Sabine Pfeiffer

DIGITAL CAPITALISM AND DISTRIBUTIVE FORCES

[transcript] XTEXTS

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X-Texts on Culture and Society

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1. Introduction

It has become quite fashionable to start off a book—even academic and analytical works—with personal anecdotes. One of the few advantages of getting older is that one accumulates plenty of potential material over the years, making it easier to turn individual and—ignoring structural and specific historical dynamics—for the most part coincidental experiences into a host of anecdotes. But fear not, dear reader, I will spare you this. That said, I cannot refrain from outlining my personal frame of reference, for there is one thing that has accompanied me ever since I began working: that which we nowadays refer to as digitalisation[1]. I intentionally use this now-ubiquitous term, which has strayed considerably from its original meaning (that is, a technical procedure for the conversion of information from analogue to digital form, at times also referred to as 'digitisation') and instead become a kind of meta tag[2] for how society perceives the reach, direction and depth of the assumed transformation of our time.

As a sociologist, I have focused on digitalisation since day one. Prior to that, during my earlier work as a toolmaker, it was digitalisation that focused its attention on me. During my professional training in the mid-1980s, I worked on a computer for the first time. (I intentionally say *on*, not *with*.) I was operating a measuring machine that allowed curved tubes to be measured in three-dimensional space. At the time, I was unaware that I was working with an application program

1 In the current debate, digitalisation mainly refers to two aspects: on the one hand, a batch of recent information technology artefacts and technologies (from Artificial Intelligence, Machine Learning and the Internet of Things (IoT) to new approaches in robotics) and, on the other hand, the economic and social changes expected throughout the course of their introduction and application.

2 The term 'tag' refers to additional information that describes a data pool, and a 'meta tag' is used for information that describes the origin or purpose of an entire data entity (file or website). Such tags are used in HTML, XML or specific XML variants (such as JATS to indicate academic journal articles). This book, for instance, will be marked with tags such as <title>Digital Capitalism and Distributive Forces</title> <author>Sabine Pfeiffer</author> <year>2021</year> in order to make it retrievable online or for reference management programs like Zotero to be able to directly access this information. In the code, these three tags would commonly be written one below the other and there would be more 'tags' (for the publisher, place, keywords, etc.).

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that was being run by an operating system behind the scenes. I tried, albeit unsuccessfully, to eke more out of the measuring machine's application program, as I suspected that the computer was able to complete many more and varied tasks.

I was training as an apprentice at a medium-sized family-run business whose line included products as wide-ranging as extruder machines, turbine blades, cutting tools and exhaust systems. Today, we would refer to this as 'diversified' production. CNC machines and welding robots with so-called teach-in processes had already found their way into production, and there was even an NC milling machine in our training workshop[3]—although learning to use it was not yet officially included in the training curriculum. I am mentioning this to show that, even though I was by no means working on the information technology frontline of the manufacturing industries, I was still able to work on a computer while only an apprentice. At the same time, the role of digitalisation was almost negligible in our offices: the construction department used drawing boards, not CAD systems[4], and the all-female shop clerk team (yes, they were all women and, yes, office jobs in manufacturing did still, in fact, exist) worked mainly with paper and were delighted if they had an electrical typewriter. There is a reason why I have decided to begin with this marginal note: the academic debate on digitalisation often overlooks the fact that the shop floor became digitalised earlier, more comprehensively and in a more integrated manner than other areas simply because it contained very little visible digital technology. It is no coincidence that the term 'embedded systems' is used: they are embedded in material technology, yet no less digital. The display on a machine is not only a control device, but the interface of a fully fledged computer.

I thus encountered digitalisation as a trainee industrial technician at a rather down-to-earth medium-sized company. At my subsequent employer (a distributor of CNC machine tools), I worked with CAD/CAM[5] systems from the end of the 1980s and was made aware of the vision of CIM[6] and flexible manufacturing

3 CNC is the abbreviation for 'Computerized Numerical Control' and refers to the computer-aided control of machines, whereas NC (Numerical Control) denotes its technological precursor without a (micro)computer.

4 CAD is the abbreviation for 'Computer-aided Design' and comprises software for constructing two- or three-dimensional models on a computer.

5 CAM is the abbreviation for 'Computer-aided Manufacturing'. This type of software links up the construction data produced in CAD and the CNC processing program in the machine. This allows for, say, construction data to be turned into processing data via CAM and converted into the different CNC languages of the various manufacturers of controls.

6 CIM is the abbreviation for 'Computer-integrated Manufacturing' and in fact, as a vision, it anticipates in the 1980s much of what reappeared from 2011 under the term 'Industry 4.0' in the shape of altered technical possibilities, namely the computerised networking of all processes relevant to production.

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systems (FMS) during my job interview. (While the implementation of CIM was a rather long time coming, FMS were, in fact, sporadically introduced whenever a product's piece number justified the effort.)

At my next employer, I was finally able to be much more involved with the 'behind the scenes', i.e. the operating system (mainly MS DOS, sometimes OS/2 or Unix), setting up computers for our customers, installing interface cards (IEEE) that enabled a connection to 3D-coordinate measuring machines or touchscreen attachments for displays. Our development department would send us new versions of the measuring machine software to the distribution hub via the telephone line and acoustic coupler. At home, too, I already had a computer of my own (the first of which was an Amstrad Schneider PC 1512 with a double floppy disk drive), and before too long, first a 9-pin and later a 24-pin dot matrix printer was clattering away as well.

Years later when my journey into higher education led me first to engineering science and subsequently to sociology, digital technology remained both my work tool and my object of study. Eventually—it must have been in 1996—I found myself sitting in the café of an adult education centre in front of a PC with Internet access and a Netscape browser. Fully equipped with my own domain, I launched my first website, designed with a simple HTML editor, in 1998. A year later, I placed my first order with Amazon (not that I actually recall doing so, but Amazon never forgets). In sum, technology—both material and digital—was an equally natural and important component of my world of work, and, before too long, of my private life as well. It remained so (which appeared just as natural to me) when I replaced my work bench, machines and CNC code with sociology books, theories and statistical syntax.

This background story explains *why* I am writing this book, but it also gives a hint as to *how* I shall go about it. Technology and its potential remain an essential point of reference throughout. At the same time, my first professional role (more so than my current occupation) has taught me one thing: whether technology finds its way into a company, whether and how it is used in order to change or replace work processes, and whether it creates better- or worse-paid jobs or new qualifications in the process depends on the actors involved and the relationships between them. All these outcomes may take very different forms. The result, however, will never be decoupled from economic intention and de facto technological (im-)possibilities. That which changes in the social sphere, in the world of work, in life and in society can only be comprehended through both the technological *and* economic dimensions—and through both their respective distinct and shared path dependencies.

The insight gained through the tangible experience of technological change during my initial professional practice gave rise to a recurring perplexity about the responses in my current professional domain. To this day, sociology largely con-

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siders technology, work, economic matters and the lifeworld in separate niches. It avoids theoretical approaches that at least attempt to conceive of all of the above as one. Moreover, sociology often fails to take technology seriously in its specific manifestations, instead turning it into something 'purely' social or abusing it as a vague metaphor for comprehensive, yet not always conducive, social diagnoses. I first had to learn this when I made the move from technology to sociology; at times it would make me feel rather exasperated; today, I find it easier to comprehend.

Society and social change cannot be and never were comprehensible without their underlying technical foundations, technological realities and their use of technology. Nor can or could society and technology—particularly when undergoing (large-scale) changes—ever be understood without taking into consideration the economic contexts in which and through which they develop. The question of how work, production and life as such are shaped, what they enable us to do and how this feels both individually and collectively cannot be comprehended without factoring in the overarching web of the economy and the market. Whether all of this is—perhaps even fundamentally—changing and whether we are currently at the beginning, or already in the midst, of a process of transformation or disruption is a debate that has concerned our society for some years now.

Almost no other subject is being discussed and researched as extensively as the digital transformation. In Germany, this discourse was launched in 2011—and quite deliberately so—through the introduction of the term 'Industry 4.0' (*Industrie 4.0*). From the outset, this discourse addressed not only the closed professional circle concerned with production and automation technology, but a whole range of actors in the economic sphere and throughout society. However, said discourse soon departed from purely focusing on the industrial realm, and instead increasingly turned to the bigger picture of digitalisation, placing other digital technologies centre stage: while the debate initially still focused on robotics, mobile devices and social media, today attention has shifted primarily to Artificial Intelligence (AI) and Machine Learning.

I myself have contributed to this discourse through publications and lectures at countless conferences and workshops, including outside the narrower academic context. At such events, I have increasingly sensed the great need for well-founded analytical approaches that enable a better understanding of the here and now and also point out the possibilities and limitations of influencing the process. This book thus intentionally sets itself apart from the numerous utopian and dystopian predictions that exist.

The debate on digitalisation is increasingly punctuated by one diagnosis of the times after the next. These proposals for interpretation and prediction—as distinct as they may be with regard to their respective orientation, target audience and background in academic discipline—all largely agree on three aspects: firstly, that we are dealing with a comprehensive transformation whose scale and

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dynamics of change are comparable to historical precursors like the emergence of agricultural society or the Industrial Revolution. Secondly, that the cause of this transformation lies in technological advances, especially in robotics, the acceleration of computing capacity and AI. And, thirdly, that this process entails dramatic, radical changes for our economies and the way we work, the consequences of which must urgently be dealt with by society. Wherever we look and whatever we read, these three assumptions can ultimately be found in all diagnoses pertaining to digitalisation—be it explicitly stated, implicitly insinuated or tacitly presupposed. Although the specific assessments as to where the whole process will lead and which aspects can be proactively shaped where and according to which criteria (or not) may differ, the fundamental assumption of technological progress as the actual underlying cause is the common theme. It is portrayed either as an anthropological constant—human beings as a compulsively innovative species that cannot help but infinitely produce technological advancements—or as a quasi-evolutionary process, at the end of which humanity makes itself obsolete.

Against this background, this book does not seek to propose another diagnosis. It does not follow the triad of 'technological development sparks economic dynamism which in turn yields social consequences'. Nor does this book seek to join the ranks of the ever-expanding list of publications that work their way through these (expected) consequences and argue about which jobs will be replaced and when, and whether a universal basic income (UBI) is the solution. This book shall not present another classification of stages determined by technological artefacts—from agricultural society to the data economy, from the steam engine to the Internet of Things, from book printing to social media. Furthermore, this book is not one more attempt to declare a technology-inspired metaphor—as in network, algorithm, pattern—the new concept of society or expose it as something that has always existed. All this has already been done and comprises valuable contributions to the debate, while simultaneously expressing the apparently great desire in society for an exchange about what is currently going on (with us? as a result of our actions?).

Like other publications, this book does by all means assume a transformation, and it embarks on the search for that which is new and explores how it is connected to the old. Rendering comprehensible this 'new', its structural causes and the related specific consequences is what I set out to accomplish with this book. In the process, we dare to take a look behind the phenomena of digitalisation (without neglecting the realities of technology). The objective is to develop an analytical perspective that conceives of the development of technology, the economic logic and the social dynamic as one, rather than as a sequential succession. In the process, the focus will be on devising a diagnosis of more recent developments over the past decades and thereby pursuing two intentions: firstly, merging distinct

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strands of current digitalisation and assessing the outcome thereof, and secondly, interpreting these developments based on a theoretical analysis.

1.1 The central hypothesis—in bad neighbourhood?

In his book *Muster* ('Patterns') (2019), which presents a theory of the digital society, Armin Nassehi sets out to pinpoint the exact problem digitalisation actually solves (see ibid.: 12). His answer—albeit presented here in an abbreviated form that does not do justice to his elaborate deliberations—is that modernity has always been digital and relied on patterns to cope with complexity; that is to say, the digitality of society is the result of its own structure and complexity (see ibid.: 321–325). I find this answer unconvincing. Nassehi's analysis marginalises economic actors and the market, while the economic system that characterises modernity—capitalism—disappears behind society. Although his analysis does provide a refreshingly novel view of the dominant discourse, which often only focuses on the economy (as a field, not as a structure) and assigns society the mere secondary role of cleaning up the mess left by disruptive developments. However, neither can modernity be grasped without capitalism nor can digitalisation be comprehended without the related economic strategies, actors and dynamics.

This book, then, proceeds not from society, but from capitalism. The fact that the latter has turned digital does not sufficiently answer the question, as will be shown. Capitalism as such, the continued existence of which relies on selling ever more products and goods on ever-newer markets, must currently be beset by a problem for which digitalisation proves (or is at least perceived to prove) to be a particularly adequate solution.

The simple answer seems to be that digitalisation is the technology that replaces (human) labour. For some, this may already sound like a critique of capitalism, yet with regard to an analysis of capitalism, it is too reductionist and too simple a conception. That is why this is the preferred answer by those parties who refrain from analysing capitalism, instead choosing to produce endless forecasts concerning the scale of the replacement of labour. How many people does a robot replace? How much office work can AI perform? Academic studies and an attention-seeking media relentlessly raise these questions and underpin them with corresponding figures that achieve the highest possible number of citations, clicks and circulation volumes. Granted, just like every other technology that came before it, digitalisation is being used to replace human labour. But that is not a problem for capitalism; it requires no new solutions or answers to accommodate this process. It is in fact quite good at this (though 'it', of course, is not good at anything—it is the countless decisions, negotiations and implementations of efficiency-increasing strategies in individual companies that are made almost

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inevitable in the capitalist system, but which can by all means be conducted and led very differently in specific, concrete strategies). This book is not just another attempt to search for the new technological options for replacing labour. Instead, the guiding question is whether capitalism itself has any new—or preexisting but intensifying—problems, and whether this helps explain why certain forms of digitalisation and digital business models are particularly successful.

