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Commodification and Disruption

Theorizing Digital Capitalism

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Abstract: There is little disagreement that digital technologies are transforming contemporary economies and societies. However, scholars have only begun to systematically think about how digitalization - the process whereby more and more of what we say, think, and do becomes mediated by digital technologies - is both driven by and transformative of capitalism. This paper argues that when one speaks about digitalization, one cannot be silent about capitalism. It reconstructs commodification and disruption as key features of capitalist development. It then shows how three digital revolutions - the platform, (big) data, and artificial intelligence revolutions - have ushered in a new wave of commodification and disruption, giving rise to digital capitalism. The paper further argues that when one speaks about digital capitalism, one cannot be silent about politics. Having identified central challenges digital commodification and disruption pose, it points to coalitional struggles and ideational battles as key features of the politics of digital capitalism. The paper combines scholarship on capitalism with scholarship on digitalization, offering a simple but historically and theoretically grounded framework for how to think about, but also for how to study, digital capitalism.

Keywords: Digital Capitalism, Digitalization, Capitalism, Commodification, Disruption

Contents

1 Introduction

We live in times where hardly a day goes by without some digital company making headlines for revolutionizing yet another aspect of our lives. Digital behemoths like Google or Amazon 'disrupt' existing industries from retail to health care; 'unicorns' like Uber and Airbnb transform the ways we work, dwell and travel; and a host of start-ups – often backed or bought by larger tech companies – sets out to develop 'an Uber for everything' (Fowler, 2015), or indeed 'smart-everythings' (homes, factories, cities, hairbrushes). Crucially, this process of digitalization - whereby more and more of what we say, think and do becomes mediated by digital technologies - is both transformative of and driven by capitalism.

On the one hand, capitalism takes on a new garb - the garb of digital capitalism - as platform-based, data-driven, and artificial-intelligence-powered businesses become ever more central to modern economies and societies. On the other hand, being largely propelled by a capitalist logic, digitalization has followed a peculiar double dynamic. This dynamic has a commodifying and a disruptive thrust. It is *commodifying* to the extent that it i) undermines institutions that protect individuals and societies from unfettered markets and ii) pushes economic logics ever deeper into the social fabric (cf. Ebner, 2015). Work, for example, is reorganized on digital platforms in ways that avoid or challenge existing (labor) regulations (Prassl, 2018). And personal data are increasingly extracted for and sold on ever more intrusive markets for human attention (Zuboff, 2019).

Digitalization is *disruptive* to the extent that it i) radically alters the requirements for success on the individual-, firm-, and national level and ii) shifts the balance of power between economic actors. As artificial intelligence advances, for example, workers need new skills to keep up in the race against the machines; similarly, firms face existential challenges as new products make existing business models obsolete (Frey, 2019; McAfee & Brynjolfsson, 2017). At the same time, power and information asymmetries allow platform firms to 'take' or 'co-opt' much of the value that is created on them while subjecting users to new forms of algorithmic control (Calo & Rosenblat, 2017; Stark & Pais, 2021).

Understanding this double dynamic requires us to think more systematically about how digitalization and capitalism are intertwined, and how the logic of the latter shapes the trajectory of the former. This paper starts from the premise that when one speaks about digitalization, one cannot be silent about capitalism.[1] Using the social scientific and

I would like to thank Gerda Falkner, Sebastian Heidebrecht, Anke Obendiek, and Elke Schraik for useful comments on earlier versions of this paper. I would also like to thank the participants of the 'Politics of Digital Capitalism' and 'Digital Power Europe' seminars for helping my clarify my thoughts.

[1] To be clear, digitalization does not have to be capitalist, as the example of Wikipedia demonstrates. But the very fact that there has not been a 'second Wikipedia,' i.e., that it is very difficult to scale

historical literature on capitalism, it identifies commodification and disruption as key features of capitalist societies. Building on the literature on digitalization, it then explicates why and how digital technologies are currently giving rise to a new wave of commodification and disruption. It argues that three digital revolutions - the platform revolution, the (big) data revolution, and the artificial intelligence revolution - are the key drivers of this commodifying-cum-disruptive dynamic. Together, I argue, they give rise to a new historical form of capitalism: digital capitalism.[2] In digital capitalism, platform-based, data-driven, and artificial-intelligence-powered business models are capturing an increasing share of profits, control – directly or indirectly – an increasing share of economic life, and increasingly serve as role models for start-ups as well as established companies.

The second premise of this paper is that when one speaks about digital capitalism, one cannot be silent about politics. Technological change is not social destiny. Rather – to use a terminology introduced by Toynbee (1972) – the double dynamic of digitalization confronts societies with a number of challenges to which they can and do respond in different ways. I argue that digitalization has unsettled existing institutions and created novel problems, leading to coalitional fluidity and cognitive and normative uncertainty. Therefore, to understand how the challenges of digital capitalism are responded to, one needs to pay particular attention to the coalitional politics of building new alliances and the ideational politics of interpreting and justifying digitalization.

The paper contributes to the burgeoning literature on digitalization in two main ways. First, it reviews and reconstructs key arguments in recent interdisciplinary scholarship on platforms, big-data and artificial intelligence. It does so, however, with systematizing intent, using these arguments as building blocks for 'theorizing' (Swedberg, 2012) digital capitalism more generally. Second, it offers a simple theoretical framework, grounded in capitalist theory, that helps scholars make sense of digitalization but can also inform empirical studies on the politics of digital policymaking; that is, on the (country-specific) nature of the challenges digitalization poses, on why political responses to these challenges differ over time and across contexts, and on how this refracts digital capitalism into different varieties.

The paper first reconstructs key insights from the literature on capitalism. It then discusses the three revolutions that led to the emergence of digital capitalism and elaborates on how this ushered in a new wave of commodification and disruption, which each bring with them their own challenges. The paper then sketches how to think about the politics of digital capitalism and concludes with a short summary and outlook.

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digitalization in a non-capitalist fashion, indicates that to understand actually existing digitalization, we need to take capitalism seriously.

[2] To my knowledge, the term digital capitalism was first used in Dan Schiller's 1999 *Digital Capitalism. Networking the Global Market System* (Schiller, 1999) and Peter Glotz' *Die beschleunigte Gesellschaft. Kulturkämpfe im digitalen Kapitalismus* from the same year (Glotz, 1999).

2 What is Capitalism?

In order to understand digital capitalism, one needs to start with capitalism. Capitalism is an essential yet essentially ambivalent social scientific concept. This ambivalence plays out in at least three ways.[3] First, capitalism refers to a certain type of economy as well as to a "capitalist society" (Streeck, 2012, p. 2), i.e., the wider social preconditions and ramifications of such an economy. Second, capitalism denotes a trans-historical 'logic' as well as the particular historical formations in which this logic takes shape (Sewell, 2008). Finally, capitalism is meant to capture both varieties and commonalities of capitalist societies (Streeck, 2010). In order to do justice to these ambivalences, any analytic conceptualization of capitalism has to fulfill three criteria: i) it has to be abstract enough to capture its distinct logic; ii) it has to versatile enough to do justice to diachronic and synchronic particularities; iii) and it has to be encompassing enough to capture the dialectic relationship between a capitalist economy and society at large.

