebook, Twitter) also have a dual nature: They enable user-based creativity, but their ultimate profit motive also means that considerable user participation is harnessed and delimited. As Eriksson et al. (2017) argue, “platform affordances simultaneously allow and constrain expressions.” Hence, issues of both control and of accumulation arise; these are key terms for my stack model, and I will devote sections to these concepts below.
Dominant actors in that their platforms are popular, yet voluntarily chosen nodes in open systems (e.g. search engines, web-based indexing pages)

Dominant actors in that their platforms are de facto systems that the users are forced to approve in order to participate (e.g. Facebook, Spotify, Airbnb, Uber)

Dominant actors in that their systems are not only exclusive, but also so widely spread that they dominate the global landscape (e.g. Apple iOS, Android)

Figure 1. Various Degrees of Platform-Based Dominance.

Figure 1 outlines how, in the platform-based media economy, where circulation occurs on many levels, in many interlocking feeds and flows, simple acts like watching a television clip, sharing, or commenting upon it, involve numerous interlocking platforms—of different magnitudes, firmness, and/or importance for the overall media ecology. Due to, for example, regional fragmentation of intellectual property (IP) rights, and considerable national differences in market demand, the established supply of streaming media ventures (e.g., Spotify, Netflix, Apple iTunes) is regionally and nationally differentiated, while the act of consuming and linking/referencing to the hosted media content in question takes place on operative systems and sharing platforms that are globally established in highly concentrated markets.

The Argument

Platform logic refers to the interplay between different mechanics inherent to digital platforms, found on different conceptual and topological levels: micro, meso, and macro. It is a way to simultaneously acknowledge the technical capacity of unyielding local control and its consequential concentrations of global dominance by a handful of corporate actors. If one takes these two phenomena as worrisome (assigning the former to a micro level of platform interaction and the latter to a macro level) why are these tendencies normatively allowed to take place in the first place? Why is society collectively acquiescing to this development? Arguably, because of the efficacy, convenience, and generativity arising from the intermediate step (the meso level) linking the two, as Yoo (2013) has persuasively shown. In platform-praising discourse, what is often highlighted is a new form of “plug and play” management dynamic, where Application Programming Interfaces (APIs), enable service providers to talk to one another and coordinate action. Platforms are able to interact with and even build upon one another in various creative ways.

Hence, platforms are charged with a “paradoxical tension between the logic of generative and democratic innovations and the logic of infrastructural control”
Apple and Alphabet currently have to allow for quite significant degrees of freedom of innovation among the app startups crowding both App Store and Google Play, but there is nothing absolute to this degree of freedom. Tilson, Lyttinen, and Sørensen (2010, p. 755) use the “love-hate” relationship that software developers have with the Apple iOS platform as an example: “Apple’s iTunes platform […] represents a “different” balance of controls, enabling on one hand a generative platform supporting millions of users and hundreds of thousands of applications, while on the other hand exercising strict control over application approval, payment terms, architectural rules, and many aspects of the internal operations of applications.” The model presented here counters the simplistic notion that platforms would be (a priori) generative; from a purely functional viewpoint they often are, but they also build on absolute code-based control and, as implementations shaping the real world, current global accumulations of platforms act to consolidate imperialistic power. Conversely, the model also allows us to counter overly dystopian arguments about platform dominance and power.

In the model (Figure 2), the decisive concept on the micro level would be efficiency and expedient market performance by means of local control; a bounded, systemic sovereignty that guarantees patterning of action and, effectively, predictability. On the intermediate (meso) level, the key component would be the proliferous interconnections that inevitably take place when people use the platform purposefully. On the macro level, what is at stake is the issue of ownership, and the resulting corporate accumulation, which in turn ensures that platform capitalists

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**Figure 2. The Micro-Meso-Macro Level Structure of Platform Logic.**
can erect dominions that keep evolving and become increasingly entrenched over time. Using this model, the platform corporation can be understood as a leviathan encompassing countless smaller, corporate sovereigns (platforms and subdomains).