The corresponding hypothesis that this book develops theoretically and substantiates empirically is the following: the problem businesses and national economies increasingly face in a highly advanced, globally operating capitalism is that of successful sales. The goods that can be produced (or even just copied) at ever-greater volumes and more and more efficiently are worth nothing if they are not sold. That is the objective of all activities. Competition on global markets continues to drive the hunt for the cheapest possible forms of production. Yet what is becoming increasingly relevant is the competition for too few buyers. Corporate efforts towards more efficiency and optimisation are increasingly aimed at the market, which they seek to serve more quickly and in a more planned and targeted manner. Shareholders do not like surprises. The crucial bottleneck for all business activities remains, firstly, the market and, ultimately, the related act of purchase (or sale, rather). The corresponding strategies, however, have been pushed more and more to the fore, and this, as I hope to show in this book, is where digitalisation is particularly convenient (although it ultimately does not pose a solution, but rather contributes further to the fundamental problem).

The core analytical message of this book could also be worded as follows: the central problem of advanced capitalism today is the realisation of produced values on markets. Strategies of market expansion and consumption constitute the main elements of an increasingly relevant and competitive field. Alongside the productive forces geared towards value *generation*, the forces aimed at value *realisation* are becoming increasingly dominant. The reasons are economic, inherent in the logic of our economic system, and not the result of digitalisation. In order to better elucidate this shift in significance analytically and empirically, these special productive forces are given their own separate title: the *distributive forces*. They include, *firstly*, all the technological and organisational measures and activities related to value realisation, the intention of which is, *secondly*, to guarantee the constant expansion of this value realisation, ensure this expansion in the long term and to do so at the lowest possible circulation costs. This is precisely where digitalisation and digital business models have proven particularly promising.

To return to Nassehi's question, the *problem* lies in the economic mode itself; the *solution* is a whole bundle of technical, organisational, institutional and social responses; digitalisation's success is owing to the fact that it optimises and accelerates these solutions. Unfortunately, these solutions are not real, and digitalisation changes nothing about this (on the contrary, it exacerbates the underlying

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problem). The 'meta problem' is that it can only be solved—at least within this economic logic—in isolated instances, for a limited period of time, and in the interest of individual actors, but not as a whole. Here, capitalism is in the same situation as Nassehi's modernity: much like the latter, which cannot rid itself of the complexity problem through digitalisation, capitalism cannot solve its central problem (always too many goods for never enough markets) through digitalisation. In fact, in both cases the ostensible solution aggravates the respective problem.

Seeing as I speak of capitalism—and not simply of 'the economy'—and of productive forces (or rather of their special form, the distributive forces), most readers will not be surprised that I increasingly end up mentioning Marx in this book. That is not because I always wanted to proceed from his standpoint, but—and the order of the following chapters illustrates this—because current analyses of digital capitalism fail to provide the crucial answers. Those who wish to follow my argument will find it impossible to avoid Karl Marx. This ought to be established from the outset—for all those who may gasp at just hearing his name or consider such theoretical associations altogether to be a 'bad neighbourhood'[7].

Given the outlined intention of *how* I wish to go about writing this book, Marx's theoretical approach is indispensable, for it is—to this day—the first and most comprehensive conception of work and life, economy and society, technology and the social, the market and the world both as one and in a process of constant change. We shall see whether this theoretical toolkit proves applicable to digital capitalism as well. In drawing on Marx, I follow the insight "[…] that present trends in modern societies cannot be even approximately understood without the help of key concepts from the Marxian tradition – and this will become all the more the case, the more plainly the capitalist market economy becomes the driving force of the emergent global society" (Streeck 2017: 49).

To all those who harbour reservations about Marx, I would like to encourage you to engage with his analytical insight and approach. There is certainly much space for argument concerning the political consequences of his analyses, but not about his analytical capacity as such. Even actors who can in no way be regarded as critics of capitalism find it hard to ignore Marx at times—even though they (intentionally or unintentionally) usually completely misunderstand him. Even the World Economic Forum (WEF)[8] wants to prescribe at least 'some Marxism'

7 In the digital world, a 'bad neighbourhood' refers to websites providing links to link farms, websites with malware or illegal or other content suppressed by the algorithms of Google and other search engines. As a result, such websites themselves can be downgraded in the search rankings. Search engine optimisation (SEO) strategies seeking to improve their ranking through a large number of links often walk right into this trap. The question is always where the links lead to.

8 Neglecting its own crisis diagnosis of 2016, the WEF is currently—after the Great Transformation (the birth of capitalism, so to speak) and the Great Depression (its first but, as we know today, not its final major crisis)—calling for a Great Reset, given the backdrop of rising social inequality and

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(Bendell 2016), thereby referring to the unconditional basic income (UBI). The aim in this context, however, is not to protect people from falling into poverty because digitalisation might destroy jobs on a large scale, but to maintain the mass consumption capitalism relies on. Often enough, the difference lies in who is speaking: when Marx—or critical voices referencing Marx—say(s) that corporations are only driven by profit interests, this is commonly criticised as too radical or disregarded altogether. Yet, strangely enough, when Nobel Prize laureates provocatively and intentionally reduce the concept of corporate social responsibility to the aim of 'increasing profit' (Friedman 1970), this is largely accepted without question.

The reason for this is that his name is frequently misused; that *Capital* exegesis is often conducted with the same fervour as biblical exegesis (although the former provides an astute analysis while the latter is religious scripture); that the range of interpretations of Marx's writings is infinite and those proposing an interpretation often disagree with each other; that only very few people have actually read Marx in the original, but have mainly read *about* him, if at all. For all these reasons, in the analytical passages of this book I will let both Karl Marx and Freidrich Engels speak for themselves. While working with these original sources, I discovered many new arguments, and read other passages with fresh eyes. The renewed and comprehensive study of so many volumes of the *Marx Engels Collected Works* (MECW) was indeed very rewarding and satisfying. The struggle for analytical precision, the intellectual complexity, the repeatedly astounding topicality, the prognostic foresight—all this provides an impressive instrumentarium, not least to help understand an ageing yet constantly reinvented capitalism, including in its digital form. So, should you harbour such reservations, please try to push them aside for the time being (as they can, of course, be put right back around one's perturbed shoulders thereafter). Especially if reading Marx has not been among your interests thus far, if you do not distinguish between economy and capitalism, and if you find the world just fine as it is, I would still urge you to be truly 'disruptive', to develop an open mindset and join me on a journey into Marx's world.

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the ecological crisis. Only this time, it is not digitalisation that requires responses, but COVID-19. In the book on the conference (see Schwab/Malleret 2020), which generally presents a shockingly shallow argument, the reader encounters—besides the calls for more global (see ibid.: 114–119) and national governance (see ibid.: 89–95)—mainly more of the same: a further accelerated digitalisation (see ibid.: 153–154 and 176–180) and more growth (only somehow more sustainable and measured differently) as a means to make polarised income levels, unevenly distributed participation opportunities or social resilience more visible at the level of national economies (see ibid.: 58–63). A WEF website lists the four 'building blocks of the Great Reset' as an adjusted mindset, new metrics for measuring the world's wrongs, the latter's mitigation through incentivisation and people making more meaningful connections with each other and the natural world.

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The analytical and theoretical basis of this book is built around the mentioned concept of the *distributive forces*. It is a term I have devised by analogy with Marx's concept of productive forces. In Marx, as is quite well known, science and technology are *one* (not *the*) expression of the development of the productive forces, which he always discusses in the context of the relations of production. This book picks up on this notion and seeks to refine it. The aim was not to write a book along the lines of 'Marx was always right', but to harness the analytical strength of Marx's works, particularly for the interrelation of technological development and economic as well as social relations as a tool and to (if necessary, entirely disrespectfully) adapt and refine them wherever the current social changes require.

My distributive-force hypothesis seeks to grasp digitalisation in the sense that a large share of the activity it currently triggers aims above all to achieve one thing: the realisation of value on markets. That is to say, the objective is no longer just the creation of new values, but, to put it simply, to successfully—and more safely, more quickly, with the greatest possible certainty and in the long term—operate on markets. The aim is not to substantiate a hypothesis of transition 'from the industrial capitalism of productive forces to the digital capitalism of distributive forces'. That would be delightfully simple but, unfortunately, far *too* simple. The matter turns out to be much more complex. That is why it is so important to distinguish analytically that which is inextricably compounded empirically. In this intellectual task, again, the Marxian toolkit is of great help.

Even in the scholarly world, real reading—i.e. the complete reading of a text from start to finish—has gone out of fashion. Academia has long been governed by key performance indicators and compelled to produce more and more growth: more students, more third-party funding, and more cited, international, high-ranking publications! Yet, as in the economy, the market is limited here, too. The rising overproduction of academic texts is matched by the declining possibility for them to be read (therein perhaps lies a good idea for an economics article: 'Calculating the tendency of the rate of reading to fall' … but I digress). That is why we all (skim-)read more quickly, in a more targeted and selective way, and with ever-greater gaps and omissions—which is perfectly sufficient most of the time.

This overproduction is intensifying because market expansion in academia is particularly difficult, as the call for the growth of science and research almost never includes the request to 'write more for society!', to 'establish exchange with as many others as possible who do different things in other places!' or to 'leave your ivory tower as often as possible!' Who, outside of the scholarly world, reads academic texts anyway? And why would they, given that most academic texts make no effort to at least point out any potential use of its subject beyond the respective discipline? Admittedly, this book may not be the most suitable read after a long work day, a (very) late dinner, perhaps with grouchy and/or pubescent children, or family members or room mates whose work extends seamlessly into

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their private lives. And my book is certainly more time-consuming and less pacey than a 45-minute episode of the latest hit series on a popular streaming site. But that is the case with most academic books. Nonetheless, I would still like to invite you to follow the argument presented here from one chapter to the next. The compact summaries here and in the concluding chapter inevitably leave some aspects unresolved that require more extensive reflection.

1.2 Digital capitalism and value

The list of diagnoses linked to digitalisation is endless. Depending on the year of publication, the technological phenomena and/or the most recent business models or corresponding protagonist companies taken into consideration vary. For the purpose of order and overview, the best thing would be to skim over all of them in the introduction. Yet, I will refrain from doing so (and spare you this minor ordeal), for, as inspiring or debate-worthy many of these diagnoses may be, my interest lies in the economic dimensions behind the digital phenomena. My concern is not the power of the big tech companies that extends far beyond the economic sphere, but the question of how we ended up here to begin with? And I find the answer to this question given by most diagnoses rather unsatisfactory. After all, many of them ultimately just describe the same unchanging recipe (either critically or with a sense of awe): mix innovative digitalisation forerunners with disruptive business conduct, season with immaterial products (with few or zero marginal costs), infuse with unlimited data as raw material and, after a good shake, end up with runaway scale and network effects. Yes, this may all be true. But is that alone the explanation we seek? If we pursue this image further, does it not have to include the bar itself as well as the fact that the bar has always been stocked with a far greater number of beverages than needed to satisfy its customers? In other words: can capitalism and its economic logic perhaps provide a more comprehensive explanation than digitalisation and its algorithms?

The attempt to answer this question proceeds from the concept of digital capitalism in Chapter 2. Dan Schiller (1999) originally coined this term, and it was not the only attempt to examine digitalisation and capitalism together—in fact, he himself launched another such attempt (2014) in the wake of the 2007/8 financial crisis. Schiller's geopolitical, technological and historical perspective is supplemented by the more media-theoretical considerations of Michael Betancourt (2015), for whom the financial crisis and the financial system also represent significant points of reference and thus a lens through which to focus his engagement with digital capitalism.

Throughout this book, I cross-reference these authors—whose approaches are by all means distinct, yet still revolve around digital capitalism—along three the-

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matic complexes that appear most conducive to my initial question (i.e. what about the bar?). I explore whether the summary overview of the three authors already answers the three questions about digital capitalism I deem most relevant: *what* happens through *whom* with *which dynamic*? Does 'the immaterial' really change the fundamental basis of the economy (labour and value)? What is the actual force driving it all? Needless to say, this book ultimately went beyond just Chapter 2 (and indeed is longer than originally intended). This is because the two authors essentially provide no satisfactory answers to my questions and because one cannot elude the suspicion that it may be the Digital[9] itself that drives the debate around digital capitalism after all, instead of any novel, or at least significantly altered, economic dynamics. Having said that, the engagement with these authors and their respective answers to my three questions does reveal an initial blind spot, which takes centre stage in Chapter 3: the question of value. Here, we shall first seek argumentative guidance and find analytical depth in Mariana Mazzucato (2018). Not only does she occupy herself with value and its place of origin: she also demonstrates the extent of the deception by economics that lets value—the core essence of all economic activities—disappear from our view. Moreover, she shows that this has nothing to do with the immateriality of the Digital but with very material interests.

Only when value and its significance have been established can we ask how it will fare in digital capitalism. Does the already obscured concept dissolve into bits and pixels at a factual level as well? Karl Marx assumes that commodities in capitalism comprise two—utterly contradictory—values: use value (in terms of qualitative, specific use) and exchange value (i.e. a purely quantitative measure, which must prove itself above all on the market, where it becomes visible—but where it does not originate, according to Marx).

To Marx, this value is generated during the production process, the measure is the 'necessary labour'. And, because in industrial capitalism one appears related to mechanics and steel and the other to manpower and (physical) strength, many are lured into assuming that the underlying structure disappears along with the change in forms of appearance. However, use and exchange value also exist in digital capitalism, even though the means of production alter their form and labour requires new skills. Value and labour, use and exchange value may appear differently and be assembled in different configurations in digital capitalism, but, so far, the original Marxian categories are still accurate in analytical terms.

Does that imply that the answer at the end of Chapter 3 will be: 'business as usual' in digital capitalism? New wine in old wineskins? Good old capitalism goes

9 *Translator's note:* The terms "the Digital" and "the Immaterial" have been capitalised throughout this book to emphasise the two dimensions' scope and significance in the context of the distributive forces.