Max Weber provides us with the first element of such a conceptualization when he puts the realization of "(formally) peaceful chances of profit" (Weber, 2007, p. xxxii) center stage. What unites early-modern merchants, modern industrialists, and today's entrepreneurs is not the nature of their activities but the motivation and expectation to make a profit from them (Fulcher, 2004, p. 14). Modern capitalism, or "capitalism proper" (Fulcher, 2004, p. 14), emerges when this profit-seeking attitude becomes institutionalized, that is, widely expected, practiced and enforced "under penalty of ruin" (Marx, 1894, p. 173). Historically, this happened in the late 18th century when "the whole economy [became] dependent on the investment of capital and [when it was] not just trade that [was] financed in this way but production as well" (Fulcher, 2004, p. 14; Kocka, 2016, p. 53). It was not long after that the "constant revolutionising of production" and "uninterrupted disturbance of all social conditions" were recognized as capitalism's distinguishing features (Marx & Engels, 1848, p. 16).

This points to the second element of our conceptualization, namely that capitalism – due to the institutionalization of profit-seeking – "incessantly revolutionizes the economic structure from within" (Schumpeter, 2008, p. 83). It was Joseph Schumpeter who saw this most clearly when he noted that capitalism "is by nature a form or method of economic change and not only never is but never can be stationary" (Schumpeter, 2008, p. 82). In Schumpeter's view, the "fundamental impulse that sets and keeps the capitalist engine going" (Schumpeter, 2008, p. 82) is the constant creative destruction and construction of markets and business models by profit-seeking, "disequilibrating" (Schumpeter, 2008, p. 132) entrepreneurs.

This is the great paradox at the heart of capitalism: change is its only theme and an "immense mutability" (Kocka, 2016, p. 168) or "unlimited flexibility [and] capacity for

[3] One could add a fourth ambivalence which shall not concern us here, namely that the concept of capitalism has both an analytic and a critical function, that it is "at once a tool of scholarly insight and of social critique" (Kocka, 2016, p. vii).

change" (Braudel, 1992, p. 433) its defining features; yet, there is a peculiar constant in capitalism that gives these changes direction. "The direction is expansion and its mechanism (…) is innovation. (…) Capitalism (…) is a social order that changes in an orderly way by systematically encouraging disorder" (Streeck, 2009, p. 236). At capitalism's core, as William Sewell puts it, is a "strange stillness," with capital "always churning, always self-valorizing, moving endlessly in Marx's sequence of M–C–M"' (Sewell, 2008, p. 526). The direction of this dynamism, however, is not of more and more competitive markets, but rather, towards more and more concentration of economic power. For Braudel, this "zone of the anti-market, where the great predators roam" is "the real home of capitalism" (Braudel, 1992, p. 230).

Moreover, this dynamism, while coming from within the economy, is not limited to it. Capitalism, and this is the third element of our conceptualization, has a "system-extending character" (Kocka, 2016, p. 23); it is a social, not just an economic order. Capitalism, as Karl Polanyi observed most powerfully, is integrated or embedded in society (Polanyi, 2001). This relationship is both supportive and subversive. It is *supportive* in that social trust or social norms grease the wheels of an economy that would otherwise grate under the weight of transaction costs (Granovetter, 2017; Hirschman, 2013); in that capitalism's innovativeness depends not only on the public provision of public goods such as education and basic research but also on entrepreneurial states steering and crowding in investments (Block, 2008; Hacker & Pierson, 2016; Mazzucato, 2013); in that capitalist dynamism in all its 'four Cs' – credit, competition, commodification, and creativity (innovation) – is driven by 'fictional expectations' and the constant conjuring of imagined futures that reassure, galvanize, or mobilize creditors, businesses, consumers and entrepreneurs (Beckert, 2013, 2016); and in that capitalism benefits from the obligations or 'beneficial constraints' (Streeck, 1997) that society imposes on it, both in terms of economic efficiency due to the collective facilitation of coordination (Hall & Soskice, 2001) and in terms of political and ecological sustainability due to the collective mitigation of social costs (Streeck, 2016).

It is *subversive* in that capitalism constantly expands into or 'colonizes' social spheres that have hitherto operated under different logics; or undermines institutions, like labor law, that have constrained markets (Ebner, 2015; Habermas, 1987; Polanyi, 2001). Such dynamics of spatial or social land-grabbing or *Landnahme* directly follow from capitalism's accumulative imperative – the very engine of its dynamism (Harvey, 2010; Rosa et al., 2017). Decommodifying institutions that contain and constrain capitalism's commodifying drive – even when to its own benefit – are never save from this subversive dynamism. Capitalists, after all, make "a living by specializing in the subversion of social constraints" (Streeck, 2009, p. 242). Yet, the "strong utopia" implied by capitalism without constraints – by a self-regulating 'market society' that commodifies even the 'fictitious commodities' of land, labor, and money – will not go uncontested; for such a society "could not exist for any length of time without annihilating the human and natural substance of society" (Polanyi, 2001, p. 3). Society will take decommodifying measures to protect itself from the vagaries of unfettered markets. This social contestation of capitalist expansion is what Polanyi refers to as the 'double movement' (Polanyi, 2001, p. 136).

Taken together, these three elements imply an understanding of capitalism as a social order in which institutionalized profit-seeking creates an internal dynamism that not only incessantly revolutionizes the economy - and the distribution of power therein - from within (*disruption*) but constantly - and contestedly - runs up against, subverts, and incorporates the institutions in which the economy is (beneficially) embedded (*commodification*). This perspective thus builds on insights by capitalism's great theorists: Polanyi's insight into the embedded nature and disembedding dynamism of capitalism; Schumpeter's insight into the central role of creative destruction; Braudel's insight into the information and power asymmetries between capitalism's 'great predators' and other market participants; and on Marx' and Weber's insight into the institutionalized nature of profit-seeking that underlies capitalism's commodifying and disruptive thrust.

But while it sees an invariant logic at capitalism's core, it also suggests that capitalism will vary historically and geographically depending on three factors (Grabher & König, 2020, pp. 100–103): i) on the technologies or 'machines' available to entrepreneurs (Polanyi, 2001, pp. 42–43); ii) on the current ideational 'constellation,' i.e., the scientific theories, future imaginaries, or social values that inform and justify economic decisions and conditions (Polanyi, 2001, p. 125); and iii) on the extent to and ways in which the state - and through it different social coalitions - constrain or support capitalism's dynamism (Bohle & Greskovits, 2012).[4]

The following sections build on this conceptualization, which is summarized in Figure 1. The next section asks how exactly digital *technologies* are supercharging capitalism's internal dynamism and expansionary dynamic, leading to the formation of digital capitalism. The section thereafter elaborates on how digital capitalism is both commodifying and disruptive. The final section sketches how to think about the politics of digital policymaking, highlighting the importance of *ideational* battles and *coalitional* struggles in how polities respond the challenges of disruption and commodification.