While platformization embodies several familiar capitalist developments (consolidation, economies of scale, rent-seeking), and multisided markets comprise new challenges for economic regulation (Evans & Schmalensee, 2013), my argument will mainly focus on the materiality of digital code. In and of itself, digital mediation comprises enabling aspects like flexibility and programmability (Hanseth & Lyytinen, 2010), but what originally led me to sketch out this model is that digital platforms simultaneously depend on a form of binary control inherent to data and digital code, demanding absolute compliance (Chun, 2006; Lessig, 1999). Further, since digital platforms have the quality of being possible to scale, virtually endlessly, directly benefiting from so-called network effects and path dependencies that make the platform exponentially more valuable as more people use it, developments can be observed that are of direct relevance to governance studies. The present tech economy seems beset by market concentration, which is being harnessed by a handful of actors with the financial muscle to either outperform budding market entrants through pricing suppression, automation, and efficiency-maximization—or to simply buy them. The same financial clout enables these actors to seek favorable regulatory conditions through lobbying, and to silence bad press through litigation. This has been characterized as a new form of oligopoly; "tech oligarchy" even (cf. Gilens & Page, 2014; Jin, 2015; Manjoo, 2016a, 2016b). Moreover, since measurement data are automatically generated at the same time as the infrastructure is used, the "big data" generated makes for a new epistemological condition whereby information gathered from users is commercialized and in many ways idealized, charged with almost-mythical expectations (Boullier, 2016; boyd & Crawford, 2012; van Dijck, 2014). Digital platforms act not only as societal utilities (new engines of social order) but, at the same time, as knowledge operators (introducing new conceptions of truth and knowledge; Boullier, 2016; Langlois & Elmer, 2013). In media studies, van Dijck and Poell (2013) have established the concept of "social media logic." Here, platform-based network media begets personalization, user participation, and programmability—while simultaneously having coercive aspects such as automation, continuous data surveillance, datafication, and algorithmic popularity (cf. Webster, 2014).

It is important to note the heterogeneity of digital platforms. Singular platforms (particular surfaces) should not be confused with information infrastructures (ecosystems). Moreover, despite many shared, underlying principles, platform capitalism is variegated; not only do different market actors differ in size and power, some of the global giants seem more willing than others to make principled decisions and engage in public debates over privacy, editorial commitments, and communications policy. One key question is to what extent single corporations control entire panoplies of interconnected platforms. Many of the newer, smaller platforms are dependent on preexisting, larger ones, whose
dominance is further solidified. Further, as platform companies encroach on ever-more sectors, how tenably can they maintain public legitimacy; not only in terms of attitudes and discourses among the general population, but regarding institutional actors—and regulators—as well? Ultimately, the ability to comprehensively review these actors is crucial—raising questions of access, methods, epistemology, and multidisciplinarity.

**Local Control (Micro Level)**

Technocratic systems mask their political dimensions by assigning roles and functions out of apparent technical rationality. To better understand the ways in which technical systems determine behavior, it is advisable to differentiate between *prescriptive* and *restrictive* modes of control. Prescriptive modes of control refer to those affordances that enable action, albeit within a predefined space of possible action akin to the rules of a game: “Games define the players’ range of action without determining their moves. […] The technical code is the most general rule of the game, biasing the play toward the dominant contestant” (Feenberg, 1999, p. 112). Restrictive modes of control, on the other hand, are those affordances that are intended to limit action, to restrict the range of possible uses enabled through prescriptive devices.

Digital platforms, as understood in this article, involve both prescriptive and restrictive elements. Facebook prescribes a wide range of action in that a very large number of combinations of letters and words can be expressed in status updates, while nevertheless restricting certain text strings (e.g., torrent links), or executable code (e.g., like Myspace did). The Apple Store prescribes a wide range of apps to be hosted, nevertheless restricting certain types of apps or content. On its platform, Airbnb prescribes a mode of discourse between hosts and tenants that seems normal, until they discover that the infrastructure automatically detects and erases all text strings that resemble phone numbers, email addresses, or web links, purposefully barring participants from initiate discourse by any other means than the platform in question.

On the platform, the “core architecture of fixed rules” (Srnicek, 2017, p. 108) is totalizing: None of the participating nodes should be allowed to abuse their relative freedom by exploiting loopholes or glitches. Digital code means absolute standardization and tracking, undisputable measurements of what takes place, where, and when. In order to generate revenue from the many, sprawling, seemingly unpredictable interactions taking place on a platform, certain standardized rules and metrics have to be imposed: All transactions must be traceable and hence billable. Further, in order to make possible some kind of economy of scale, compliance has to be automated: Hardware setups and software algorithms automatically assign billing orders to your transaction.