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digital? The answer is yes and no. Firstly, a change in form changes many other things—and does so simultaneously in many instances and places worldwide, extending into our personal lifeworld. Secondly, we have thereby only glanced at one, albeit quite essential, aspect of capitalism. If there is no fundamental change here, why, then, do the giant tech corporations with their staggering stock ratings exist? Have they simply seen through digitalisation more cleverly? That would take us back to our initial question. When Facebook or Google, as we all know (and as we shall inspect more closely in this book), generate mind-boggling revenues through advertising alone, there must be companies which, in turn, are willing to spend that kind of money. Are we simply looking at a change of medium, i.e. fewer national TV ads and more global Internet advertising? That is also true. And yet, it explains neither the gigantic revenues nor the staggering stock valuations. At this point, two hypotheses begin to take shape.

Firstly, that which is new in digital capitalism may not be located on the side of value generation but on the side of value realisation. Secondly, we may in fact be dealing with a systematic imbalance, which already filters through in Michael Betancourt's notion of scarcity in Chapter 2. In his view, this is a phenomenon of digital capitalism. If we were then to imagine the latter without the Digital**,** the same processes could also be explained through overproduction, over-accumulation and contradictions between the real and the finance economy, all of which can also be found in Marx's analysis of the industrial capitalism of his day. Regardless, I shall refrain from prematurely pursuing the looming hypothesis that the answer may be found at the 'back' (on the market) and not at the 'front' (in production). Let us first return to the origins of capitalism and its analysis.

1.3 Productive forces and the market

In Chapter 4, we turn to the two theoreticians who studied the last great transformation—i.e. the first Industrial Revolution—and in the process conceived analytical instruments which consider technology, economy and society as elements that mutually interact instead of occurring in succession: Karl Polanyi and his historical analysis of the Great Transformation, and Karl Marx and his analysis of capitalism and the theory of the development of the productive forces. I treat both analytical viewpoints somewhat impiously and merge the two approaches much more than is commonly the case; after all, Polanyi and Marx direct their critique at the same object with the same intention—albeit at times from different angles. Even where, as we would say today, their 'wording' or 'framing' appear distinct from one another, they ultimately highlight the same painful issue. Furthermore, I allow myself the freedom of adopting only as much of their analyses as appears conducive to my purpose—i.e. understanding what is really new about the devel-

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opment of digitalisation over the past decades. Finally, I take the liberty of thinking beyond Marx and complementing his productive forces with the concept of the distributive forces. As my central hypothesis runs, this is precisely where digitalisation's actual novelty becomes tangible.

In their analyses of the emergence of capitalism and its unique features, both Marx and Polanyi, again, albeit from distinct angles, focus on the process of production. Initially, both intentionally, for the most part, omit the other side, namely the sales market, i.e. the sphere of circulation, from their analysis—in part explicitly justifying this procedure. Of course, both are perfectly aware that the creation of values on one side (production) is only feasible economically if these values can be realised—i.e. sold—on the other side (the market). Although both authors point out this circumstance, they focus their attention on that which drove the dominant dynamic of their time. Marx thus dedicates himself to the surplus value arising from the productive process, while he pursues the question of value realisation on the market above all from the vantage point of the power of consumption and thus the relations of distribution. Polanyi, on the other hand, considers the altered role of the merchant, who used to buy and sell finished products but now purchases raw materials and labour forces—this is where Polanyi locates the transformative quality of the dynamic, not in terms of the sale of products now created under the supervision of the merchant-turned-entrepreneur. Hence, Polanyi and Marx see the transformative dynamic of early industrialisation in the convergence of technological innovation in production and a new economic logic of buying (Polanyi), or the creation of surplus value (Marx).

Polanyi does not believe, and this shall also be shown later, that market society can be hemmed in. This brings him much closer to Marx than many are prepared to accept. What discernibly motivates both is something beyond mere factual analysis: for Polanyi, it is the systematic consumption of the actual substance, by which he refers to human beings, but also nature and society as a whole. For Marx, it is the assessment that capitalism, despite its unleashing of all that which he refers to as productive forces, ultimately impedes real progress for mankind (as a species more generally).

The concept of the 'development of the productive forces' devised by Marx must also be considered in this context, not only because it comprises everything that concerns us here (society and economy, change and transformation, technology and labour), but also because digitalisation itself is readily regarded as a major advancement (or 'leap') in the development of the productive forces by some more recent observations. Furthermore, we must inspect more recent applications of the Marxian concept at this point. After all, we may actually find the answers for the analysis of digital capitalism right here, simply left unused by the two authors initially discussed. Yet this hope is quickly dashed. As helpful as the Marxian concept of the productive forces (and the relations of production as well as the mode

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of production arising from both) may be, when applied to current developments, it remains analytically vague and unspecific. It is either (acclaimingly, not argumentatively) elevated to a leap in the productive forces, or (mistakenly and unfortunately) reduced to the question of productivity.

Apart from the first blind spot (value) identified in the recent texts on digital capitalism mentioned at the outset, we thus find a second blind spot (the realisation of value) in the classic analyses of the development of industrial capitalism. Yet, as shall be made clear in Chapter 5, in the latter case is not an inherently a blind spot. In advanced capitalism (be it digital or not), value realisation becomes increasingly important. However, simply claiming as much will not suffice. The aim must be to theoretically elaborate and analytically substantiate this. In Marx, we can initially identify three relevant driving dynamics here: market expansion, consumption and crisis.

These dynamics are not random, as precapitalist markets also exhibit expansive tendencies; on each market, items are only bought and consumed if there is a desire and ability to do so; the entire history of humankind was dotted with economic crises long before capitalism. Market expansion, consumption and crisis, however, are not just potential but necessary dynamics in capitalism. *The competition between production-based, manufacturing enterprises for a more cost-efficient form of production while maintaining or even increasing value generation is complemented by an intensified competition for the pole position on sales markets*.

Given production's inherent tendency to be immoderate, the same applies to sales. That is why new markets must constantly be created, opened, developed and, if possible, closed off to the competition (using a large variety of methods). In spite of extensive market expansion, competitors are fighting over a systematically decreasing good: market participants willing and, above all, able to consume. While the willingness to consume can be proactively created, the ability to consume (in the economic sense of purchasing power) remains limited. That is why *value realisation* becomes *more and more important—but also more difficult to achieve*. This fundamental problem, the systematic imbalance, remains and must by definition lead to crises time and again. In order to avoid these crises (for as long as possible) or to minimise their impact (as far as possible), this imbalance between too much production and too few consumers (always conceived in relation to one another) must constantly be painstakingly minimised. For this purpose, there are permanent small-scale and large-scale efforts (i.e. at the level of individual enterprises and nationally) to increase the willingness to consume. Consumption becomes a dominant and expanding social mode, and has been for so long and to such an extent that it is difficult to make meaningful distinctions between *consumption and society*. The willingness to consume must constantly be reignited—but even where this is successful, the limits to the ability to consume remain in place. For some time—and since long before the onset of digitalisation—means

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of communication have played a major part in this, being applied for the purpose of market expansion, stimulating consumption and minimising the risk of this permanently crisis-prone process. These aspects—and all this can already be discerned in Marx—require more and more attention; and the productive forces employed to this end increasingly comprise more effort, technology and labour.

1.4 Three distributive forces and their development

Chapter 6 focuses on the three productive forces geared towards value realisation or—as I refer to them due to their increasing significance—the distributive forces. They include *advertising and marketing* (all efforts directly aimed at value realisation, i.e. consumption and the market), *transport and warehousing* (all efforts to secure physical access to markets and value realisation) and *control and prediction* (all efforts to link up value generation and value realisation and render them calculable, in the truest sense of the word, in all circulation movements). All three distributive forces are analytically and historically elaborated in Chapter 6. After all, they are not an expression of digitalisation, but rather its most eager subscribers. *Control and prediction* is unique among these distributive forces, as it can appear both by itself and—quite often and increasingly so—in connection with the others. Despite an analytically separate presentation and empirically distinct individual phenomena, all three distributive forces are interrelated, overlap and sometimes develop—in a technical, organisational and complementary division of labour—together, but almost always interdependently.

Seeing as these distributive forces substantiate the actual essence of my distributive-force hypothesis, each of them is theoretically deduced from Marx, yet simultaneously always related to concrete, current (but deliberately not only digital) empirical examples. In the process, we shall come across such distinct concepts as the old idea of 'customer engineering' or the more recent 'retargeting'; we shall consider how many T-shirts fit into a single cargo load and what the Ford Foundation has to do with the teaching curriculum in business schools around the world.

As emphasised above, the distributive forces comprise all technical and organisational measures linked to surplus value realisation and activities towards (the securing of) value realisation. That is to say, they pertain not only to what happens inside or at the hands of individual companies or, indeed, in individual industries or value chains, but also to the closely related, supporting and enabling institutional structure and the political framework conditions, social practices, social norms, etc. We shall deal with the distributive forces only in the narrower sense of the term—i.e. the strategies and technologies applied by economic actors and the corresponding and simultaneously developing forms of harnessing labour and

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labour capacity. At the same time, they always remain an element of the development of the productive forces and, just like the latter, thus constitute an expression of, and are embedded in, the same relations of production.

Distributive forces are not a new phenomenon, but the longer capitalism exists, the more relevant and indispensable they become—both for the individual enterprise competing for successful value realisation and for entire national economies competing to postpone the next inevitable crisis for as long as possible.

Digitalisation is a particularly compatible ally in this context: it is brought to bear far more effectively at the level of the distributive forces than at other levels of the productive forces. This is because its technologies and business models promise three things in particular: market expansion, the stimulation of consumption, and value realisation at the lowest possible risk. This constitutes a new quality. Wherever it merely serves the generation of value to influence the surplus value, it is applied much like any other productive force. What is new and distinguishes digital capitalism from its predecessor, then, occurs at the level of value realisation. That is why—if we wish to name this phase of capitalism—we must speak of *distributive-force capitalism*. After all, what is new is a shift in the economic, not the technological domain. Neither the distributive forces nor their digitalised and digitalising levels of manifestation constitute a solution to capitalism's susceptibility to crisis, for they themselves, as well as the business models geared towards them, are subject to the same logics they seek to react to. Moreover, given the rise in the costs and the share of living labour in the area of the distributive forces, familiar methods to reduce (circulation) costs can be observed here, too.

Those who read not just this very concise introduction, which invariably must omit many arguments, but the corresponding chapters, too, might expect a few remarks about the development of the distributive forces over time. Marx fans may also be eager to address some more sceptical questions. There is room for both in Chapter 7. And because the former is only briefly addressed and serves as a bridge to the following, more empirically detailed Chapter 8, and the latter is only of interest to those who were already convinced that Marx is anything but 'bad neighbourhood' and who have likely previously spent time engaging with one or two of his famous texts, or even volumes, the following keywords shall suffice: regarding the development over time (roughly considering the period since the 1980s), the question of 'leap', 'disruption' or 'layering' arises. Butterfly or locust? Concerning the distinction from other concepts of the Marxian theoretical edifice, the task at hand will be to establish links with and distinctions from the relations of distribution and circulation. With regard to both, I shall refrain from spoiling anything and simply recommend reading Chapter 7.

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1.5 Illustrations and destructions

Following so much theory and analysis, Chapter 8 is above all empirical and delves even more into the digital depths than the previous chapters. Needless to say, an individual empirical chapter cannot present the distributive forces in their entirety, including their interrelationships and development. This would indeed require no less than a comprehensive research programme. In this sense, the chapter is more of an illustration and touchstone to see whether phenomena of digital capitalism become more comprehensible when examined through the lens of the distributive forces. The starting point is the GAFAM corporations (Google, Amazon, Facebook, Apple and Microsoft)—the protagonists of almost any diagnosis of current digitalisation and, in part, important points of reference for those authors writing on digital capitalism discussed at the beginning of this book. A comparison of various key figures based on these five (and three other) corporations' 2019 annual reports and other sources reveals many differences. Only the distributive-force lens, then, allows for a more precise understanding of what causes these differences. This is the first empirical illustration.

The second one identifies two catalysts that reinforce the distributive forces' two central motives (market expansion and consumption) and which are a specific feature of the current variant of distributive-force capitalism—namely venture capital and ubiquitous consumption. Venture capital flows simultaneously enable and succumb to the promise of infinite market expansion. Once digitalisation and neuroscience are linked up with one another, they engender forms of stimulating consumption that become increasingly unavoidable.

The third illustration categorises dominant digital business models and the currently most important digital technologies with a view to the theoretically developed concept of the distributive forces and reveals the extent to which value realisation takes priority. Another aspect that becomes visible (in the true sense of the word) is that one company is the most adept at harnessing the power of the distributive forces: Amazon, as merchant capital 4.0, so to speak, represents a case apart. Although one may already suspect this, the distributive-force lens helps substantiate this more comprehensively.

Finally, the fourth illustration places the focus less on the companies than on labour in concrete terms. Proceeding from quantitative analyses, it demonstrates how the increased significance of the distributive forces is also reflected at the level of professions and jobs. In sum, all four empirical illustrations underscore that the hypothesis of the distributive forces offers a different and thus far neglected approach to understanding capitalism in its digital form.