3 What is Digital Capitalism?

Digital technologies are not new. In fact, they were integral to the three most important economic transformations of the last decades: the financialization, globalization, and post-

[4] In their extremely insightful article, Grabher & König (2020), p. 103 argue that from "a Polanyian perspective (…) discontinuities in economy-society configurations and transformations of socio-economic coordination are not a quasi-natural process, but triggered by the interplay of technological affordances, performative effects of science and efforts to re-organize political and societal institutions." While this paper shares their overall perspective, it differs in the following ways. It is not only interested in the drivers of discontinuities or variation, but also in the continuities that stem from capitalism's core logics of dynamic disruption and expanding commodification. It more explicitly distinguishes between the (more Polanyian) idea of commodification and the (more Schumpeterian and Braudelian) idea of disruption. And it has a broader conception of the (performative) role of ideas, including not just scientific theories but also other cognitive and normative ideas.

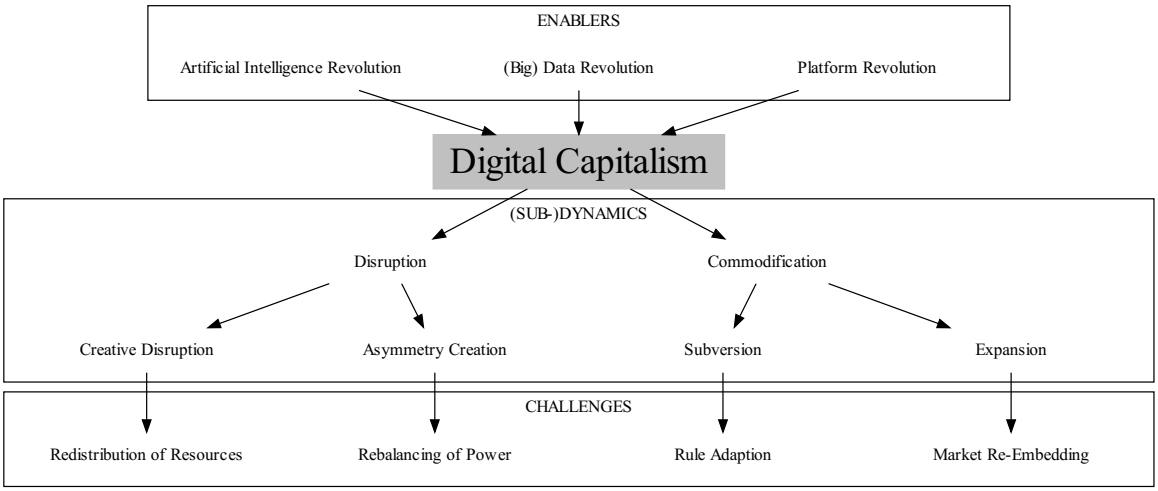

Figure 1: The Enablers, Dynamics and Challenges of Digital Capitalism

industrialization of the economy. It was only recently, however, that digital technologies have reached an inflection point where they have become "as important and transformational to society and the economy as the steam engine" (Brynjolfsson & McAfee, 2014, p. 9). Like the steam engine or electricity, digital technologies are 'general purpose technologies,' that is, building blocks for a broad variety of future innovations (Brynjolfsson & McAfee, 2014, pp. 75–80). And like with previous general purpose technologies, it takes time before their potential can be fully harnessed as this requires "organizational and (…) conceptual changes in the ways tasks and products are defined and structured" (David & Wright, 2003, p. 147). In addition, digital technologies have themselves developed, often exponentially. This drastically increased their availability and capacities (McAfee & Brynjolfsson, 2017). The rise of digital capitalism, thus understood, is the product of the "confluence" (Sundararajan, 2016, p. 47) of technological and conceptual enablers. Together, they bring about a "shift from the simple digitization that characterized the third industrial revolution to a much more complex form of innovation [that characterizes the fourth industrial revolution]" (Schwab, 2016, p. 52). This more complex form of innovation is no longer about refining existing but about creating new business models that leverage the power of three interconnected digital revolutions: the platform revolution, the (big) data revolution, and the artificial intelligence revolution.

3.1 Platform Revolution

The first revolution is the platform revolution (Cusumano et al., 2019; Parker et al., 2016). In 2015, Tom Goodwin made a now-famous observation: "Uber, the world's largest taxi company owns no vehicles. Facebook, the world's most popular media owner, creates no content. Alibaba, the most valuable retailer, has no inventory. And Airbnb, the world's largest accommodation provider, owns no real estate. Something interesting is happening" (Goodwin, 2015). What Goodwin put his finger on is that a new breed of companies have begun to extent and disrupt markets by leveraging the power of platform business models. Over the last decade, Kenney et al. (2021, p. 21) find in a recent quantitative assessment, platforms have become "ever more pervasive in the global economy and, as a result, are shifting the locus of power and value capture to the platform as the intermediary. They are becoming the infrastructure of and intermediaries for an ever larger number of industrial sectors of the economy."

Platforms are digital infrastructures that intermediate the interactions of two or more groups (Grabher & König, 2020, p. 104; Prassl, 2018, p. 13; Srnicek, 2017, p. 43). Their value does not derive from the things they produce but from their ability to benefit from the matches they both facilitate and organize. Low marginal costs and large network effects give digital platforms an edge over traditional and smaller competitors (Parker et al., 2016, pp. 5–12). Moreover, by making it easier for people to find, trust, and transact with each other, platform companies often transform existing markets or create entirely new ones (Lobel, 2016, p. 93).

Platforms are neither markets, nor hierarchies, nor networks. Rather, they constitute a form of economic organization *sui generis*: whereas "the mode for the market form is con-

tract, for hierarchy command, and for networks collaborate, platforms co-opt" (Stark & Pais, 2021, p. 53). Platforms co-opt the behavior of their users for three purposes, taking advantage of the triangular geometry that connects platform owners to user-providers and user-consumers. First, they co-opt the 'free labor' (Terranova, 2000) of user or 'prosumers' to reduce costs. They do so by blurring the boundaries between work and leisure and consumption and production (Frayssé & O'Neil, 2015). For example, Amazon benefits from free customer reviews while Google trains its algorithms on uncompensated CAPTCHA authentications.

Second, platforms co-opt user behavior "to control and manipulate markets" (Peck & Phillips, 2020, p. 79). Extensive data extraction, in combination with strong information asymmetries between platform owners and platform users, create a fertile ground for such 'digital market manipulation' (Calo, 2014) and behavioral modification (Zuboff, 2019). "When a company can design an environment from scratch, track consumer behavior in that environment, and change the conditions throughout that environment based on what the firm observes, the possibilities to manipulate are legion" (Calo & Rosenblat, 2017, p. 1628). Uber, for example, charged consumers that were running out of battery more, having discovered that they are more likely to pay higher prices (Calo & Rosenblat, 2017, p. 1629). Likewise, Uber and Lyft experiment with psychological tricks - such as employing loss instead of gain frames or dispatching a new ride to a driver before the current one ends - to learn about and manipulate their drivers (Scheiber, 2017). Similarly, Facebook's API "locks [app developers and users] into a landscape defined and controlled by Facebook" (Plantin et al., 2018, p. 303). The goal is to make "clusters of transactions stickier - sticky enough to adhere to the platform despite participants theoretical ability to exit" (Cohen, 2019, p. 41).