Hence, platform control could be defined as *exclusive control over the surface on which the exchange takes place.* This does not mean that whatever happens on Facebook is determined by Facebook, but it does mean that Facebook has the irrevocable and absolute sovereignty to boot you out if you break the rules. Most
likely, no human being will ever make this sovereign move; a bot will flag you based on code that is designated to make automated responses to suspicious behavior. After that, a human being, following protocol, will determine if your behavior indeed deviates from the "community rules." Thus, control is never exerted by sovereign humans; even the manual content moderation that human beings perform is designated to imitate mechanistic, protocol-based behavior.

When law and norms are crystallized into code, a logic of total control is implemented (Lessig, 1999). Algorithmic management has been described as, for good and for bad, "better than law" (Chun, 2006, p. 66). It is thought of as an inhuman, perfect form of institutional functionality, producing a form of "technocentric equality" where individuals are freed from subjective decision making (Lianos, 2012, p. 31). Platforms in many ways resemble opaque black boxes (Pasquale, 2015): The surrounding world is not allowed to know what they do; researchers and regulators are denied proper access, while users and developers are routinely punished for peeking inside and/or tinkering with setups.

**Generativity (Meso Level)**

Despite the strong form of local, platform-specific technical control inherent to digital code, some of the academic literature highlights the relative lack of control over the ways in which platforms develop over time and interrelate with other platforms (Tiwana, Konsynski, & Bush, 2010). IS scholarship tends to emphasize the emergent, generative, convergent, and self-replicating properties of digital ecosystems (Yoo, 2013), inasmuch as reprogrammability and data homogenization is thought to give rise to open and flexible affordances (Yoo, Boland, Lyttinen, & Majchrzak, 2012). As technical architecture, platforms allow for large sets of IT capabilities to be crammed into a relatively well-bounded and controlled system, which can be continuously re-designed and expanded (Hanseth & Lyttinen, 2010). While the design of a platform often starts off with a bounded set of closed specifications, it often grows in complexity over time, as platforms are expected to meet varying user needs and to facilitate various forms of compatibility. Different platforms are differently bounded, differently restricted; the degree of generativity really varies. Taking the local perspective, technical restrictions abound (platform rules and purely technical filters like APIs), while, when taking a more general view, platforms appear nonbounded in the sense that new artifacts can be generated outside of the platform—entirely new platforms even—when platforms form part of larger ecologies.

Thus, it is important to distinguish individual platforms and applications from the much wider, more complex, and more dynamic information infrastructures that they form part of. Sometimes, when people praise the relative openness and flexibility of the Apple or Google ecosystem, in the same breath they confuse this with the particular platforms in question. While companies like Apple and Alphabet are, in effect, complex arrangements of interrelated platforms, each such platform might, however, be rather restricted in terms of sheer
functionality. An iPhone forms the nexus of a diverse information infrastructure, yet some of its constituent platforms (such as the iTunes interface) might in fact be highly constrained, path dependent, and not at all flexible. In short, various forms of convergence might emerge that economists label “platform envelopment” (Eisenmann, Parker, & Van Alstyne, 2010); that is, developments whereby platform companies build new platforms on top of, or inside existing ones. “For example, a popular game in a mobile phone platform can turn itself into a multisided market, not only between users and plug-in developers but also for advertising” (Martens, 2016, p. 13).

Platform markets are often comprised of systems of complements organized in layers. The same firm simultaneously can serve as a platform provider in one network and either a supply-side user or a component supplier in another. […] Due to strong economies of scale in platform markets, a single firm often comes to dominate each layer. (Eisenmann et al., 2010, p. 12)

Corporate Accumulation (Macro Level)

Once upon a time, Google and Facebook were digital platforms that simply provided search and social networking; Amazon was a retailer, and Apple a manufacturer of digital hardware. However, these actors have long since diversified into various other markets, while also functioning as platforms on which other platforms are, in turn, built. These gargantuan actors are running what could be called platform-based “superstructures” creating infrastructural conditions with global validity, while lesser actors (Uber, Airbnb, Spotify, Netflix, countless startup companies) are, in effect, partially dependent on these larger platforms. Platforms are situated in ever-wider ecologies of mutual interplay, codependence, and productivity. Spotify, which used to rely on its own servers, recently migrated its infrastructure to the Google Cloud Platform. Similarly, Netflix, while accounting for 37 percent of all Internet traffic in North America during peak viewing times, is dependent on Amazon Web Services for its hosting and traffic.