The final chapter is more an outlook than a conclusion. Not least with regard to concepts and terminology, we shall unravel rather than tie up the matter: productive and distributive forces, relations of production and reproduction. From

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an ecological perspective, we raise the question about the role of digitalisation and especially of Artificial Intelligence. Subsequently, in the concluding ninth chapter, we then take a closer look—once again building on Marx and Polanyi—at the relations and forces of reproduction. Even during their respective eras, both Karls were already driven by concerns that also resonate in today's discourses on digitalisation, namely that a certain application of technology paired with a certain economic logic has not only productive outcomes, but also and inevitably destructive ones: in Polanyi's work, this pertains to damages to the substance (that is, the 'human and natural substance of society'), in Marx, to the existing relations of production which—and his analysis should not be reduced in this way—are not only linked to the exploitation of human labour and natural resources, but prevent human and social development from attaining its full potential. To conclude, we shall discuss the dangers that the development of the distributive forces hold for the reproduction of mankind, society and nature, raising the question—with a view to the more recent variants of digitalisation: Artificial Intelligence and Machine Learning—whether digitalisation can be used in a way that prevents it from becoming a force of destruction even in distributive-force capitalism.

One day in the strange year that was 2020, during the long periods of working from home that were forced upon us by the pandemic, yet also greatly welcomed as it gave me an opportunity to focus on this book, my gaze shifted from endlessly staring at my screen to actually looking out the window. At that very moment, I was able to witness first-hand how an (analogue, not digital) advertising column[10]—an aged means of distribution—was literally skinned. I must admit, I had never given any thought to how the many layers of advertising posters are taken down from these columns. After a while, the column itself becomes so enveloped in posters and wallpaper adhesive, which, soaked in rain and bleached by the sun, turn into a solid mass. Of course, if the column is to continue to serve its purpose, these layers must be removed at some point. At that moment I was able to observe two workers cut the thick paper cylinder open lengthways using a saw. They widened the radius of the broken-up cylinder through cumbersome, repeated pulling and stretching—quite noticeably hard physical work—until the column itself became visible again. The mighty hardened reel lying on the pavement was so large and heavy that it had to be cut into smaller pieces with a chain saw like a

10 The advertising column has existed since 1855 (see Reichwein 1980) and continues to enjoy great popularity as a 'learned' medium. There are still tens of thousands of them in German cities (see FAW 2005), albeit long outnumbered and optically marginalised by (Digital) Out-of-Home advertising ((D)OOH), i.e. advertisement via different digital formats in public spaces such as billboards, video displays and posts, and public transport TVs or info screens. In Germany, more than 100,000 such devices have been installed in public spaces, with budgets for individual ad campaigns ranging from one to ten million euros (see FAW 2020). Furthermore, OOH is believed to be the third fastest-growing advertising market (Warner 2020: 490).

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felled tree. In the end, the advertising column was as good as new and free to be once again plastered with ad posters until this procedure has to be repeated—or the column is replaced by a digital version.

As is the case with most comparisons, this one may be a bit clumsy, and yet it seems quite fitting in two regards with a view to the distributive forces and digital capitalism, i.e. the central subjects of this book: firstly, when considering the development from the old advertising column to comprehensive digital out-of-home (DOOH) campaigns, we see a formidable empirical example of the evolution of the forces of distribution. Secondly, the costly process of column-skinning provides a metaphor for that which we are analysing in this book, namely the novel feature of digital capitalism: the distributive forces.

Sticking with the column metaphor, what is occurring today is that a new layer of posters is being employed, filled with louder, more colourful and, finally, digital content. The basis, however, i.e. the column, or the capitalist logic, remains. And yet, as a phenomenon, it is changing almost beyond recognition. The productive forces are not replaced by the distributive forces. That is not the hypothesis (after all, logic would not permit as much, given that the latter is an element of the former). Hence, the question is not when or if the analogue advertising column, and thus the job of putting up and removing advertising posters, are universally replaced by DOOH devices. It is about much more. For the initial question was not 'What does digitalisation turn capitalism into?' but 'Which of capitalism's mechanisms are reinforced, enhanced and shifted (and why)—and what is the role of digitalisation in this process?' This is where the digital replacement of the column gets interesting, as, on the one hand, it allows for an infinite increase in the frequency of alternating ads while the related circulation costs can be reduced to a minimum in the long run. On the other hand, the costs are likely to rise because more advertising firms are now needed in order to recoup the funds spent on the digital version. Moreover, the management of omni-channel client projects that incorporate one individual advertising column into an entire marketing strategy requires new skills and qualifications. This surely entails much higher costs compared to charges for printed poster designs and for their placement and removal. Then competition comes into play. All of a sudden, the bus stop next to the advertising column also becomes a DOOH, while the advertising effect of the column—which is difficult to ascertain in the first place—is diminished.

This individual advertising column is thus not only a tool for market expansion and enhancing consumption, but it actually creates more, new justifications for even more market expansion and an even greater number of ways to encourage consumption. It may do so with an uncertain outcome for the company involved—despite all impact assessments—but, at any rate, with a social and ecological footprint. This is where the whole dilemma of digitally enhanced distributive-force capitalism comes into view.

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2. Digital Capitalism Revisited—again?

The term digital capitalism is anything but new: I seek neither to stake a claim to nor to reinvent it. It is simply well suited to the analysis I present in this book, namely of capitalism in the age of digitalisation. Yet my objective is not to characterise capitalism as digital or expose digitalisation as ultimately capitalist in nature. Both are trivial, and both have often been done. Back in 1998 when I was writing my master's thesis on Internet-related work, which focused specifically on the example of information broking, Dan Schiller's book *Digital Capitalism* had not yet been published. At the time, it was already quite common to use certain adjectives or nouns with 'capitalism' and/or 'society' to describe what we now call digitalisation. It began with the 'information society' (Crawford 1983) that has been discussed since the early 1970s, then there was mention of the 'network society' (Castells 2000) and now the currently en vogue term is 'surveillance capitalism' (Zuboff 2019). I will, however, refrain from referencing all such diagnoses that have appeared on the world stage ever since the emergence of the Internet, engaging with the new technology from various perspectives. That said, the critical engagement with other approaches does help clarify—for oneself and for those readers looking to engage—what one's own approach seeks to and can accomplish and what it does not and cannot. In pursuit of this objective, I intentionally limit myself here to a specific selection: to begin, it is certainly worth briefly considering the work of Dan Schiller, the author who coined the term 'digital capitalism' (Chapter 2.1). One could argue that is in fact necessary to examine the original text, as Schiller shares the fate of many other authors: although his term is frequently referenced, his central reflections are presented in a reductionist or even altogether distorted manner. Dan Schiller is an American historian of economics and technology whose perspective links information and communications technologies with geopolitics. His book on *Digital Capitalism* (1999) was one of the first to present an in-depth study of the Internet, which at the time was still in its infancy, from a political-economic perspective while situating it historically and, moreover, systematically conceiving of market relations and (technological)

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networks as one. Apart from this initial diagnosis, I have selected two books to frame my own analysis:[1]

- Dan Schiller's second major examination of digital technologies and capitalism (2014) that appeared about 15 years later and links up current developments in the digital economy with the experience of the 2007/08 financial crisis. In this analysis, he remains true to his original—historical and geopolitical—perspective on digital capitalism. Due to their analytical overlap, I highly recommend reading both books together.
- Michael Betancourt, who is also from the United States, has a disciplinary background in critical theory and film and media criticism. His analysis appears to proceed seamlessly from Dan Schiller, as the book title promises both a critique of digital capitalism and a political-economic analysis of digital culture and technology (Betancourt 2015). However, despite some obvious parallels, Betancourt does not mention Dan Schiller once in his book. Much like Schiller's work, his book—a collection of essays—draws multiple comparisons with the world of finance.

Both analyses date back only a few years, i.e. they describe the more recent development of digital capitalism. Furthermore, they adopt a perspective that is unmistakeably critical of capitalism, while the term 'digital capitalism' features explicitly and takes centre stage. Another common feature is that both studies make a broader diagnostic claim—i.e. they point out connections and lines of development that go far beyond a narrow understanding of the information economy or technological development. Besides these commonalities, it is the disciplinary differences and thus distinct centres of gravity in the analyses, in particular, which allow for an overall inspiring—and generally broader—view of digital capitalism.[2]

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1 The issues discussed in this book are complex. Political-economic analyses require a precise use of language. Wherever possible, I shall do my best to achieve just that (and probably also fail repeatedly in the process). Experience has taught me that this is not always easy, particularly when analysing digital capitalism, as the arguments in the literature are not always put forward as precisely as one would hope. There are two reasons for this: firstly, 'the Digital' and 'the Immaterial' often tempt authors into using metaphors that do little to clarify the matter in question, and at times even cause (additional) confusion. Secondly, when authors speak of capitalism, they often make reference to Marx, yet his concepts are frequently used in an insufficiently precise way, which is not always conducive to a clarifying analysis.

2 Some readers may assume that the difference in age between the two authors might have an influence: after all, Dan Schiller completed his PhD when Michael Betancourt was still in primary school. It is true that the narrative that *digital natives* (i.e. those born into a digital world) and *digital immigrants* (who acquire digital knowledge and experience as adults) experience and use the

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Nonetheless, I will limit myself to three thematic complexes that are particularly fruitful for my subsequent argument. Both authors address all of these thematic areas, in part exhibiting substantial overlaps and conceptual and terminological proximity to one another, but also some major differences.

(1) Dynamic—Transformation—Actors (Chapter 2.2). The questions in this sub-chapter essentially include: what is happening and what is the underlying dynamic? In other words, how dramatic or revolutionary, or how gradual or evolutionary, is the development assessed by each author? Are we dealing with a fundamental transformation *within* or *of* capitalism? Which fields and actors do the two authors focus on specifically?

(2) *Immateriality—Labour—Value* (Chapter 2.3). Here, the question of 'Why' takes centre stage. How do the two authors account for the ongoing changes? *Where*, or *in what*, do they see the initial impetus for what they consider to be the real novelty about digital capitalism? What phenomena do they base their assumptions on? Why does the Immaterial fundamentally change central elements of the economy, namely labour and value?

(3) *Scarcity—Superabundance—Crisis* (Chapter 2.4). What is the economic driving belt of it all that can be explained *within* and *through* the capitalist logic? Does this level pertain to causes or effects? What kind of interplay between the Digital and the economic sphere do the authors describe?

Proceeding from Dan Schiller and Michael Betancourt, then, we pursue the following questions: what is changing? Why and how is this discernible? What is cause and what is effect? In other words, we shall work our way backward from the phenomena to the underlying driving dynamic. After all, the first two central thematic areas are essentially dealt with in all diagnoses of contemporary phenomena that describe digitalisation or 'Industry 4.0' in some way or another. In most cases, technological change or the Digital as such is identified as the main driver, exempting one from having to seek any other causes. Our two authors, of course, do not stop there. Whoever proclaims digital capitalism and adopts a political-economic perspective generally assumes the causes or consequences to lie elsewhere and, more importantly, deeper. The economy becomes more than just the field in which businesses deal with digitalisation and workers are replaced by robots. And politics is no longer merely an authority imposing or phasing out regulations. Correspondingly, as we shall see, in the first and second thematic areas, Schiller and Betancourt certainly parallel many other interpretative approaches to current developments that offer no critique of capitalism whatsoever. The more

Internet in very different ways persists. However, the odd biographical marginal note aside, such differences in age are not recognisable in the respective analyses. This does not come as a real surprise given the host of empirical evidence that the *digital natives/digital immigrants* contradistinction in terms of age or cohort cannot be substantiated (see Thomas 2011).

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political-economic perspective of both authors, then, becomes more pronounced, especially in the third thematic area.

2.1 Dan Schiller and the emergence of digital capitalism

Dan Schiller (1999) coined the term 'digital capitalism' quite early. In retrospect, he explained that he chose this term because capital remains the centre of the political economy even in the digital world—even though the market system first had to be adjusted in order "to accept a profitable information-intensive orientation" (Schiller 2011: 925). And he added: "This remains true today." Against the backdrop of the 2007/08 crisis, he asserted, the theory of digital capitalism had to inquire as to how the economy's increasing dependence on communication and information was linked to this particular crisis. What role could communication and information play in overcoming this dependence through a reorganisation of the global market system (see ibid.)?

In Dan Schiller's view, the Internet did not simply emerge as a consequence of technological development. Instead, he pinpoints the architects of digital capitalism for whom the Internet was no more than the technical key to the proverbial door through which they wanted to pass. The goal was "to develop an economy-wide network that can support an ever-growing range of intra- and intercorporate business processes. This objective encompasses everything from production scheduling and product engineering to accounting, advertising, banking, and training." (Schiller 1999: 1) This refers to all business processes within and between different companies, ranging from production to advertising, all of which were to be linked to one another. In debates on digitalisation, be it about 'Industry 4.0' or, as is currently the case, AI or blockchain, this vision is invoked time and again—both by its advocates and its critics, framed by new technological conditions and including new political and economic players (particularly in China).[3] Schiller reconstructs the evolution of this economy-spanning network from the 1950s onward, emphasising that this process did not reach its conclusion after the first decisive step—the commercialisation of the Internet in the mid-1990s—was completed, but really only gathered pace from that point on. Ever since, every new technological innovation in what Schiller calls the 'cyberspace' has been harnessed in the service of the realisation and optimisation of this goal, i.e. its economic use. So, this initial passage alone already proves that he is serious about the subtitle of his book: his objective is to describe a new form or stage of global capitalism. This

3 This can be shown, for example, with a view to the discourse put forward by international and clearly interest-driven actors in preparation of the ostensibly German debate around Industry 4.0 (see Pfeiffer 2017).

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essentially economic change makes use of technological developments—not the other way around. That is to say, it is not the technological innovations from which economic changes more or less inevitably emerge (although that, of course, also and increasingly does occur and can lead to mutual reinforcement).

The protagonists proactively pursuing the goal, as identified by Schiller, of a global network linking up all economic processes from the mid-1990s onward include computer and telecommunication companies as well as a number of transnational corporations. These actors were encouraged by the political precept "that corporate capital's ownership and control of networks should be put beyond dispute, even beyond discussion" (Schiller 1999: 1). Networks and thus the actual communications infrastructure were to be transferred from public to private ownership. Furthermore, the processes as such should even cease to be a matter of social or political debate.