Third, platforms co-opt user behavior for the purpose of algorithmic management (Stark & Pais, 2021). Specifically, platforms distribute and decentralize control over some functions such as content creation, work scheduling, or performance evaluation while retaining control over others such as pricing, allocation of tasks, and data collection (Stark & Pais, 2021, p. 60; Vallas & Schor, 2020, p. 282). On platforms, control can thus be "radically distributed, whilst power remains centralized" (Kornberger et al., 2017, p. 79). Most labor platforms, for example, extensively rely on reputation algorithms for worker management (Prassl, 2018, pp. 53–54). Rosenblat (2018, p. 149), for example, finds that the "rating system at Uber effectively makes management omnipresent, because it subtly shifts how drivers behave on the job. [Effectively, passengers] perform one of the roles of middle management, because they are responsible for evaluating worker performance."

Platforms are thus not mere match-makers; they "constitute 'regulatory structures' that dictate the terms of interaction - between workers and employers, buyers and sellers, clients and contractors, creators and viewers, and advertisers and customers" (Rahman & Thelen, 2019, p. 3). Platforms, therefore, do not merely enter markets and give market participants access to each other. They organize markets and render market participants legible to one another and to the platform itself (Cohen, 2019, p. 38). Platforms shape the behavior of their users but they do not rely on hierarchical control and disciplinary supervision. Instead, they rely on constant monitoring and decentralized and often opaque

algorithmic accountability (Stark & Pais, 2021, pp. 59–61). Lastly, platforms are not just nodes in networks but "represent infrastructure-based strategies for introducing friction into networks" (Cohen, 2019, p. 40). Platforms thus resemble Braudel's 'great predators' in that they are not market actors but position themselves so as to control and benefit from markets (Peck & Phillips, 2020, pp. 76–81). Platforms operate in a "shadowy zone" (Braudel, 1992, p. 22), a "zones d'opacité" (Peck & Phillips, 2020, p. 75), hiding their power behind proprietary inscrutable to their uninitiated users.

3.2 (Big) Data Revolution

The second revolution is the (big) data revolution.[5] While the platform is the organizational form of digital capitalism, data are its main resource. Digitization „turbocharges datafication" (Mayer-Schönberger & Cukier, 2013, p. 83) – the process of converting the world into information. The resulting data deluge is a boon to companies that possess such data, have the technical and organizational ability to extract value from them, and the "big-data mindset" to understand their full (and often dormant) potential (Mayer-Schönberger & Cukier, 2013, p. 124; cf. Coyle et al., 2020; Haskel & Westlake, 2017). Thus understood, data can be used to create new forms of value, be it by using e-commerce data to better predict prices for consumer goods, by using Google queries to track the spread of viruses, or by using large amounts of medical records to detect comorbidity patterns (Mayer-Schönberger & Cukier, 2013).

At the same time, companies not only capture data to create value. They also create or extract data to capture value. Companies are increasingly impelled to collect as much data as possible; impelled by both an economic "extraction imperative" (Zuboff, 2019, p. 87) - we collect data because that is what we must do to survive and thrive economically - and a more cultural "data imperative" (Fourcade & Healy, 2017, p. 16) - we collect data because this is what successful companies do, even if we don't exactly know what to do with them yet. Underlying this is a desire to better understand, predict, and control the world. Most importantly, data are increasingly used to better capture, direct, and sell human attention. It is this desire to manipulate human attention that lies at the heart of today's surveillance capitalism (Zuboff, 2019) and drives its army of attention merchants (Wu, 2016) to find ever new ways to extract and refine data about what humans think, feel, want, and do.

As a result, data turn into a "raw material (…) to be extracted, refined, and used in a variety of ways" (Srnicek, 2017, p. 40) – into a new "kind of capital, on par with financial and human capital in creating new digital products and services" (MIT Technology Review

[5]Data are a non-rivalrous type of intangible asset that often comes with positive externalities, i.e., is more valuable when combined with other data (for a more detailed discussion, see Coyle et al., 2020, pp. 4–7). Hence the brackets around Big in (Big) Data Revolution; the value of data in digital capitalism usually - but not necessarily - stems from combining large amounts and diverse types of data (Zuboff, 2019, p. 201).

& Oracle, 2016, p. 2). Data have thus become "a foundational form of capital for everything from the 'smart home' to the 'smart city,' finance to governance, production to distribution, consumer devices to enterprise systems, and much more. Without data, many of these technologies and organisations would not be able to operate, let alone be able to generate value" (Sadowski, 2019, p. 2).

3.3 Artificial Intelligence Revolution

The third revolution is the artificial intelligence revolution, which has symbiotically evolved with the (big) data revolution. Just as artificial intelligence (A.I.) needs large amounts of data, so are large amounts of data only useful with A.I. to analyze them. Artificial intelligence has made rapid progress in recent years, driven not only by ever more data but also by exponential increases in computing power and advances in computer science (McAfee & Brynjolfsson, 2017). As a result, A.I. can do more and more at less and less cost. One consequence of this is that machines can now increasingly perform human-like functions such as driving or diagnosing. A.I. therefore increasingly does for mental power what the technologies of the first machine age did for muscle power: allowing humans to go beyond past limitations in manipulating their physical and social environments (Brynjolfsson & McAfee, 2014, pp. 7–8).

While this is not fundamentally different from the introduction of (personal) computers, its effects are much more sweeping: "the next wave of automation is likely to have effects similar to those of earlier computer technologies, but it is likely to affect more people" (Frey, 2019, p. 339). Digital technologies - be it those of the fourth industrial revolution which currently gathers steam, or those of the third industrial revolution which slowly runs out of it - have a tendency to make "highly skilled labor the main complement of capital in the production process" (Boix, 2019, p. 23) while rendering technological change increasingly labor-replacing (Acemoglu & Autor, 2011; Frey, 2019). In this context, A.I. will put further pressure on relatively unskilled labor – on tasks that have survived the first wave of automation such as truck drivers, cashiers, food preparers, or call center agents – while putting a further premium on - and creating - tasks that require complex social and analytic skills (MIT Work of the Future Task Force, 2020). In addition, A.I. is increasingly used to make or assist in socially consequential decisions such as hiring, sentencing, or credit scoring (O'Neil, 2016).

3.4 The Rise of Digital Capitalism

Taken together, these three revolutions give rise to a new historical form of capitalism: digital capitalism. This is not a claim about radical discontinuity, but rather about the intensification of existing trends through novel means that, in combination, create something new under the capitalist sun. We have seen that the artificial intelligence revolution intensifies trends of workplace automation, but it also has the potential to lead to much more transformative changes that affect many of the jobs the computer revolution left

relatively untouched. Likewise, the (big) data revolution adds to the growing importance of intangible assets (Haskel & Westlake, 2017), but brings with it radically different opportunities and problems Zuboff (2019). Finally, the platform revolution grows out of existing trends of 'workplace fissurization' (Weil, 2014) and the financialization of the firm (Davis, 2015) but also exacerbates and goes beyond these trends (Rahman & Thelen, 2019).