Further, platform companies are directly dependent on either venture capital or stock market valuations; as for startups and so-called “unicorns” (i.e., startups valued at over $1 billion) that do not turn a profit, the main source of revenue is indeed investor capital, arguably making investors their key trading partner and “investor storytime” their key product (Ceglowski, 2014). Once having “gone public,” concessions are made to a company’s public stock market valuation, affecting its platform business model. The interdependence between financial capital and digital platforms should not be underestimated.

Due to the automated generation of data, and intelligence that can be extracted from it, platforms enable entirely novel forms of synergy for those who own and control this data. One and the same company might be able to
dominate markets that would, by conventional reasoning, be nominally separate—but are not, as data assets are (in part, covertly) fused due to platformization. Reforms in antitrust/competition law are most likely needed (Cohen, 2016), since seemingly unconnected markets or sectors can be connected “behind the scenes.” One example would be Microsoft’s purchase of LinkedIn, which enables using LinkedIn’s data as a competitive resource regarding Microsoft’s corporate strategic rationality in ways that are not sufficiently transparent.

When platform companies have so much global dominance that they become “utilities,” that is, vital infrastructural connectors, such companies are privileged in that they stand to benefit from numerous positive feedback loops and synergies, without necessarily appearing to break any antitrust laws: They do not formally have to diversify by buying new subsidiaries—instead, they offer (or require) smaller competitors to use their platform infrastructure, with the proviso that they, as utilities, stand to harvest the data generated. One example would be the common practice of platforms utilizing Facebook’s social login in order to vet their users. Not only do the particular platforms stand to gain social data from Facebook, which they can integrate in their shaping of the service offered, but Facebook stands to gain new data about the user from each platform in question, further enriching Facebook’s own profiling.

This also means that innovation among platform companies often takes place by fusing intelligence from one sector with that of another; an intensification of many of the already observable defining characteristics of flexible specialization and postindustrialism/postfordism. For regulators, much of this innovation is literally impossible to anticipate; preempting it would mean that the regulator would need to have more innovative capacity than the innovating organizations that it is set to regulate. Such innovation can thus only be regulated after the fact (ex post facto). One example would be Alphabet managing its self-driving cars based on the company’s vast, real-time population data, in order to anticipate movements in the urban milieu, such as traffic jams.

It is not surprising that the leading platform companies are characterized by an avid tendency to colonize and converge into ever-new markets. The all-purpose applicability and interchangeability of data precipitate a highly expansive nature of platform enterprise. Platformization thus seems to be something more than simply a transformation of the media economy in a conventional sense. It appears as if we are dealing with an organizational principle, which, like Fordism and Taylorism before it, is becoming actively embraced by all kinds of actors, standing in all kinds of relationships to each other—direct competition as well as interdependence. Nevertheless, in markets where major platform actors have come to dominate, they hedge new entrants from acquiring market share in various ways:

Network effects and economies of scale create a strong tendency towards market concentration around a few big firms. Moreover, strong
network effects can be persistent and increase the risk of lock-in. [...] A monopoly platform can be efficient because network effects are maximized when all agents manage to coordinate over a single platform. (Martens, 2016, pp. 11–12)

Some elements are technical: They are convenient (i.e., fast, flexible, and affordable) applications that combine relative technical protectionism (discouraging or banning competing protocols and/or applications) with technocratic, code-based control to ensure user compliance. Other elements are social: They benefit from a critical mass of users (which generally requires presence in big national markets), in combination with relative trade protectionism that bars bigger transnational competitors from entering national markets. This might explain why, while the world’s leading digital platform businesses have a combined market capitalization of $4 trillion, only 4 percent of this value has been generated by European firms (Evans & Gaver, 2016):

It is true that European regulators make no secret of their desire to see domestic businesses gain a competitive foothold, but it is also true that U.S. stances on antitrust and data protection have permitted a race to the bottom in the accumulation of platform power and that the relative U.S. laxity has disadvantaged European Internet businesses. (Cohen, 2016, p. 382)

Many of these tendencies are summarized by Jin (2015). According to him, platform imperialism constitutes an expansive, one-way flow of software-based global reterritorialization, made possible by advances in IP law, and investments in research and development. U.S. world dominance continues to be further entrenched, not only because usage is hegemonic but since all usage simultaneously generates commercially valuable data, combined with the relative hardware-independence that allows U.S. software to run on various devices, often vastly surpassing local alternatives in terms of convenience, ease of use, and speed.