During the 1990s, then, the top item on the agenda was no less than "a top-to-bottom overhaul of worldwide telecommunications" (ibid.: 2). This top-to-bottom overhaul became possible, on the one hand, because the corresponding network was expanded on an unprecedented scale. On the other hand, politicians followed a neoliberal strategy and governments around the world agreed to hand over the critical infrastructure of telecommunications from public ownership to the free market: "Policy makers of the world over simultaneously abandoned public-service policies for market-driven tenets […]. National welfarist controls over this critical infrastructure dropped away […]." (ibid.) This step had been prepared well in advance ever since the 1950s and occurred transnationally in an almost synchronous manner (see ibid.: 2–7).

Schiller considers corporations and the neoliberal motivated political strategy of privatising telecommunications as two particularly relevant factors in the emergence of digital capitalism. However, he also notes two other aspects of the Internet's founding story which at first glance have nothing to do with the market as innovator. Firstly, he points to the original commissioning parties: "The Internet's emergence had nothing to do with free-market forces and everything to do with the Cold War military-industrial complex." (ibid.: 8) To some readers, that last sentence may invoke the suspicion, omnipresent as it is these days, of conspiracy theory. Yet Schiller quite literally means what he says here, providing ample evidence for his argument. The Internet's precursor—the Arpanet—was developed under the auspices of the US Department of Defense, which also remained in exclusive control of all technical data during the first years. The Arpanet linked independent computers with one another and was already based on the same technology that is still fundamental to the Internet today: the partition of data into small packages, which can be transmitted via different network paths and reassembled at their destination. This way, data flows are preserved even if individual network nodes break down. This fundamental idea of technological decen-

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tralisation coupled with the long maintained yet today factually obsolete promise of net neutrality (i.e. the ideal of neutrally processing these small data packages independently of their content, sender or recipient) has fuelled an Internet optimism time and again, in the sense that democracy, participation and equality are, so to speak, structurally inherent in the Internet. Yet this hope has been repeatedly dashed. As early as 1999, Schiller exposed the notion that the Internet would act as a kind of social leveller as naïve: "Knowledge carried through the Internet is no less shaped by social forces than it is elsewhere." (Schiller 1999: xiv) In another instance, he refers to these social forces shaping knowledge as "the age-old scourges of the market system: inequality and domination" (ibid.: 209). Hence, the all too familiar plagues of the market—social inequality and domination—have influenced the Internet from the outset as well.

The second key aspect relevant to the Internet's founding story that Schiller refers to—and which initially had nothing to do with the market—is the basic underlying technology of the Internet that was freely accessible and available to everyone (and, in fact, still largely is), even though its use was effectively limited to universities and the military at the time (see ibid.: 9). Years—or rather decades—later, Mariana Mazzucato (2015) picks up on this observation and once again debunks the myth of the free market as a driver of innovation (Chapter 3). Schiller subsequently describes, in great detail and using what were at the time very impressive figures, the optimisation and acceleration in production and the expansion and increase in e-commerce that was initiated—on this technological basis and with regard to the commercialisation of the Internet—in the market during the 1990s (see 1999: 9–36).

The fact that the Internet was subjected to an expansive market logic represented a great step forward for the economy in establishing an "epic transnationalization" (ibid.: xiv). In this sense, the Internet catalysed "an epochal political-economic transition". This transition to digital capitalism, according to Schiller, was to have rather unfavourable consequences for the majority of the population (see ibid.: xvii). The Internet was (and is) thus not simply a passive instrument in the hands of capital, but rather turned into—Schumpeter sends his regards!—a 'hurricane of destructive creativity' within neoliberal structures, drawing on the productive base and the structures of control of emergent digital capitalism (ibid.: 37).

As described previously, Schiller also considers which exact elements of the productive processes should be connected via the Internet, e.g. accounting, advertising. For the most part, however, he merely describes these free-market strategies and the network logic of the Internet and leaves the question as to why they go together so well largely unanswered. In one instance, he does make reference to the issue we seek to better and more thoroughly understand here, namely the role and significance of distribution. In his view, the latter becomes a crucial factor: "Control over distribution often creates a vital avenue to market power."

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(ibid.: 97). The question of why this is key to understanding digital capitalism is the focus of the central reflections in this book and will therefore be of decisive interest to us in the following (Chapters 5 to 7).

2.2 Dynamic—Transformation—Actors

Some 15 years after his first book on the subject, Dan Schiller (2014) embarked on a renewed assessment of the development of capitalism in the digital era. His objective in doing so was not to carry out an updated review on changes in the technological landscape; rather, his analysis occurred against the backdrop of the noticeable impacts of the 2007/08 financial crisis, which is already reflected in the book's title. He no longer speaks of *digital capitalism*, but of the *Digital Depression*, a term he conceives exclusively in economic terms.[4]

He recalls that this crisis, quite paradoxically, originated in the United States, the "heartland of advanced communications technology" (ibid.: 1), which he finds all the more astounding given that, for decades, digital technologies[5] in particular were said to hold significant potential for economic growth. This was argued by theories ranging from those of 1960s post-industrialism to the promise of the information society in the 1990s and is still being put forward today. In his introduction, Schiller draws some parallels with the economic crisis of 1929 (and the subsequent Great Depression) and briefly presents a number of authors along with their interpretations of the current crisis. He asserts that all explanations have one thing in common: they all fail to take into account what Schiller refers to as a "contradictory matrix" of technological revolution and capitalist stagnation. This "contradictory matrix" interprets highly diverse theories (liberal or radical) equally as a rupture in the history of capitalism. Yet all of these authors pay too little attention to the role of digital technologies: "They neglect, belittle, or simply abstract away from ICTs' economic role." (ibid.: 4) Schiller's own theory of digital

4 Unfortunately, there is increasingly concerning evidence of the impact of the Digital on depression as a psychiatric diagnosis: depression, anxiety disorders and suicides have been increasing on an unprecedented scale, particularly among young people. For example, the number of suicides among female adolescents in the United States has doubled over the past decade, while adolescents exhibit almost double the rate of depression (22 per cent) than can be found among adults (see Ghaemi 2020). One may object that there are many very rational reasons—from the impact of the Anthropocene to social inequality—for the young generation to look anxiously to the future. However, the study, firstly, does not deal with legitimate concerns, but with pathologically manifested symptoms and, secondly, provides evidence of an unequivocal causal relationship between digital consumption and the diagnosis of depression.

5 Schiller continues to use the abbreviation ICT, meaning Information and Communication Technologies.

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capitalism, by contrast, is characterised—even in its initial version—by its analysis of digital technologies as the pivotal aspect of a constantly evolving capitalist political economy (see ibid.: 4). By doing so, he refrains from overemphasising the Digital and its role for the development of current capitalism. Instead, Schiller seeks to demonstrate that *US capital* and the *US state* (not to be confused with simply *the* United States) represent the crucial actors and most important factors in the emergence of digital capitalism (see ibid.: 6).

In other words, Schiller illustrates how the powerful actors of 'old' industrial capitalism use the digital option to enable and shape a new form of capitalism. Here, the Digital is a consciously employed tool, not the initial driver. Even though he proceeds from his 1999 analysis, he offers some self-criticism, too. Given the current developments, he explains, the need for a revision of his earlier concept of digital capitalism developed in the late 1990s is undoubtedly necessary. After all: "Our epoch is marked not by expansion but by contraction, not by stasis but by dizzying structural change." (ibid.: 6) According to Schiller, the close and systematic connection with the financial crisis is essential, for the technological revolution is "wrapped up inside an economic collapse" (ibid.), or, as he puts it elsewhere: the role of digital technologies must be sought "*within* the political economy's chief developmental processes" (ibid.: 7). Here, again, he considers the analysis of general economic development to take priority over that of digital development.

Schiller's objective is thus to discern the process as such as contradictory instead of understanding contradictions merely as a consequence of otherwise largely stringent developments: in each new stage of capitalism, the concomitantly emerging new possibilities of capital formation inevitably trigger the next crisis, or, as Schiller puts it: "As regeneration takes hold, the seeds of a subsequent crisis are planted deep in the political economy." (ibid.: 7) In his current diagnosis, Schiller once again adopts a geopolitical perspective and specifically addresses government action—from ICANN[6] to NSA (see ibid.: 151–246). He elucidates, in great detail, the political aspect of the term political economy and the role of the state in particular. He meticulously traces the significance of regulatory measures and strategies regarding the market, ranging from the privatisa-

6 ICANN stands for 'Internet Corporation for Assigned Names and Numbers', a non-profit organisation founded in the United States in 1998 that is in charge of essential coordination and protocol-related tasks, such as the allocation of one-time IP addresses. Apart from the, initially, purely technical questions, geopolitical and economic interests also play an increasingly important role in this context. This has been the subject of countless studies—particularly in political science. A more recent study was published by Carol Glen (2017). She demonstrates how closely the technological infrastructure (e.g. physical networks or providers), technical standards (such as protocols, interoperability and WWW standards) and resource allocation (e.g. naming) are related to questions of security, private ownership and copyright, human rights and economic development (ibid.: 6).

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tion of the old telecommunications network to the cap on roaming fees within the EU implemented in 2011, the latter of which occurred in response to a decrease in telecommunications spending in those southern European countries more heavily affected by unemployment (see ibid.: 27–42). Schiller presents numerous examples to illustrate the close interlinkage of the private digital economy and parliaments, government authorities and secret services (particularly in the US) that both sides continue to maintain and expand. For example, the certification of Amazon's Web Services cloud service by the General Service Administration in 2010 has made it possible for numerous US government authorities to use it for data hosting (see ibid.: 173). Likewise, as he did in his first analysis, Schiller very attentively considers the close relationship between the military and the digital economy (see ibid.: 57–72).

The overall direction of Dan Schiller's analysis thus differs quite markedly from most other authors engaging with digital capitalism. Whether it is Michael Betancourt, Jeremy Rifkin or Paul Mason, each of the digital capitalism narratives put forward by these scholars starts off with the changes resulting from digitalisation, which lead to the immateriality of production, including phenomena of scarcity and superabundance—depending on the respective vantage point—which are then defined as new. All of these readings culminate in the notion of an altered type of capitalism (in which the state and capital supposedly act very differently than in the past). By contrast, the focal point that Schiller chooses to illustrate the actual changes is capitalism and the—or, if you will, 'its'—state (from a geopolitical perspective, the US state in particular). The main actors harnessing the Digital to their own end are hence the same ones who have dominated (economic and political) structures all along. His narrative is one of an inherently contradictory development leading to new contradictions. In Schiller's view, capitalism's susceptibility to crisis is inevitable, as it is inherent in the system. Correspondingly, Schiller's main focus lies not on the question of how disruptive (or not) the development really is: his analysis of the 'digital depression' instead describes current developments as a continuation of 'digital capitalism' that can be explained in political-economic terms—in part with unchanging actors (the state and the—respective—economic elites), who, however, act differently and in new ways under altered digital conditions and in an altered (but not fundamentally transformed) geopolitical context.

At first glance, Michael Betancourt's perspective appears similar. In his view, the development of digital capitalism requires "not a hard break with the established interpretations so much as a fundamental modification to address immaterialism" (Betancourt 2015: 217). To him, the reason for this is not related to the economic core, i.e. the capitalist dynamics are not decisive. Rather, it is immateriality, emerging over the course of digitalisation, that causes new dynamics within capitalism. Here, right in the nature of the Immaterial, is where he sees

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the real novelty (his central reflections on the Immaterial and its significance shall be addressed in more detail in Chapter 2.3).

The critical approach to the media inherent in the author's perspective becomes particularly tangible when he classifies digital capitalism as an affective form of capitalism given that it pursues its objectives through affective techniques. However, he considers "capitalism systemically based on the production and maintenance of ignorance" (ibid.: 207) a more accurate label (although to him, the label itself is '*agnotologic* capitalism' (ibid.).[7] According to Betancourt, systematically produced ignorance enables new investment bubbles to emerge again and again in endless continuation (see ibid.). In his view, the economy as a whole—including the United States' Federal Reserve System—follows the logic of a Ponzi scheme. The latter is based on fraudulent investments that are made in good faith in the promise of returns guaranteed (only on paper) and in return for confidence-building partial pay-outs of sham returns. When a large number of investors simultaneously demand their money back, the system collapses. Betancourt examines the significance of the world of finance, speculative bubbles and of cryptocurrencies as the digital phenomenon thereof. To him, these constitute the levels that are relevant when describing digital capitalism in its current form (more on this in Chapter 2.4).

Despite the many parallels, Michael Betancourt's analytical lens does differ from that of Dan Schiller. Betancourt fails to even consider how disruptive or evolutionary the development really is: the current development must necessarily lead to a speculative bubble that can no longer be mitigated in a controlled manner but bursts with an almighty bang, inevitably harming the economy and society. The acting protagonists are difficult to discern: in Betancourt's text, it is 'the system' that acts, 'capitalism', 'the financial market', 'the Ponzi scheme'. In contrast to Dan Schiller, however, Betancourt does not consider the state a strategic actor. He mentions only the US Federal Reserve, although he rather views it as a token of digital capitalism, given that it plays a part in—perhaps not causing, but—significantly inflating the speculative bubble. Digital immateriality and the scarcity of capital essentially constitute the themes of Betancourt's analysis, while he considers questions about actors and development dynamics to be mere consequences of the former two aspects. We shall take a closer look at both in the following two sections (Chapters 2.3 and 2.4). Given that he does not explicitly engage with Dan

7 Betancourt references Robert N. Proctor, who coined the term 'agnotology' and distinguishes between three forms of ignorance: ignorance as a state to be overcome and thus as a resource and challenge for science; ignorance as a lost realm and the result of selectivity; and ignorance as a conscious and strategic construct (see Proctor 2008: 4–35). His collection of essays by different authors contains contributions that address the various manifestations of agnotology in areas as diverse as modern censorship, the female orgasm and smoking.