Thus, as was the case in previous periods of capitalist transformation (Kocka, 2016, p. 123), digital capitalism is not disconnected from - and can coexist - with other forms of capitalism such as financial capitalism. But it transforms economic activity in ways that makes existing concepts like financialization increasingly inadequate when describing what is going on at the capitalist frontier - and increasingly also in the capitalist hinterland. I argue that through their intertwined, often symbiotic nature, the three digital revolutions create a common pull that gives rise to digital capitalism. This process can be characterized as one in which platform-based, data-driven, and artificial-intelligence-powered business models are capturing an increasing share of profits, control – directly or indirectly – an increasing share of economic life, and increasingly serve as role models for start-ups as well as established companies. I also argue that to understand this process, we need to think anew about how capitalism challenges and changes societies and economies. This is what we turn to now.

4 The Challenges of Digital Capitalism

As we have seen, an endogenous dynamism and a system-extending character have been essential features of capitalism throughout its history. For example, the rise of financial capitalism has been characterized by the encroachment of a financial logic into more and more spheres of life, subjecting them to market pressures (e.g., public services). Likewise, financialization has disrupted the balance of economic power between financial and non-financial firms, giving the former more and more of a say over personnel and investment decisions. I argue that something analog has happened with digitalization. This section elaborates on this argument and spells out the challenges this poses for contemporary societies.

4.1 Digital Commodification

There are two ways in which digital capitalism is commodifying. On the one hand, digital firms circumvent or challenge existing decommodifying institutions such as labor laws. On the other hand, they extend the reach of markets into previously non-commodified spheres of life.

4.1.1 Commodification as Subversion

A central feature of platform-based business model is their "definitional defiance" (Lobel, 2016, p. 93). Platform firms "straddle the very categories that we use to organize our understanding of the political and economic world. [This places them] in the institutional cracks of the regulatory system [which they] consciously exploit (…) to thwart challenges to their power" (Atal, 2020). In other words, attempts to exploit legal grey areas (regulatory arbitrage) or to actively change the law (regulatory entrepreneurship) are part and parcel of platform-based business models. Platform firms "are built around and based upon a plan to change the law—and, in some instances, to simply break the law in the meantime. For these companies, political activity has become a critical part of business strategy" (Barry & Pollman, 2017, p. 386).

Institutions that protect individuals and societies from unfettered markets are thus systematically challenged and sometimes rolled back. In fact, "many of the legal arrangements now under threat trace their origins to Polanyi's countermovement" (Cohen, 2019, p. 25). This re-commodification is most apparent with regard to labor regulations, which platform companies famously try to avoid by classifying their workers as independent contractors despite exerting considerable control over them (Prassl, 2018). But we can also see this in transportation markets where the relatively restrictive licensing and safety regulations that Uber challenges were introduced to mitigate the negative externalities of unregulated markets for cities (congestion) and workers (cut-throat competition) (cf. Rogers, 2017). In short, digital capitalism is commodifying to the extent that it systematically subverts regulations that are meant to re-embed markets and decommodify labor.

4.1.2 Commodification as Expansion

Digital capitalism extents the reach of the market in three ways. First, digital companies today control and curate the majority of channels on which people inform themselves and communicate with each other (Dolata, 2019, p. 187; van Dijck et al., 2018). This *commodification of social infrastructures* creates potential externalities in the form of polarization and radicalization. Second, the so-called sharing economy "formalize[s] and systematically record[s] previously informal exchanges" (Lobel, 2016, p. 109). By making it easier to find, trust and pay people, companies like Airbnb have commercialized activities that were previously limited to altruistic settings, like renting a spare bed room or a drill. This *commodification of cooperation* also comes with potential externalities in the form of alienation and the crowding-out of altruistic motivation.

Third, digital companies increasingly record, analyze, and profit from private and mundane activities. Driven by the desire to capture and control human attention, and to predict and manipulate human behavior, digital attention merchants (Wu, 2016) and surveillance capitalists (Zuboff, 2019) have drilled ever deeper holes into people's personal lives, including areas that were "previously walled off from commercial exploitation" (Wu, 2016, p. 6). Activities like reading books, watching videos, searching for information, or connecting with friends are now all recorded and mined for insights that can

then be sold as "prediction products" on "behavioral futures markets" (Zuboff, 2019, p. 8). This *commodification of personal lives* does not end on the internet. Increasingly, surveillance capitalists take over the real world too, as smart devices take over sideboards and sidewalks (Zuboff, 2019, pp. 199–232).

The intrusive expansion of markets resembles a "digital enclosure" (Cohen, 2019, p. 62) or "digital dispossession" (Zuboff, 2019, p. 99) in which human experience itself is recast as "a source of raw materials that are there for the taking and that are framed as inputs to particular types of productive activity (Cohen, 2019, pp. 48–49).[6] This recasting of human activity as"unowned but potentially appropriable" (Cohen, 2019, p. 49) constitutes a powerful performative act in which the law plays a key "productive role" (Cohen, 2019, p. 33) in constituting contested practices as "lawful and preordained" (Cohen, 2019, p. 62). For example, in *Moore v. Regents of the University of California*, the court ruled that a patient's discarded blood and tissue samples are not his personal property and that individuals do not have rights to a share in the profits earned from commercial products or research derived from their cells. This logic of productive appropriation now serves as a legal justification for digital firms touting the 'innovativness' of their 'proprietary' algorithms that allow them to profit from the data of others (Cohen, 2019, p. 72).

Data, then, correspond to another fictitious commodity in Polanyi's sense: "they are brought to the market, but are "not produced for sale. Utilizing Google maps or hitting the "like"-button on Facebook, as might be assumed quite safely, are not motivated by the intention to produce data, but rather to get directions and to signal approval respectively" (Grabher & König, 2020, p. 105). Much like industrial capitalism commodified nature, digital capitalism "lays its claims to the stuff of human nature. Now it is human nature that is scraped, torn, and taken for another century's market project" (Zuboff, 2019, p. 94). In short, digital capitalism is commodifying to the extent that is expands the reach of market into previously non-commercial spheres.

4.1.3 The Challenges of Commodification

Commodification poses two types of challenges. On the one hand, it requires policymakers to adapt, or 'refocus,' the rules and regulations that digital platforms have blurred in

[6] Couldry & Mejias (2019, p. 337) use the term data colonialism to describe the combination of the "predatory extractive practices of historical colonialism with the abstract quantification methods of computing". While certain similarities are undeniable, the choice of term seems historically inappropriate and theoretically questionable. How, for example, do we think about cases where states attempt to re-embed digital markets against the interests of digital companies? Here, the Polanyian idea of a market-making movement and a market-containing countermovement seems much more elucidating than ideas about center-periphery dynamics (for the case of the EU's digital policy, see Newman, 2020). The Habermasian idea of a colonization of the lifeworld by systemic forces offers a more promising avenue. However, not only are there no reference to Habermas theory in Couldry & Mejias (2019); Habermas' insight into the problematic expansion of markets also bears more resemblance to Polanyian than to neo- and post-colonial thinking.

the name of technological exceptionalism. But while it is important to minimize the social costs of digital business models (e.g., precarity, tax-avoidance, congestion), it is also important to acknowledge their social benefits (e.g., flexibility, consumers welfare) (Rogers, 2017). This does not necessarily mean, however, that the regulatory wheel has to be reinvented. Existing employment law, for example, already offers the tools to limit exploitation and extreme volatility while retaining flexibility. "Any suggestion that employment rights are inherently incompatible with flexibility is a myth (…) By treating gig workers as employees and (most) platforms as employers, we can throw out the bath water - and save the baby (Prassl, 2018, pp. 116, 128).