Undoubtedly, platform capitalism constitutes a remaking of the “geopolitics of information” (Schiller, 2015) that have been a facet of U.S.-dominated global power since the Cold War. Not only does digitization enact advantages in terms of speed, liquidity, and diffusion; since the data generated is fungible (Yoo, 2013), digital materiality translates all activity into commensurate units, enabling the establishment of markets where there previously were none, and where, for example, local custom or status hierarchies would otherwise have constituted barriers. Jin (2015) outlines the concept of “platform imperialism,” echoing what Hands (2013, p. 1) calls “the capturing of digital life in an enclosed, commercialized and managed realm”—a new form of distributors and producers that the U.S. dominates, “benefitting from these platforms in terms of both capital accumulation and spreading symbolic ideologies and cultures” (Jin, 2015, p. 7). Not to mention the secret back-end access that U.S. government authorities like the National Security Agency would have.
Conclusion

It has been observed that platformization, thus far, has emerged largely thanks to the “permissionless innovation” (Gobble, 2015) enabled by free, open, and scalable Internet infrastructure. As we now stand “at an inflection point, a moment at which the no-holds-barred innovation of the Internet may or may not be allowed to spread to the physical world” (Gobble, 2015, pp. 62–63), the question facing policymakers is to what extent the resultant “megaplatforms” (i.e., Facebook, Alphabet, etc.) really permit much in the way of experimentation with new technologies and business models on top of their proprietary infrastructure, or—for that sake—equitable civic uses for it. Scholars have thus begun to outline what could be termed “platform power” (Cohen, 2016; Gillespie, 2010; Jin, 2015; Mansell, 2015). However, I argue that an understanding of such platform power cannot be complete unless one considers the embedded nature of digital platforms and the various dynamics at play. I have tentatively dubbed these dynamics “platform logic,” which refers to the specific interplay between local determinants (code-based control) and global repercussions (networked accumulation, geopolitically determined consolidation), that are simultaneously precipitating all sorts of generative, emergent, largely unforeseeable effects on a trans- or interplatform scale.

Just as one might overestimate or underestimate the control, pervasiveness, and/or dominance of platforms, one might struggle to account for the variegated types of platforms or, conversely, overestimate their similarity. Platform logic is one way to address these contingencies in a structured manner. The logic holds across the spectrum of appliances, regardless of the size and type of platform actor. Of course, this is in many ways a hypothetical and provisional argument, worth testing empirically in different settings and circumstances. Platform logic is twofold; it rests on an interplay between local instantiations and global repercussions, something that Tilson et al. (2010) have called “the paradox of control.” When focusing on the local, intraplatform mode of operation, the digital character of platforms is seen to strongly determine structure; to all intents and purposes, this is an absolute form of control—totalitarian even. By contrast, when focusing on the cumulative, geopolitical power arrangements arising in the platform society, patterns can be observed that suggest similarly worrisome tendencies toward market dominance, colonization, and consolidation. These two tendencies are intertwined: Superlative efficacy and network effects produce market leverage—in turn, this market penetration enables richer data and path dependency, thus more efficacy. On the local/intraplatform level, while users are often granted a certain technical latitude, they are still regarded as “inputs” (Jullien, 2008), robbed of real individual sovereignty by the predetermined, code-based rules of platform engagement. The local level interacts with the cumulative level in various ways; for example, if “popularity bias” of social media platforms (Webster, 2014) begets conformism and abject populism, this is likely to be more entrenched the more dominant providers’ cumulative market dominance is.