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Schiller's analysis, the essence of his contributions to this key thematic area has thus been conclusively presented.

To Schiller, the state purposely relinquishes its control over the Internet as a strategic enabler of digital capitalism. By commercialising the Internet, the state ultimately pursues what Schiller refers to in the book's subtitle and what constitutes the central idea of his analyses: *Networking the Global Market System*. One need not agree with this hypothesis, but Schiller at least offers a theory—one that helps explain the state's actions and illustrates the link between the drive to geopolitical hegemony and global capitalism.

In his study of capitalism, World Bank economist Branko Milanović points to a more important aspect in this regard. He describes present-day capitalism as a globally evenly prevailing economic system and makes explicit reference to Marx's theorem of economic base and political-legal superstructure: according to Milanović, both are "well aligned" globally today (Milanović 2019: 3).[8] Like Schiller, Milanović is not interested in the United States' or China's relative position of power, but in the competition between two varieties of capitalism which the two countries generally embody: Milanović distinguishes between liberal, meritocratic, Western capitalism on one side (see ibid.: 12–66) and political, authoritarian, Asian state capitalism on the other. With regard to the latter, he refers not only to China, but also to other Asian as well as a number of Caucasian and African countries (see ibid.: 67–128). Milanović reconstructs the historical emergence of both varieties of capitalism.

2.3 Immateriality—Labour—Value

The special significance of the Immaterial ultimately inspires all diagnoses concerning the Internet and the Digital. In other words, the notion that the immateriality of the Digital changes everything is widespread. We may therefore refrain from elaborating on the vast body of literature that is based on this fundamental observation. From Manuel Castells (2000), Michael Hardt and Antonio Negri

8 This allowed the dominance of capitalism to be maintained. The question is not so much whether an individual state loses out to or partners successfully with the Digital at the national level. One could perhaps say, in this perspective, the state and capitalism act in unison, albeit not necessarily at—and certainly not limited to—the national level. The second consequence of a globally uncontested capitalism is far more momentous in Milanović's view, as it entails the homogenisation of people's actions and thoughts: not only the aims of people in different countries, social strata and cultures would objectively become more compatible, but communication of that one goal that overshadows all others would thereby become clearer and simpler: "We live in a world where everybody follows the same rules and understands the same language of profit-making." (Milanović 2019: 3)

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(2000) and Scott Lash (2002) to Paul Mason (2016) and Jeremy Rifkin (2014)—and this list could be endlessly continued—the central argument for the proclaimed novelty is essentially the distinction between material and immaterial products, from which the transition from an old industrial world to a new society and/or economy is then deduced.

Generally, the significance of infrastructures is increasingly coming into view once again—evidenced not only by the dramatic scandals surrounding the supply of drinking water in Detroit and Flint in the US, the road network in Peru or the energy grid in Vietnam (see Anand et al. 2018), but also manifested in the erosion of their function as 'services of the social order' in such distinct contexts as rural villages and academia (see Barlösius 2019). However, the number of studies that address the (re-)discovery of the physical dimension and of material infrastructures, including in relation to the digital world, remains rather scant. Ursula Huws, for example, argues quite early on against the notion of a "weightless economy" (see Huws 1999), while Jean-François Blanchette (2011) shows that bits are equally unable to escape the material limitations of the devices on which they are modified, stored and exchanged. Eventually, Andrew Blum (2012)—quite shaken by the personal experience of learning that the Internet is a "thing" that is not safe from a squirrel's appetite for nibbling at cables—set out to search for the actual "tubes" of the Internet and indeed managed to find them. Benjamin Bratton (2016), proceeding from a perspective closely oriented towards physical materiality as well, develops his philosophically inspiring concept of *The Stack*: a global mega-structure connecting computer systems and material levels so that the six central layers (*earth*, *cloud*, *city*, *address*, *interface* and *user*), as a physiological-virtual overarching structure, supersede other forms of human dominance and sovereignty, rendering them superfluous. Finally, Kate Crawford and Vladan Joler (2018) meticulously lay out, taking the Amazon Echo and the Artificial Intelligence it uses as an example, how much material (such as rare earths) and human labour are needed before a small box can become a seemingly natural part of our everyday communication as a matter of course.

Similarly, Dan Schiller (2014) also noticeably bucks the trend of all those diagnoses whose claims are based, above all, on the significance of the Immaterial: he takes the Internet and thus digitalisation as a whole seriously, seeing it as a technological structure instead of losing himself in the metaphor of the Immaterial. In fact, his approach essentially sees the physical dimension as the central analytical access point. Much like in his first book (Schiller 1999; see Chapter 2.1), he emphasises the fact that the actual infrastructure of the Internet is just as physical as railway or telephone lines. Moreover, he takes 'commodity chains' into consideration,

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which continue to be largely material as well (see 2014: 27–42).[9] A third level of the physical dimension central to his line of argument is hardware, which essentially does not feature in Betancourt's investigation. Schiller also includes hardware innovations in his analysis. For example, he proves one of his central claims by reference to leaps in innovation concerning the quality of screens, namely that technological innovation is unable to combat capitalism's fundamental crisis factor: overproduction. Correspondingly, he reminds us, an oversupply of TVs using LCD or LED technology arose fairly quickly, as ever more films were watched on other digital devices, a circumstance that could not be changed by innovations towards 3D or UltraHD (see ibid.: 45). We could almost say that Schiller always approaches the Immaterial—the significance of which, in the form of data, he, of course, does not deny—from its material basis, as he does when addressing the overwhelming success of Apple's iPhone. He describes how the previously existing commodity chains of mobile services were "massively disrupted": in the course of the phenomenal proliferation of smartphones and tablets, data replaced language as the mainstay of mobile services (see ibid.: 39). When emphasising the physical dimension, Schiller's aim is not to somehow romantically salvage it, but to point out that this physical reality is highly relevant and contested both in terms of power politics and economically. Schiller sees one indication of the economic significance of this infrastructure in the fact that the European telecommunications providers were willing to increase their debt to 272 billion euros during the 4G spectrum auctions in 2012—even though (or, rather, because) 'by this time, of course, the digital depression had struck' (2014, p. 42).

So, while Dan Schiller insistently stresses the materiality of the Digital, the fascination with the Immaterial represents a guiding theme in Michael Betancourt's book. The latter draws on the concept of 'aura' and takes up Walter Benjamin's central notion thereof, namely, according to Betancourt, that technological changes can lead to historical loss (see Betancourt 2015: 39). In doing so, Betancourt makes reference to *The Work of Art in the Age of Mechanical Reproduction* (Benjamin 2019; German original in 1935). To put it in very simple terms, Walter Benjamin states in his essay that a work of art suffers a certain loss when it is mass-reproduced by machines. The reason is that its perception is thereby also mass-reproduced, as a result of which the perception, or the experience of the original piece of art, is

9 Here, Dan Schiller draws on the 'global commodity chains' approach developed by Hopkins and Wallerstein (1986). The two authors proceed in their analysis from the sold product and reconstruct the global upstream commodity chains. Taking ships and wheat flour as an example, they demonstrate that the production activities related to these goods were already part of a global network as early as the period between 1590 and 1790. Schiller thus distances himself from the 'value chains' approach that is certainly far better known today (see Porter 1985).

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ultimately stripped of its singularity and distinctiveness. Walter Benjamin uses the concept of 'aura' to denote this particularity that is lost in mass reproduction.

While Walter Benjamin, at least in my opinion, strongly refers to the act of sensuous perception of the original in contrast to the perception of that which is mass-reproduced, Betancourt transfers this contrasting juxtaposition to the comparison of the original with the reproduced object. However, this represents a fundamental shift of viewpoint and inevitably raises the question as to whether Benjamin would agree with such a reading. This is all the more true given that many people may associate 'aura' with esotericism rather than with Walter Benjamin. Hence, it is not immediately obvious why Betancourt arrives at an economic—instead of, say, a more cultural—critique of digital capitalism (or even cultural pessimism) when proceeding from this hypothesis. After all, he is ultimately concerned with something much simpler, which makes bridging the gap with the economic sphere much more comprehensible than Benjamin's concept of aura: Betancourt seeks to prove that physical objects "always have an implicit limit on their availability", whereas digital objects are subject to no such limitation (see Betancourt 2015: 41). That is to say, his aim is not to compare the perception of the original with the perception of its reproduction, as Benjamin does, nor to capture the difference between the original itself and the (mass) reproduction: "The distinction between physical objects and digital objects is absolute." (ibid.: 43)

If, however, immateriality is the substantial precondition for the emergence of digital capitalism, the question remains as to how and why digital business models also become relevant for necessarily material products. Secondly, and closely related to the first question: is the immateriality and the possibility of copying and scaling these products at will really the initial and basic precondition for GAFAM and the like? The answer is not that simple: Google's and Facebook's actual products—their advertising earnings—may be immaterial, and there is no question that the market is artificially restricted due to the exclusivity of access and the non-transparency of algorithms. Yet this consequence is not exclusive to the Immaterial, but applies to advertising in general—both online and on good old advertising columns. If an infinite number of advertising columns were installed (entailing only a one-off cost, albeit a substantial one), the value of an advertising poster would be hugely diminished, as the individual ads would drown in the sea of posters competing for consumers' attention (we shall return to the relevance of advertising and marketing at a later point; see Chapter 6.1). In the case of Amazon, we are not even dealing with immaterial products, but the opposite: the goods that are traded here—with the exception of, say, e-books and audio books—are, for the most part, material products. Moreover, Amazon uses knowledge on consumer behaviour, among other things, to sell particularly successful material products via its own website. Similarly, material products remain crucial for Apple. Despite the Appstore, Arcade, Apple TV and all the rest, Apple may have invented a stan-

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dard variant of proprietary markets and thus opened access to a worldwide market for the actual producers of immaterial products—from the individual software developer in Kaiserslautern to the app programmer in Kazakhstan. And yet, none of this would be conceivable without pioneering innovations in hardware. We shall analyse these different business models (Chapter 8.3) and the categories for distinguishing them (Chapter 6) in more detail.

So far, we can summarise that while Dan Schiller emphasises the materiality of the Digital, Michael Betancourt sees the real novelty in the Immaterial. The latter is characterised not by the absence of materiality, but by the fact that the Immaterial is infinitely available at no cost—in contrast to the physical, material product, which is regarded as limited and the production of which, moreover, inevitably produces costs. We shall ignore the interesting fact that both authors exclusively refer to products. Processes or services are left unconsidered, as broader scrutiny would likely cause the conclusiveness of their arguments. The contrasting pairs (material vs. immaterial, industrial vs. digital capitalism, limitation vs. limitlessness, costs vs. no costs) seem to follow a convincing logic as long as one remains at the product level. But what about the immaterial processes and services that were already around before the onset of digital capitalism? Is there any kind of fundamental shift in this regard when industrial capitalism turns into digital capitalism? Both authors leave these questions unanswered. Yet only by accepting this blind spot, by maintaining the juxtaposition tied to the product itself, can the Immaterial be identified as something fundamentally new and as the initial impetus for digital capitalism. This raises questions about the implications of the Immaterial for labour and the creation of value.

Seeing as Dan Schiller's analysis focuses primarily on the macro-economic and (geo-)political dimensions of digital capitalism, he hardly addresses the role of labour and the creation of value. To Michael Betancourt, by contrast, the technical potential of computer technologies obfuscates an aspect that is crucial to understanding digital capitalism: "[they] obscure the nexus of capital, human agency, social reproduction, and physical production"; in his view, this negation of the physical dimension is a specific feature of the "Aura of the Digital" (2015: iii–iv). Production is seemingly decoupled from human labour, and human labour is thus perceived as obsolete in the digital information economy, which in turn gives rise to the valorisation of social behaviour (see ibid.: iv). His main argument is that labour becomes less visible. Let us be clear, he does not say that it actually becomes obsolete, but that its significance becomes less obvious. Betancourt's reference to social behaviour can be explained by his focus on social media when examining digitalisation. Much like in Shoshana Zuboff's work (2019), he sees an increased economic relevance of online social behaviour. Betancourt labels the notion that the significance of labour is disappearing a "corrosive fantasy":

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> "In its place is a corrosive fantasy that digitality has opened up a magical realm beyond physical constraints, where the duality of production/consumption is resolved to allow growth without limit—the continual expansion of wealth—beyond the constraints of production, materiality, and labor." (Betancourt 2015: iv)

Betancourt thus draws a clear distinction between manual and intellectual activity, although his contradistinction is not entirely convincing. In his view, the manual element—physical action—is not entirely transferrable to a commodity, even though this illusion may be created time and again through automation, whereas intellectual labour does lend itself to such a transfer (see ibid.: 3). It is transformed into a modular commodity, valorised and eventually automated as a result of digitalisation, he contends (see ibid.: 2). We shall demonstrate at a later point that this is a major misunderstanding. Human activity as such is not converted into a commodity. Instead, there is a dialectically contradictory aspect inherent in the qualitative capacity of labour. The commodity is the labouring human, in the sense of a labour force on the labour market, regardless of whether their activity is manual or intellectual, whether they perform it in the context of industrial or digital capitalism. He or she produces—material or immaterial—commodities that are intended for the market (and not for society).