In addition, digital technologies are not inherently subversive but can be used to better enforce regulations. The goal of the 'Nordic approach to platform regulation,' for example, is "to lower the transaction costs for platform firms to comply with existing regulations" (Söderqvist, 2017, p. 350). Collective bargaining agreements could thus be written into the code of platforms while discriminatory practices could be more easily monitored and sanctioned. Adaptive responses that avoid the Scylla of extreme regulatory conservatism and the Charybdis of regulatory capitulation are thus possible, though, of course, not inevitable (cf. Thelen, 2018).

On the other hand, commodification requires policymakers to protect societies from the unfettered expansion of markets without destroying those markets altogether. After all, not much is won if the specter of a "commodification of everything" (Lobel, 2016, p. 92) scars policymakers into banning everything. Health data from smart devices can be important sources of diagnostic insight but there are dangers in letting markets decide how such data are collected, processed and priced. Careful regulation may even create legal certainty and consumer trust, and thus further the adoption of new technologies. Margrethe Vestager (2021), for example, recently remarked that while "it may sound strange," "the point of the [EU A.I.] regulation is to embrace A.I. fully. That is how you ensure that customers feel safe and that those deploying the technology feel comfortable in the regulatory environment."

Similarly, data may be valuable but they cannot become something people have to be able to afford not to disclose.[7] Societies themselves have of course begun to defend themselves against the encroachment of markets, ranging from a "certain 'disenchantment' " to "full-fledged 'revolt[s]' " (Wu, 2016, p. 7). Policymakers need to acknowledge and constructively channel these first stirrings of a countermovement against markets for human attention, carefully balancing between market-making and market-correcting policies.[8] Law and policy have played an active role in shaping the current, expansionist trajectory of digital capitalism; they can also re-embed it in a more stable riverbed without making societies forgo the benefits of its thrust (Cohen, 2019).

[7] Apple, for example, increasingly justifies the higher prices of its products by its higher privacy standards, implicitly branding privacy as a luxury good.

[8] Newman describes the twin strategies of market-making and market-correction as being at the heart of the "dual policy agenda" behind the EU's digital policies (Newman, 2020, p. 276).

4.2 Digital Disruption

Digital capitalism not only disembeds markets through subversion and expansion. It also changes these markets themselves in two ways: it changes what makes individuals, firms, and societies successful, and it creates novel asymmetries of information and power.

4.2.1 Disruption as Creative Destruction

While there are debates about the speed and precise nature of those changes, there is little disagreement that A.I. is set to transform the world of work while upending existing and creating entirely new industries. Like previous general-purpose technologies, it will require further complementary organizational and conceptual changes - and therefore time - to fully realize its potential; but this potential is enormous (Frey, 2019, pp. 301–341; MIT Work of the Future Task Force, 2020). As we've seen, A.I. will put a premium on certain skills while putting pressure on others. "There's never been a better time to be a worker with special skills or the right education, because these people can use technology to create and capture value. However, there's never been a worse time to be a worker with only 'ordinary' skills and abilities to offer, because computers, robots, and other digital technologies are acquiring these skills and abilities at an extraordinary rate (Brynjolfsson & McAfee, 2014, p. 11). Similarly, companies that assemble intangible assets such as databases, patents, or algorithms have an ever-growing advantage over traditional companies with tangible assets (Haskel & Westlake, 2017). Moreover, the ability of platforms to control profit and data flows while outsourcing the bulk of operating costs to users gives them an additional advantage over traditional competitors, with Airbnb and hotels and Uber and taxis being the textbook examples (Rahman & Thelen, 2019).

Thus, the success of individuals, firms, and countries increasingly depends on whether their asset profile is complementary to the structure of the digital economy. Do they possess knowledge-based capital, be it individually-held human capital (education, skills) or collectively-held innovational capital (scientific knowledge, algorithms, data), or are they not (OECD, 2013; Stiglitz & Greenwald, 2014)? And are they benefiting from the 'platformization' of the economy or are they out-competed by new, platform-based competitors? In short, by creating new jobs and businesses while rendering old ones obsolete, digital capitalism disrupts the economic pecking order and produces new winners and losers.

4.2.2 Disruption as Asymmetry Creation

Digitalization is not just changing the relative value of skills and business models. It also creates novel asymmetries between different economic actors. Specifically, it concentrates power in the hands of those that own platforms, control data flows, and design artificial intelligence systems. Their role as intermediaries allows platforms to exploit asymmetries

of market power between them and other companies as well as capitalize on information asymmetries between them and their users.

On the one hand, the winner-take-most nature of platform markets incentivizes platforms to put growth over profits, blunting the traditional weapons of competition law focused on short-term consumer welfare (Khan, 2017). For example, its 'venture capital war chest' has allowed Uber to subsidize rides in order to gain market share, which some view as predatory pricing. Likewise, after the founders of Diapers.com, then an up-and-coming online retailer for baby products, declined an acquisition offer by Amazon, Amazon used its deep pockets to massively (cross-)subsidize its own baby products.[9] This not only put a dent in Diapers.com's market share, it also undermined investor confidence - who, after all, wants to invest in a company that is up against Amazon. Eventually, Diapers.com was forced to sell to Amazon, which integrated the company into its own product line (Khan, 2017, pp. 768–774). As a result, there is talk of a "kill-zone" (The Economist, 2018) around tech giants as venture capitalists are increasingly wary to invest in companies that compete against dominant platforms (Peck & Phillips, 2020, p. 81). As consumers are not immediately hurt through higher prices, though, companies like Amazon can march "toward monopoly by singing the tune of contemporary antitrust" (Khan, 2017, p. 716).

Relatedly, platforms dual role as participants in and intermediaries of markets allows them to "exploit information collected on companies using its services to undermine them as competitors" (Khan, 2017, p. 803). Amazon, for example, is a marketplace, an advertising platform, and a retailer in its own right. Third-party sellers rely on and may benefit from these services, but they enter a Faustian pact of sorts. Amazon, after all, can use the data it gathers as about which products sell best to offer its own, cheaper products (Khan, 2017, pp. 780–783). Amazon can thus use the data it collects on what people search for and on what they buy to enter lucrative markets while third-party sellers both bear the risk of experimentation and risk becoming the victims of their own success - without really having an alternative to Amazon.