In order to understand this model, “micro” and “macro” should not be confused with platform companies small and large. Nor should “local” be
understood in a geographical sense. “Micro,” the model presented here, simply refers to the actual, individual interactions that take place “on-platform,” while “macro” refers to the cumulative effects, observable on a societal level, of various platforms interacting. “Meso” refers to a perspective common in the IS and management literature, where potentially hazardous aspects of digital platforms are glossed over, focusing instead on those functional gains that have been empirically documented and that seem to be generally assumed by ordinary users. These positive aspects are often promoted by the proponents of platform capitalism, and by the platform companies themselves. Digital infrastructure is generative (Yoo, 2013) in that market entrants are generally allowed to build new services—new platforms, even—on top of preexisting platforms. Relative latitude can be attained when many platforms are allowed to interact, effectively creating ecosystems. However, there seems to be a discrepancy in the scholarly field in that design and management scholars seem to emphasize this generativity, while legal scholars and political economists tend to emphasize the hazardous aspects. The economic literature generally maintains a more agnostic view (for a comprehensive overview of the literature, see Martens, 2016).

As analytical levels, these three are somewhat distinct and independent from one another yet, at the same time, constitutive of each other. Functionality on the micro level is often made possible only through adhering to external standards (which are politically/normatively set on the macro level, and enacted through the meso level), while the connections between platforms (meso level) are ruled by protocol and local configurations on each platform, just as the macro structures are composed of innumerable local micro interactions. Each level is observable by its attendant lens or optic. The key optics for the micro level are computer science, IS and user interface design, and microeconomics; for the meso level it would be big data ontology, data management and media management studies; while, for the macro level, it would be political economy, macroeconomics, and geopolitics.

It is clear, having consulted various strands of literature on the subject, including both scholarly research and the fast-moving business and technology press, that real intellectual progress can only be made by attaining a multiperspective, diffracted view, that considers the various aspects of the phenomenon in combination. By simply emphasizing the technical, one will observe modularity, compatibility, compliance, flexibility, mutual subsistence, and cross-subsidization. By emphasizing ownership and organizational control, on the other hand, one will see consolidation, privatization, enclosure, financialization, and protectionism. While a critical political economy perspective on Internet and media development (Burkart, 2017) has huge explanatory value, much can be learned from management studies, design theory, and computer science; subjects that have different normative biases yet that often have an excellent grasp of the actual technical workings of the platforms in question. This is not to say that technology is in any way “neutral” (boyd, 2016; Greenberg, 2016): “Platforms often reinforce the values and preferences of designers, either explicitly or implicitly, while sometimes clashing with the values and preferences of their intended users” (Ess, 2009, p. 16). Consequently, a lot of added multidisciplinarity
value can be attained by cooperation between academies and other sectors (e.g., competitive intelligence), but only as long as critical detachment from (platform) business interests can be guaranteed.

Policy Implications

In 2016, real concerns were expressed in leading newspapers that the (overwhelmingly U.S.-biased) platform giants are not only enacting hegemony, but are on a road to “usurpation through tech—a worry that these companies could grow so large and become so deeply entrenched in world economies that they could effectively make their own laws” (Manjoo, 2016b). Transnational platform companies impose their own sets of rules, Manjoo (2016b) argues (echoing Jin, 2015), in effect harmonizing behavior and compliance among both citizens and institutions (that may be far afield), to what are essentially U.S. values of free trade, free expression, skepticism of regulation, customer loyalty over employee loyalty, consumption over creation, and brand-new over second-hand.

The current ecosystem of digital platforms is undoubtedly a central part in the corporatocracy that has come to characterize the contemporary world economy, particularly considering its U.S.-dominated variants (Gilens & Page, 2014). Still, in democratic societies, vast oligopolies tend to, over time, be restrained by government regulation. However, arguments have been repeatedly made for “smart regulation” (Edelman & Geradin, 2016) and many governments now seem to be seeking these lost possibilities to benefit the public good. Over and again, Facebook has been publicly criticized, for example, over its “trending” news moderation which was discovered to be manually curated and deliberately biased, its enabling of reactionary demagoguery and hate speech, not to mention the outcry over “fake news” in connection with the recent U.S. presidential election. The tax-evading schemes of corporations like Alphabet and Facebook have also been hotly debated, alongside numerous critiques of the threats to personal integrity.