Furthermore, the one-sided way in which Betancourt depicts intellectual work is slightly disconcerting. In his view, it is "something of benefit to society as a whole" (ibid.) before it is transformed into immaterial and valorisable labour. Here, he entirely pretermits the fact that intellectual labour, no matter whether conceived as academic or as any other form of cognitive activity, hardly exists outside a valorisation context even in the absence of digitalisation. After all, a large share of this kind of labour serves precisely, and often exclusively, the optimisation of valorisation processes even in pre-digital capitalism. Conversely, Betancourt also walks right into the trap of equating productive labour with manual labour (the products of which seem to have no practical use for society) and then reducing his argument to the two binary extremes idealised beyond all recognition. Only a few pages later, it becomes obvious that this argument comes to nothing: Betancourt regards the fact that the same technologies that initially led to the offshoring of 'the knowledge worker's labour' now enable the automation of intellectual labour as a characteristic of digital capitalism (see ibid.: 3, 11). Furthermore: "Immaterial labor is inventing its own obsolescence through 'smart' digital automation for tasks previously requiring human thought *and* oversight." (ibid.: 17) This interpretation can be reversed as well, however, namely in terms of a formal similarity with production work in industrial capitalism. Here, the machines built by production workers also allow for the offshoring and automation of labour, thereby rendering the workers' labour obsolete. All the differences Betancourt implies between production and immaterial labour aside: in a some-

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what idiosyncratic class perspective that does not tie class antagonisms to ownership but to management and control, he considers the middle and lower classes to be in the same position: "[T]he middle class ('white collar') labor is no different than that of the 'blue collar' workers: both groups are directed by the upper classes who employ them." (ibid.: 10) Given that the contradistinction between production and intellectual (or immaterial) labour remains rather simplistic, it is hard to pinpoint where exactly Betancourt sees the manifestation of a changing relevance of human labour in digital capitalism. In contrast to Schiller, however, he at least addresses the topic of labour and noticeably makes an attempt at a political-economic interpretation (for example, in the form of borrowing from Marx's so-called *Fragment on Machines*, see ibid.: 21). Ultimately, however, Betancourt ends up leaving more questions unanswered.

This also applies to the question of the actual origin of value. Betancourt addresses value as exchange value without mentioning use value, the former's dialectical companion: "exchange value emerges from the relationship between one commodity and another—from the *exchange of a commodity for the acquisition of another*" (ibid.: 21; emphasis in the original). This sounds as if value does not accrue until this level of exchange relation is reached. If this were the case, labour as such (regardless of its specific type or under which form of capitalism) would have no part in generating value. And, correspondingly, this would mean that the cost-free and unlimited reproducibility of immaterial goods—which, as shown previously, represents a crucial feature of digital capitalism—would be irrelevant for the creation of value: the crucial condition would then simply be sufficient exchange on markets. That said, Betancourt subsequently does seem to suspect some—however vague—link between value and labour, when he writes: "[…] in capitalism this exchange devolves fundamentally to transfers of labor between different social strata where higher level values derive from the action of labor at lower levels in that same society." (ibid.: 33)

The decoupling of productive processes in the digital sphere, he contends, makes the Digital independent from the material base. However, as a result, the life and actions of humans as well as their social reproduction become a commodity instead of being regarded as central factors of production and consumption (see ibid.: ix). Interestingly, Betancourt considers this to be a consequence of the Digital and thus a characteristic feature of digital capitalism, which he in turn envisages as the starting point for a political-economic analysis. Marx, by contrast, in his *Critique of Political Economy*, regards precisely the latter as a fundamentally characteristic feature of capitalism: everything is turned into a commodity, including human relations.

In the context of social media, in which the "transformation of social activity into commodity" can be observed (at this point his argument resembles that put

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forward by Zuboff (2019) when she applies the term '*behavioral surplus*'),[10] Betancourt discerns two related "illusions": firstly, the illusion that digital production can generate value without any expenditure and, secondly, the illusion "of capital production without its necessary consumption" (Betancourt 2015: ix). Why exactly he speaks of illusions here, when many of his other arguments ultimately suggest just that, remains a mystery. For example, Betancourt elsewhere blames digital automation for the paradox that the "exponential escalation in value" (ibid.: 32), which automation in fact enables, creates surplus values for which there is an exponentially decreasing possibility of exchange. Up to that point, Betancourt's argument is quite coherent. And yet, the conclusion he draws from all this points to a rather major misunderstanding: he contends that Marx's concept of exchange value is undermined in the course of this development, as this value emerges only in the relation of one commodity to another (see ibid.: 33). Betancourt thus confuses the generation of value in production with the realisation of this value on the market (for which both use and exchange value are vital). What Betancourt blends together here is neatly separated into the spheres of production and circulation by Marx, as we shall see. In digital capitalism, in particular, where production and circulation converge in a technologically almost inextricable way, this analytical distinction is even more important.

10 The argument regarding surveillance and control Betancourt puts forward illustrates his partially contradictory reasoning, which might be explained by the fact that the book's sections were originally written as stand-alone texts and at different points in time. At one point, Betancourt regards surveillance and control as inevitable consequences of the "unintelligent nature" of digital technologies because they are unable to distinguish between "means and meaning" (2005: viii). Despite the ethical dimension Betancourt initially addresses, he views surveillance, which to many participants in the discourse on digitalisation represents the central threat and is often thought to be intentionally built into the technology for political or economic purposes, as an "epiphenomenon resulting from other, more fundamental demands posed by digital capitalism" (ibid.: 154). If we take the term epiphenomenon seriously, that would mean: digital surveillance causally follows from the logic of digital capitalism without having any further effect on the latter. So, it is once again unclear: is surveillance a technologically and functionally inevitable side effect of digital technologies, or is it a result of the capitalist logic? Or is the technologically inevitably becoming a hallmark of the capitalist logic as the latter is coupled to the Digital? Both notions could be argued either as mutually excluding or, indeed, in combination, for example, by reference to the logic of a technologically required formalisation on one side and an economically immanent formalisation on the other—a logic which may differ but is compatible nonetheless. Yet ultimately, it is not entirely clear which position Betancourt champions. Betancourt presents his arguments in such a way that they remain contradictory, and he does nothing to resolve those contradictions.

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2.4 Scarcity—Superabundance—Crisis

The three key terms from the headings were already hard to analytically separate in the first two thematic areas—partly because they are difficult to disentangle in terms of their substance (as in the case of value and labour), but also because they are largely blended and then used and developed somewhat imprecisely by the two authors. The systematic delineation of the key terms in this third section is just as difficult because the juxtaposition of scarcity and superabundance does not address two entirely different things, but rather different perspectives on the same subject matter. We shall start off with the term 'scarcity' and turn to Dan Schiller only briefly, as his argument is not systematically based on the both terms 'scarcity' and 'superabundance'.

In his examination of advertising—one of the most ubiquitous online activities—Schiller addresses a subject which we shall return to in more detail and more systematically in Chapter 6.1, as it is (at least according to the hypothesis put forward in this book) central to an understanding of digital capitalism. Schiller notes that advertising is becoming increasingly influential, ultimately seeking to seize all cultural white spaces. To him, however, this objective "to turn cultural white space into signage" (Schiller 2014: 125) cannot be explained in terms of a pursuit of dominance, but rather economically: "[…] it is grounded in capital's need to realize the sale of commodities already produced in order to resume the cycle by producing and selling once again. A break in this process of commodity circulation—whether local to a specific company or industry, or sweepingly widespread—is a desideratum of crisis." (ibid.)

According to Schiller, advertising fulfils an important function in maintaining the circulation by ensuring systematic and constantly expanding access to customers. During the crisis—i.e. in Schiller's words, during the digital depression—this drive to realise value on the market further intensified. On the Internet, measures to boost advertising and sales were hugely reinforced and supplemented by more effective methods. He asserts that e-commerce, that is to say, the actual sales transaction, is often no more than a mere shift from the offline to the online world—from movie theatres to streaming services, from concert earnings to music downloads, from the printed book to e-books and so forth (see ibid.: 143; see also Pfeiffer 2013). However: "Advertising therefore not only sustained but also deepened its role as a primary source of finance for digital services." (Schiller 2014: 125) After all, when the digital depression hit, the advertising and marketing industry was able to draw on 15 years of experience with Internet channels that would henceforth be systematically expanded (see ibid.: 128). This was shown in two-digit growth rates in online banner and search ads during the crisis, but also in more innovative and less visible methods such as so-called fingerprinting, a technology through which individual computers can be identified and which in

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2012 was already capable of gathering 65 individual sets of information on average per website view in order to then sell them on in "real time bidding exchanges" (ibid.: 129).

To Michael Betancourt, scarcity represents the fundamental economic feature of digital capitalism. Prior to that, capitalism was marked by abundance: the number of produced goods exceeded demand and thus the "capacity to generate profit". In digital capitalism, by contrast, where everything is immaterial signage—Betancourt therefore speaks of semiotic production—the crisis is caused by the scarcity of capital. Capital no longer functions as the "repository of value", but as a "title to future production". This claim, however, is impossible to fulfil, Betancourt argues: the system can only continue "through the addition of an external source of value", necessitating an expansion into areas which have thus far not yet been developed for the creation of value (2015: 174).

What Betancourt describes as a new phenomenon is the imbalance between "existing values and the number of potential future claims", between the significantly greater value of derivatives in comparison to "immanent labor (physical, automated and immaterial) available to produce new physical values", which in turn correspond to these existing claims. Although this may read—especially given this condensed version of Betancourt's otherwise detailed argument that is strongly oriented towards questions of currency—as resembling the contradistinction between productive and speculative capital, or between "commodity values vs. speculative values", Betancourt indeed rejects just that. He emphasises that his concern is the antagonism between rentier claims (in the sense of titles to production values) and production capacity, i.e. the "mismatch between capital and rentier claims" (ibid.: 195–196).

In Betancourt's analysis, a kind of timeline must be imagined: the promise of tomorrow's expected capital earnings cannot simply be produced today. To Betancourt, the scarcity of capital results from the contradistinction between that which is possible today and what has been promised for tomorrow. He sees the particular and novel aspect in the investment in immaterial assets. He is not so much interested in private investors or hedge funds, but rather focuses on the level of national economies on a geopolitical scale. Betancourt underscores this idea that something is promised but cannot be redeemed through his reference to the scale in which China invests in US government bonds and other immaterial assets (as Japan did during the late 1980s) instead of its own national economy. At this level, according to Betancourt, or rather, as a result of these promises, 'immaterial values' dominate both physical commodities and material production (see ibid.: 219).

These observations undoubtedly point to fascinating processes that have multiple political and economic implications. And yet, Betancourt's argument leaves (at least) two questions unanswered: why exactly are these processes specific to

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digital capitalism? Because digital and immaterial products are more significant in terms of production and currencies than during the 19th century? And, secondly, why is this any different in nature from the old antagonism between productive and speculative capital? Simply because the relevant actors move at the level of national economies and countries instead of (only) at the company level or on national stock markets? All this is ultimately left unanswered.[11]

It is not always easy to ascertain whether Betancourt transfers familiar categories that were devised with regard to industrial capitalism to the Digital or whether he considers them to be a consequence or characteristic feature of digital capitalism. After all, the basic arguments for capital scarcity also correspond to the 'old' production-based capitalism and were developed by Marx precisely with a view to its emergence (see Chapter 5). Betancourt relates the scarcity of capital to the "Aura of the Digital", which he so strongly emphasises, thus equating it with a "pathological myopia": in his view, the latter can be found both in the anti-capitalist fantasy about an end to all scarcity that will supposedly herald the end of capitalism and in the capitalist ideology that relies on the illusion of production without consumption (see Betancourt 2015: 59). Betancourt's argument in this regard is quite obviously directed against claims put forward rather prominently by Jeremy Rifkin (2014) and Paul Mason (2016), albeit without quoting the two authors directly, who assert that, because the marginal costs in the digital sphere are virtually zero, capitalism is giving way to the collaborative commons (Rifkin) or post-capitalist commons (Mason), these claims assert.

11 It is perhaps no coincidence that he refers only on a few pages (Betancourt 2015: 220–222) and rather sketchily (and without quoting a single publication by the author) to David Harvey's deliberations on the Marxian crisis of overaccumulation of capital, according to which "the local market is no longer capable of providing sufficiently profitable investments in production and infrastructure", driving increasing financialisation. To Betancourt, this contradicts reality: global wage differentials and asset bubbles in China today or in Japan during the 1980s disprove this. However, the main counterevidence, according to Betancourt, is the fact that all currencies continue to be pegged to the US dollar and thus—regardless of the current state of the American real economy—the United States' hegemony is not threatened. So, while Harvey speaks about an excess of capital, Betancourt argues that there is insufficient capital to meet the obligations arising from the production of immaterial goods. Despite distancing himself from Harvey, he eventually acknowledges that the scarcity of capital, as he interprets it, may amount to a negative reflection or logical inversion of Harvey's overaccumulation of capital—exhibiting similar effects as well as significant differences (see Betancourt 2015: 222). Moreover, Betancourt's account of Harvey's crisis of overaccumulation reads as if Harvey were caught up in a national perspective (which would be rather odd for a social geographer). A more thorough engagement with Harvey would have shown that not only he himself, but even Marx had already addressed the issue of international diversion of capital flows in response to a crisis of overaccumulation (see Harvey 2006b: 432).

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In the Foreword to the German edition of *The Critique of Digital Capitalism*, the anonymous translator helps clarify Betancourt's core argument even more trenchantly than the author himself: the promise of future returns on investments is no longer redeemable, as "the owed labour exceeds the sum of the material, automated and immaterial production that is possible"; in digital capitalism, he continues, the difference between the outstanding debt and the money that is available for debt repayment increases—and that is precisely what Betancourt means by "scarcity of capital" (see Betancourt 2018: 13; Translator's Foreword).

This scarcity of capital imposes limits on the immaterial production that is a characteristic feature of digital capitalism. That is why the Digital is not limitless, as Betancourt himself explains subsequently (see ibid.: 15–16). In other words: in principle, digitality could allow for infinite production, as the products are immaterial and can be copied as desired and at (virtually) no cost. However, capital restricts this because the promises of returns can still not be redeemed. The argument seems paradoxical: even though there is limitless immaterial production, it is still not enough to redeem the promises of returns. Only two logical explanations for this are possible.