On the other hand, platform firms also benefit from information asymmetries vis a vis their users. While digital technologies have, in the Coasian sense (Coase, 1937), reduced transactions costs, they have not eliminated the firm or 'cut out the middlemen.' Rather, digitalization has produced a new breed of powerful middlemen - the platforms themselves - with "the power to transform (…) markets into a controlled space that gives a huge advantage [to themselves]" (Pistor, 2020, p. 117). First, platforms can use the data they collect about consumers to predict their behavior, thus gaining from an "asymmetry of predictive power at the expense of the consumers" (Pistor, 2020, p. 102). Second, platforms can use the same data and their control over the design of user interfaces to manipulate what users see, feel, and think, exploiting common as well as idiosyncratic biases and limitations (Calo & Rosenblat, 2017). This "produces unprecedented asymmetries of

[9]Dominant platforms can out-compete competitors on price either through incurring debt without losing investor confidence or by cross-subsidizing a less profitable part of its business with a more profitable one (Srnicek, 2017, p. 46).

knowledge and power" (Zuboff, 2019, p. 187), with corporations having "unprecedented knowledge of the minutiae of our daily lives, while we know little to nothing about how they use this knowledge to influence the important decisions that we - and they - make" (Pasquale, 2015, p. 9).

4.2.3 The Challenges of Disruption

Disruption poses two types of challenges. The first challenge, originating from disruption as creative destruction, is to rebalance the distribution of resources, socially and intertemporally. On the one hand, digital technologies substitute capital for labor, that is, they have a "destruction effect" (Schwab, 2016, p. 36). On the other hand, they complement labor with capital, leading to a "capitalization effect" (Schwab, 2016, p. 36). Addressing the destruction effect requires redistributing the fruits of technological change from winners to losers. The historical record shows that "episodes of job-replacing technological change have regularly brought social unrest and, at times, a backlash against technology itself" (Frey, 2019, p. XI). Redistribution, therefore, can help avoid the 'technology trap' whereby technologies that are beneficial in the long run are resisted because of their negative short-term effects on some groups (Frey, 2019). In other words, compensatory policies like a universal basic income can shore up technological progress because the acceptance of a novel technology "depends on whether those affected by it stand to gain from it" (Frey, 2019, p. XI).

Addressing the capitalization effect requires redistributing resources from the present to the future, that is, investments in knowledge-based capital that cost now but whose benefits materialize in the future. As A.I. rings the bell for the next round in the race between technology and education (Goldin & Katz, 2008) it becomes imperative that the runners are well trained, can refresh themselves along the way, and have access to the best gear and science (cf. MIT Work of the Future Task Force, 2020). In fact, investments in education, life-long learning, or research and development not only help to fully realize the capitalization effect of digital technologies, but also help to mitigate their destruction effect. If governments "pursue policies to kickstart productivity growth while helping workers adjust to the onrushing wave of automation, [people] race alongside the machine, [making them] less likely to rage against it" (Frey, 2019, p. 349). The difficulty, however, is that the redistribution of resources not only involves distributive conflicts between different groups but also intertemporal tradeoffs between present and future consumption, which make them politically thorny (Jacobs, 2016).

The second challenge involves the centrifugal redistribution of knowledge and power, countering the centripetal tendencies of the digital economy. As we saw, digital companies pose "new and fundamental challenges to the formal equality of market participants because of their one-sided control over predictive and manipulative data power" (Pistor, 2020, p. 113). This challenge can be addressed through rebalancing power relations between the 'great predators' of the digital economy and everyone else in this digital ecosystem. First, a renewed competition policy could break the market dominance of digital platforms and oxygenate digital markets; alternatively, public utility regulations could domesticate the

digital giants (Khan, 2017, pp. 790–802). Second, a data ownership regime could undo the one-sided appropriation of data by tech firms, giving data producers a say in when and for what purpose data are collected and used, or at least a fair share of the revenue that flows from these data (Pistor, 2020, p. 119).[10] Finally, algorithmic power - the design choices and the opacity in which they are clouded (cf. Braudel, 1992) - could themselves be contested through the democratization of design choices or increased transparency and accountability (O'Neil, 2016).

5 The Politics of Digital Capitalism

The preceding sections have developed a simple but theoretically and historically grounded framework for thinking about digital capitalism - summarized in Figure 1. Capitalism, however, is shaped not only by the available technologies, but also by the ideas imaginaries, social relations, and state institutions in which it is embedded (see section 'What is Capitalism?). Thus, the emergence of digital capitalism is not just a technological process, but one that is deeply shaped by politics. As the historian of technology Melvin Kranzberg remarked, technology "might be a prime element in many public issues [but] nontechnical factors take precedence in technology-policy decisions" (Kranzberg, 1986, p. 550). Politics, congealed in institutions or mobilized to change them, refracts digital capitalism into different varieties, fragmenting the digital space (Peck & Phillips, 2020; Thelen, 2018; Valdez, 2021).

In this section, I sketch a theory of how to think about the (comparative) politics of digital policymaking, that is, about how societies react to the challenges posed by digital capitalism (cf. Toynbee, 1972). Digital capitalism is intrinsically politicized as commodification spawns protective counter-movements and disruption threatens the status and power of groups. The ensuing reshuffling of the coalitional landscape makes it both necessary and possible to build and entrench new coalitions. Moreover, commodification and disruption introduce novelty and therefore uncertainty. This makes it particularly important to shape how people think about digitalization, both cognitively and normatively. It is for these reasons that I argue that to understand the politics of digital capitalism, we need to pay particular attention to coalitional struggles and ideational battles.

5.1 Coalitional Politics

The nature and trajectory of (digital) capitalism are shaped by how it is institutionalized. Institutionalization refers to the policies adopted in response to the challenges of commodification and disruption - policies like labor market policies, public investments

[10] Ideally, such a data ownership regime would be collective in nature (e.g. a public data trust) to reflect the fact that value mainly stems from the combination of multiple data points (Pistor, 2020).

in knowledge-based capital, anti-trust law, data protection regulations, rules for artificial intelligence, or welfare reforms. Importantly, institutional change and stability are "the product of social coalitions" (Hall, 2016, p. 39): they depend on "the creation and maintenance of social coalitions that stabilize or challenge [them]" (Emmenegger, 2021, p. 2). While institutions are always contested, far-reaching economic and technological change provides challengers with new opportunities to contest the scope, legitimacy, and meaning of institutions. Such episodes of change are "characterized by a particular kind of politics, intrinsically more open than usual" (Hall, 2016, p. 41). This openness gives actors more leeway in cobbling together new or driving a wedge between existing coalitions.

The politics of digital capitalism has ushered in such a period of increased coalitional fluidity; one characterized by the unmooring of old and the emergence of new coalitions. Digitalization creates new winners and losers and upends the balance of economic power between different actors (Taeihagh et al., 2021). This institutional interregnum, with old coalitions eroding and new ones not having congealed into stable social blocs, makes coalitional experimentation, tinkering, and bargaining ubiquitous. Platforms in particular need to build broad coalitions that secure them favorable institutional environments because the "inherently political nature" (Seidl, 2020, p. 4) of their business models makes them rely on regulatory as much as on technological entrepreneurship.