Historically, mass media corporations have engaged in similar quests for public legitimacy; struggles that are constantly ongoing, since public legitimacy has to be constantly upheld and maintained in the light of changing environments, and new challenges and obstacles. Palmás, Andersson Schwarz, and Larsson (2014) outline legitimacy challenges among digital platform ventures that have evolved in proximity to illegitimate ecosystems such as that of online piracy. Wu (2010) gives several examples of a dialectical waxing and waning of regulation of what he calls “information empires” throughout modern history. Several developments in recent years, both within policy and in terms of public sentiment, have seemed to herald a development whereby platform giants have faced incessant critique. After significant public debates, primarily in European Union countries, debates are now raging over various issues, for example, the editorial policies implemented by Facebook and Google, the tax footprints of leading platforms, and possible anticompetitive market behavior.
Yet, such critiques of public legitimacy and editorial oversight do not cut to the core of the problem, which is one of economic, and, by extent, geopolitical domination. In order to reinvigorate antitrust/competition law in the era of informational capitalism, a willingness to rethink major assumptions about the causes and effects of power in information markets is required; not only “investigation of the kinds of power that information platforms wield,” but also a “more open-minded discussion of corrective measures” (Cohen, 2016, p. 382).

From a regulatory viewpoint, a challenge arises in that regulation needs to anticipate macro effects that occur on the aggregate level, while at the same time not being able to observe the implementations (or, for that sake, the intentions behind these) among the particular platforms involved. This type of challenge is far from new to the competition policy literature (cf. Ilzkovitz & Dierx, 2015). Yet, I would argue, the high praise of programmability and generativity in some of the literature on digital platforms tends to obscure this pressing issue. At the same time, some of the critical political economy on the subject appears to sometimes seek macro agency where there is none, so that viewpoints on, for example, Google or Facebook verge on the conspiratorial.

In other words, platform capitalism gives rise to a set of information problems. To begin with, the empirical evidence of societal gain is no predetermined matter; as Edelman and Geradin (2016), Morozov (2013), and others have demonstrated, any such suggested gains from platforms must be demarcated in terms of who the beneficiary is, in what ways they benefit, etc. Second, in order to regulate in an equitable, efficient way, regulators must be able to know the true societal impact of platform actors, especially those platform giants that have seen a rapid ascendance and that dominate various markets in parallel, often globally. Actors like Alphabet explicitly admit that the infoglut (Andrejevic, 2013) held by them is key to their market dominance; for example, by holding behavioral mobile Internet user data, Alphabet can excel in seemingly unrelated sectors like urban and traffic planning. This means that undisclosed steps can be taken toward rapid intrusion into unexpected sectors, only knowable ex post facto. While it would be preposterous that regulators should have knowledge of business strategies in advance, the radically altered conditions for this kind of market entry begs new questions as to how antitrust/competition legislation should be formulated and implemented in the digital era. Moreover, the lack of access to the actual workings of platforms means that researchers cannot know the extent to which Facebook user data, for example, is really as extensive as both Facebook and its critics assume it to be—and, more importantly, what the actual effects of Facebook-filtered media dissemination are on the formation of public discourse across various countries. One way to counter tendencies toward monopoly and/or monopsony, acknowledged by Doganoglu and Wright (2010), is for regulators to prohibit platform operators from exclusively tying service providers to their own platforms. This in order to ensure service providers the freedom to offer their goods and services on multiple platforms in parallel, as well as consumer freedom to choose among competing platforms, and to prevent platform operators from gaining too high-handed a
control over available supplies, or over entire markets. The concept of "universal service" could also be broadened, so as to include a wider definition of what should be deemed minimum requirements for service providers (Edelman & Geradin, 2016).

Ultimately, platform actors will be compelled to acquire and maintain public legitimacy for their endeavors, especially in the light of conceivable risks like downturns in popularity, sudden populist outcries, or government overregulation. This legitimacy problem is directly connected with an information problem, since platform actors need to engage in public relations and diplomacy with the surrounding world, both in order to accurately verify potential concerns that emerge among their detractors, and in order to appease regulators, who might otherwise act on exaggerated estimates. Following this logic, platform actors would be compelled to allow for more formal transparency (enabling proper governmental audit trails) than they presently do, while regulators would have to absorb the emerging, already extensive scholarship on platforms. By employing formal auditors who are legally bound to secrecy, platform companies can be forced by government to divulge the actual reach and usability of their data, in a manner that does not, at the same time, lead to potential trade secrets becoming public. Similarly, regulators could compel platform actors to allow researchers better access to data. This would have to be the first priority, if antitrust regulation is to catch up with the potentially hazardous data couplings that influential platform actors can make. Interplatform hierarchies could be held open either by way of regulation through incentives (e.g., where platform actors who employ open/nonproprietary standards are rewarded), or through constraints (e.g., where certain proprietary protocols and setups are outlawed and/or replaced). Any such decision of which route to take should be grounded in proper empirical examination.

Regulations like the above are, essentially, reactive. This is of course advisable, yet governments and corporations should consider acting proactively as well, for example, by forming consortia or government authorities that would compete with particular components of the existing megaplatforms. My own country of Sweden presents a notable case in point, the e-identity function BankID (managed as a consortium, founded in 2002 and owned by the country's leading banks) which has enabled considerable digital innovation (notably since the introduction of BankID as a mobile app in 2010) and lessened the dependency of technically less secure and politically less trustworthy transnational identification management applications such as that of Facebook while, nevertheless, involving a notable degree of dependency on the regional bank consortium that operates BankID. Swedes routinely use BankID to confirm their identities online, with usage rates as high as 90 percent in certain age groups. Numerous banks, authorities, utilities, and budding financial service companies entirely depend on it.

A really interesting illustration of platform logic occurred in June 2016, when it emerged that a small change in the ways in which Apple implements its App Store usage policy suddenly threatened to kill off this entire BankID ecosystem.
The policy in question, which had apparently always been in place yet was not strictly enforced until at the time, stipulates that one app cannot require that the user download another app to function—yet this was precisely what the entire BankID ecosystem was premised upon (e.g., Swish, a vastly popular app for direct person-to-person payments, which requires that users identify themselves through BankID). After a brief furor in the Swedish tech community, Apple's head office ultimately granted an exception to the BankID app regarding this fundamental rule (cf. Wisterberg, 2016).

This example identifies numerous issues relating to platform logic. Most telling is of course the geopolitical aspect; that a software system that provides a pivotal societal function in one jurisdiction can be thwarted by internal policy decisions made by a gargantuan platform corporation, based in an entirely different jurisdiction. At the same time, the nationally based bank consortium in question also wield a similar kind of power; if it were to update BankID on a whim, all these critical functions would have to follow. However, the banks in question would all be accountable under Swedish jurisdiction, and equally as sensitive to public scrutiny as would be Apple. Managing digital platforms as nationally based consortia of this kind could be seen a compromise between foreign, platform imperialist control and national, state control, where the enabling, generative functions of a common platform are sought to be retained, while still giving the transnationally established platform giants a run for their money, promising more appropriate security, regulatory checks and balances, and quality control than they would be able to provide.

The issues of corporatism arising here are of course complex and manifold, and lie outside the scope of this article. But it is clear that state interference or direct control of platforms of this kind is deeply problematic, if and when antidemocratic governments take charge in any given country. That being said, nor does the present U.S. system of corporate management seem to constitute a bulwark against surveillance authoritarianism. What is particularly illustrative with BankID, for the model presented here, is its ability to retain strong technocratic micro control, while reducing the ability for one particular macro-level actor to colonize, coerce, or backhandedly exploit user data (i.e., as long as we take the above App Store issues to be somewhat external to this setup). It shows that, in and of itself, code-based control need not be a problem, regardless of how unwavering and blind its mode of operation is. In fact, from a systemic viewpoint, universalizing rules are conducive to innovation and prosperity. The key issue is who is in charge of setting these rules, and whose interests they serve.

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Notes

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1. Software interfaces that enable data exchanges with third parties (Helmond, 2015).
2. Not rarely, for example, as with YouTube (where significant parts of the infrastructure are run at a loss), Spotify (which has yet to be profitable), and Amazon’s Kindle (that subsidizes and impels future consumption), platform strategies are effectively loss-leader strategies.
3. Drawing on Altheide and Snow’s (1979) concept of “[mass] media logic.”
4. Such content moderation is suffused with ambiguity, which was shown in the debacle over Facebook’s “trending topics” moderation practices in early 2016.

References