For now, platforms have come to rely on a "new investor-consumer alliance (…) representing a fusion of the financial powers of their investors and the political clout of their carefully cultivated user base" (Rahman & Thelen, 2019, p. 11). The "appreciation, verging on dependence, that consumers have for the convenience these platforms provide" (Culpepper & Thelen, 2019, p. 3) has been a powerful source of business power digital companies could mobilize in regulatory battles. These regulatory battles have been marked by high levels of coalitional fluidity, both over time (Seidl, 2020) and across institutional contexts (Thelen, 2018). Outcomes often depend on compromises between consumers, workers, citizens, investors, platforms, and other firms (e.g., taxi or media companies). Platforms sometimes make concessions when they lose the coalitional politics while continuing to contest settlements and their coalitional underpinnings (Valdez, 2021). Far from being a 'frozen' institutional landscape, the politics of digital capitalism is in constant flux, with coalitions forming and cracking apart like ice shelves.

5.2 Ideational Politics

To the extent that the world is riddled with uncertainty, actors need to resort to "ideational elements" (Parsons, 2007, p. 96) like frames, narratives, or metaphors to "interpret the world and their situation in it" (Hall, 2005, p. 136). In the case of new technologies, this uncertainty is even "more profound and pervasive" (Taeihagh et al., 2021, p. 3) as there are no established causal or normative theories to assess what is likely or desirable. In addition, power and information asymmetries further complicate the task of regulating digital technologies (Taeihagh et al., 2021, pp. 2–3). It is for this reason that discursive battles over the definition and legitimacy of digital technologies and business models have

been part and parcel of the politics of digital capitalism from the very outset. Capitalism, as we have seen, has always relied on supportive future imaginaries and narratives, and these become all the more important in times of rapid technological upheaval and social change.

Gillespie (2010, p. 348) was one of the first to argue that strategically pushing the term 'platform' with its neutral-sounding, facilitating connotations has allowed tech companies "to pursue current and future profits, to strike a regulatory sweet spot between legislative protections that benefit them and obligations that do not, and to lay out a cultural imaginary within which their service makes sense." Digital firms have also been eager to promote narratives of technological solutionism, highlighting the role of digital technologies in solving societal problems (Nachtwey & Seidl, 2020; Uzunca et al., 2018). They have employed the "myth of technological exceptionalism" (Rosenblat, 2018, p. 34) to exempt themselves from regulations and perfected the "art of doublespeak" (Rosenblat, 2018, p. 177) to obfuscate the nature of their business models (Prassl, 2018, pp. 31–50). Finally, Mager & Katzenbach (2021, p. 231) argue that tech companies have increasingly monopolized the "imaginative power" to shape expectations and imaginaries of the future, thus obtaining the ability "to govern these very futures with their rhetoric, technologies, and business models."

Digital companies have used their discursive dominance to shore up their coalition with consumers and the wider public while branding unwelcome regulators as backward-looking Luddites. In other words, the "masters of the digital universe have been especially scrupulous, indeed effective, in their defenses of the principle (and space) of self-regulation, being shielded not only by well-resourced lobbying operations, but also by thick curtains of technological determinism and futurism, sustained by (new) cultural circuits of capitalism" (Peck & Phillips, 2020, p. 82). In addition to traditional and novel sources of business power, of which tech firms have plenty (Culpepper & Thelen, 2019; Kemmerling & Trampusch, 2021), platforms thus have considerable abilities to shape the discursive environment in which they operate.

But while this makes it easier for digital companies to win the coalitional politics of digital policymaking, they are by no means invulnerable to ideational attacks, as the recent 'techlash' illustrates. For example, when digital companies betray their promises, their popularity can quickly turn into notoriousness (Culpepper & Thelen, 2019, pp. 15–19). Likewise, through clever storytelling, regulators can use the attention all things digital receive against tech companies (Seidl, 2020). Importantly, tech companies' views on digitalization are far from uncontested. Obendiek (2021), for example, reconstructs four different conceptualizations of and metaphors about data that are brought forward in normative conflicts about how to govern them: data as an individual rights issue (data as a body part), data as a security tool (data as a tool), data as an economic resource (data as oil), data as a collective resource (data as water). In short, how actors perceive the digital world and their interests - and therefore coalitional alignments - in it, depends in no small part on who wins the battle of ideas and entrenches their particular view of digitalization as the dominant one.

6 Conclusion

This paper has argued that any meaningful understanding of digitalization has to reckon with the fact that the large majority of digital technologies are developed, designed, and deployed by private firms operating in a capitalist system. Building on the theoretical and historical scholarship on capitalism, the paper has identified *commodification* - the "expansion of market mechanisms into non-market coordinated social domains as well as their intensification in already market-dominated settings" (Ebner, 2015, pp. 369–370) and *disruption* - the transformation of the requirements for economic success and of the sources of economic power - as key elements of capitalist development. Combining these insights with contemporary scholarship on digitalization, it has argued that three intertwined revolutions - the platform, (big) data, and artificial intelligence revolutions - have led to a new form of capitalism: digital capitalism. The rise of digital capitalism has created a new wave of commodification and disruption, which confront societies with novel challenges. To understand their responses, the paper further argued, it is essential to look at the coalitional and ideational politics of digital policymaking.

The paper has thus offered a theoretical framework to think about digitalization that takes both capitalism and the politics of digital policymaking seriously. It thus grounds existing scholarship on digitalization in the history and theory of capitalism; it organizes a wide-ranging literature into a simple framework; and it directs the attention of scholars to the specific challenges emanating from digitalization and the political responses these challenges trigger. This paper remains agnostic about how exactly commodification and disruption are operationalized - commodification can be understood, for example, in a Polanyian (Cohen, 2019; Polanyi, 2001), Habermasian (Habermas, 1987), or Marxian (Harvey, 2010; Rosa et al., 2017) sense (Couldry & Mejias, 2019); disruption more in a Braudelian (Peck & Phillips, 2020) or a Schumpeterian sense (Schumpeter, 2008). Rather, these concepts capture key dynamics and challenges that digital capitalism reliably produces. As financialization gradually loses of its explanatory power, the paper thus offers scholars a renewed heuristic for where to look, what to look for, and how to look at key transformations of capitalist societies.

Future research can use this heuristic to systematically investigate question like: why have data protection regulations become so contentious? How can we think about resistance against the commodification of everyday-life? How will the impending 'platformization' of industrial production play out, and how will this change the balance of power between platforms, producer firms, and workers? Can digital solutions to pandemic-related problems be Trojan horses that allow tech firms to entrench themselves as providers of public welfare? What are the drivers of and problems created by the spread of smart devices into bedrooms and boulevards, fridges and factory floors? What is the role of competition law for consumer protection in the digital age? Why are platform companies so careful to manage their reputation? Why is digitalization discussed very differently in different countries? Why does collaborative policymaking seem to produce more pro-active, forward-looking responses to technological change? And, most abstractly but also impor-

tantly, how can we make sense of the momentous transformations that digitalization has brought over contemporary economies and societies?

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