Either the returns promised are entirely overblown. And, in fact, common sense suggests that there must be quite a substantial amount of promised earnings that have accumulated in the overheated logic of an investment bubble driven by venture capital that cannot be redeemed (see Chapter 8.2). However, this is most likely due to the bubble and the fact that too few people actually have sufficient excess or leftover capital available to invest billions (see also Piketty, Thomas 2014).

'Leftover' capital is to be understood in a literal sense here, i.e. '*after* taxes' (although taxes can largely be regarded as a negligible factor in the world of global investors)[12], *after* (re-)investments have been made in existing business models or

12 Between 1985 and 2018, the average global corporation tax rate fell by more than half, from 49 to 24 per cent (see Tørsløv et al. 2018). The large multinational corporations (and other players) of the digital economy such as Apple, Google and Facebook are especially versed in shifting earnings to countries with low-tax jurisdictions via subsidiaries. Yet, what is shifted is not capital for the purpose of, say, producing (or programming) something on the ground locally, and more cost-efficiently, using machines (or servers or offices) and real staff. If 'immateriality' exists, then it is in this form of tax evasion. After all, earnings are merely shifted in the books—and entirely legally. In 2016, for example, Google Alphabet earned an income of 19 billion US dollars in Bermuda, even though the corporation, of course, has virtually no staff nor tangible assets on this tiny Atlantic island with its roughly 64,000 inhabitants and a corporate tax rate of 0 per cent. Around 40 per cent of the earnings of all multinational corporations are shifted to low- or zero-tax countries using this method; the authors provide detailed evidence in the form of precise figures and disclose not only the raw datasets but also their exact calculation method in transparent Stata do-files (see Zucman et al. 2017). The calculations in this study also show that if this offshore revenue were taken into account in the countries where it was actually earned,

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foundations (which further diminishes the already low tax level), *after* each and any private luxury consumption has been satisfied and *after* traditional forms of investment (from shares to real estate, wine or arts) have been exhausted. When, *after* all this, there is still a million or two left that faces the same 'cold expropriation' suffered by the savings accounts of workers, freelancer retirement funds or the savings of a medium-sized business (though the consequences will usually be somewhat more severe and existential for the latter), then even an investment in business models that at least offer a vague promise of being 'the next big thing' in the digital economy will not cause any financial harm. In the case of venture capital investments in the digital economy (particularly platform and sharing business models) the issue is not—as Betancourt does not seem to differentiate—promised earnings in the sense of 'old school' investments such as shares and stocks, which arise from produced (or indeed copied) values, but the promise of an exclusive and durable future market and thus a risk-free and infinite realisation of value. Viewed through my analytical lens, this can be explained—as will be shown later—above all as a phenomenon of the increased significance of the distributive forces in digital capitalism (Chapters 5 and 6).

Or, the attempt to explain the current capitalist economy based exclusively on the diagnosis of the Immaterial (see Chapter 2.3) and the corresponding hypotheses of scarcity (of capital) as developed by Betancourt, or the reversal thereof, namely a superabundance of immaterial goods, may be inadequate more generally. After all, firstly, such analysis is content with the assessment that digital capitalism's distinctive feature is the Digital. Secondly, and more importantly, such a one-sided view entirely ignores the question of how the industries and individual capitals whose products/goods/services are material in nature might benefit from this development. A new stage of capitalism that would merit a new label of its own, however, would have to be logically deduced from the limitations of the previous model or changes in the interest of all other individual capitals. In Chapter 5, we shall explore this approach in more detail. With regard to technology,

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the corporate earnings of these countries would be 2–2.5 per cent higher. Not only could they be taxed accordingly, but the relation between national income generated via income tax and corporation tax would be altered considerably. The authors also point out that there is one unequivocal winner in this game of tax evasion, namely the United States, whereas EU countries in particular are prepared to accept significant losses. Considering further details of this study, it becomes clear that countries with a higher corporate tax rate have not only taken serious hits to their public coffers as a result of the loss in tax revenue; it also weakens the negotiating position of trade unions and considerably impedes the competitiveness of small and medium-sized enterprises. Those who evade taxation, of course, have no qualms about accepting tax money in subsidies: while, for example, Amazon avoids paying tax in at least 16 countries worldwide, the company has received hundreds of millions of US dollars' worth of tax money in subsidies (see LaVecchia/Mitchell 2016: 63–67).

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Betancourt's critique of digital capitalism essentially turns on the peculiarity of digital media. He refers to their "effective immortality", or rather their potential for a perpetual, perfect replication. These particularities, then, apply to another characteristic feature of digital capitalism as well: the "scarcity of capital" (2015: viii). Betancourt takes this limiting factor as a starting point not only to analyse the Digital with his critique of political economy, but also to explain the economic crises of recent years more generally—especially in the United States (see ibid.). Yet, in my view, this leads to three misunderstandings.

First misunderstanding: *the digital economy and its products cannot be equated with digital media*. The media in question are largely left unspecified, or are sometimes described rather vaguely as 'social media'. No one would consider industrial capitalism to be adequately characterised or explained if just *one* level in *one* area of production were used as a metaphor for fundamental economic processes of an entire economic system. And yet, with regard to the digital economy, this seems to be common practice. It is perfectly legitimate to speak of platform capitalism when examining the economic specificities of platform-based business models. However, it would certainly not be appropriate to transfer the empirical observations (or even potential labels) deduced from this example to all other business models or economic processes with a general analytical claim. Nonetheless, this is precisely what is occurring. Social media include the after-work blogger as much as the professional influencer; they require the provider as much as the web designer and the database programmer; they include ratings that can be bought as well as the psychologically horrendous work of the 'cleaners' who constantly scan for and delete inappropriate content; they include advertising revenues for the classic insertion of ad banners or affiliate links as much as the sale of customer profiles for target marketing; ultimately, they also comprise the physical infrastructure of servers and network connectivity. All these catchwords point to long-standing as well as entirely novel, yet utterly diverse, production and valorisation processes. And, depending on which area of the rather vaguely specified 'social media' one refers to, the answers to the following questions would differ considerably: how exactly is turnover generated? What is the product? What is the means of production? Where, or rather, by what or by whom is value created? Yet all this would have to be clarified in very precise terms if the aim were to write a political-economic analysis of digital capitalism and not an essay that critiques the media.

Second misunderstanding: 'effective immortality' is an attribute that applies even less to digital products than to most physical products. Nowhere can the strategy of 'planned obsolescence'—i.e. the calculated, premature end of the lifespan of a product for the purpose of renewed consumption—be achieved more easily than with software. It takes little more than a software producer's announcement that it is ending support for a certain operating system—no more updates, no more

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security patches, no more drivers for new peripheral devices like printers. When a major update of a new operating system then requires new hardware resources or is supported only by a new generation of processors, then the 'obsolescence' of an operating system simultaneously affects the hardware as well—the laptop or smartphone also becomes obsolete. And yet, this does not pertain exclusively to planned obsolescence. Sometimes entire systems become obsolete because the licenses or certificates for individual products expire, individual manufacturers go bankrupt or the business model has changed and no longer provides security updates for the household router or 'smart' thermostat.

Third misunderstanding: *the scarcity of capital is not a characteristic of the Digital*. To Betancourt, the alleged immortality and infinite replicability of digital media (as well as their superabundance) explain the scarcity of capital. As I have just argued, however, as convincing as the hypothesis of the Digital's immortality may sound, it is empirically wrong. But even if we were to agree with his hypothesis in this respect, Betancourt does not explain the actual nature of this link: is there an overproduction of digital products that faces a lack of capital in terms of sufficient buying power? A phenomenon that would by all means be typical of capitalist economies (see Chapter 5)—yet anything but exclusive to, or characteristic of, digital capitalism.

Therefore, in doing so, Betancourt adopts a conventional economic viewpoint that is perfectly legitimate. But one that has little to do with a political-economic perspective or critique. At any rate, we can establish that even industrial capitalism often produces scarcity in multiple ways: from steel, coal and rare earths to ships, cars and food (let alone myriad—more or less useful—consumer articles). Far too much is produced or consumed during production: more than can be sold under the given income distribution and more than is reasonable in ecological terms (see, e.g., Johnson/Quance 2013; Kim/Kim 2019; Sharma et al. 2019). Ultimately, despite his critical style and numerous evident phenomena of overproduction, Betancourt remains within the confines of classic (i.e. non-Marxist) economic thought that can be found in every textbook: according to this view, the total amount of goods is always insufficient to fully satisfy human needs, and market prices are regarded as an expression of this relation of scarcity.[13] If this were the case, then the task of advertising and marketing would be not to instigate needs which we never had until that point, but to niftily explain to us why we cannot have a certain thing (except perhaps for artificially created scarcity, which ranges from seasonal ice cream to the steel-made Rolex diver's watch). If this were really true, then car prices, for example, would have to decrease until the very last overproduced vehicle has been sold; and yet, almost all we seem to witness in this

13 This definition of scarcity, typically and, unfortunately, entirely unecological as it is, can be found in just about any economic encyclopaedia (see e.g., Claassen 2009).

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area is more forceful advertising, appealing leasing offers or manufacturers buying their own vehicle stock for their own Car Sharing start-ups.

As I have said before, it is perfectly legitimate to operate on the basis of conventional economic doctrine. However, in pursuing a critique of capitalism, one should at least take Karl Marx's critique of this conventional stance seriously (or explicitly refute his claims). To Marx, superabundance (which he refers to as abundance, surplus or excess) is merely the result of regular everyday capitalist business. There are two reasons for this: *firstly*, individual companies each produce the highest possible number of goods in order to achieve maximum profit. This necessarily leads to the superabundance of the produced goods in this economic segment. Although this abundance is then responded to with different strategies—some of which are more, others less successful—this does nothing to change the fact. *Secondly*, one essential feature of capitalism is production for exchange instead of existing (social) needs—but only what is abundantly available can be exchanged. Furthermore, as Karl Marx would likely point out, the value of a product does not emerge on the market, but as a result of the expended labour during production. Hence, any selectively or artificially created scarcity can at best cause a surcharge on the market, but it cannot change anything about the original inherent value. We shall pursue these ideological depths and two crucial blind spots by exploring the concept of value with reference to Mariana Mazzucato's writings (Chapter 3) and, in even more detail, the significance of value realisation in (digital) capitalism based on Marx (Chapter 5). In the following, we shall see that the nature of the new digital markets is constituted above all by the promise of sales and thus the reduction of overproduction.

To illustrate this, let us take the example of Facebook: it appears as if the marginal costs are virtually zero, while scaling up the infrastructure to accommodate more users seems, at first glance, to merely entail an increase in energy costs, if anything. But what is the product here? And whose costs are rising? As we all know, Facebook does not charge any fees for the use of its website or app, nor does it sell a product. Rather, the interactions on the platform as such become the commodity. Yet this only becomes a marketable product once Facebook creates new use value through its algorithms (for a given company—which might even be suffering from overproduction). A substantial amount of labour has thus actually been expended: the gratuitous work of the Facebook users who interact on the platform as well as the labour that goes into Facebook's software development (from the development of new Machine Learning algorithms and target marketing to the host of server admins and UX design that is supposed to keep users active on the platform for as long as possible) and a great deal of objectified work pertaining to servers, electricity lines and network structures—all the material aspects of the Internet that Dan Schiller (1999; 2014) has emphasised and described (for an assessment of Facebook, see Chapter 8.2).

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As many others before me have mentioned—by using terms such as 'prosumer', 'producer' or 'co-creation' (Bartosz 2019; Proulx et al. 2011; Scholz 2012; Zuboff 2019), there is really only one factor that is systematically superabundant, and that is endless amounts of unpaid human labour. Even before digital market research, surveys conducted on high streets, whereby questionnaires were handed out to people asking for their preferences regarding certain products, already made use of unpaid living labour. The 'payment' came in the form of a small giveaway or voucher—instead of free access to a communication platform. In that sense, Facebook certainly has more use value to offer in the long run: communication. Incidentally, the analytical models or calculation methods (i.e. algorithms) of pre-digital market research were never disclosed either. Then, as now, the client companies essentially have no idea about how exclusive (scarce?) the service they are buying really is or whether their direct competitor (faced with the same problem of overproduction) might be paying the same price for the same service simultaneously (as a result of which neither of the two is likely to significantly mitigate their overproduction problems). From a more fundamental perspective, Facebook may not have innovated the existing system that much after all. As in the past, the generation of value remains dependent on living labour: if everybody starts using TikTok tomorrow and quits Facebook, then Facebook no longer has anything it can sell. What is new in this regard, however, is the permanence of 'observation' and the market research being imposed upon people who in fact simply want to communicate with one another and have not made the conscious choice to participate in such research. And this new feature is closely linked to the possibilities digitalisation has to offer.

Scarcity and superabundance always represent relative quantities. Wherever there is an overage of something, there must be a corresponding lack somewhere else—or vice versa. And even though Michael Betancourt explicitly distances himself from the theme of overproduction crisis, one thing is quite obvious simply for logical reasons: wherever there is an imbalance between produced values and capital in the economy—regardless of whether this can be explained with or through the Digital—a pursued or assumed equilibrium becomes fragile and the threat of crisis arises. The insight that crises are an inherent feature of capitalism is not new. According to Marx, crises are indeed immanent, meaning they are inevitably built into the system. In conventional economics, crisis is treated as something that can theoretically be avoided but nonetheless is an empirically proven phenomenon. Likewise, both authors referenced here address the topic of crisis and do so under the impression of, and with direct reference to, the latest financial crisis. Both authors focus on the interplay and parallels between the financial market and the (almost exclusively digital) real economy. The state itself

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plays a significant role only in Dan Schiller's approach; and it is only the state that links up the military and the digital economy.[14]

Dan Schiller's entire book (2014) is centred on the *Digital Depression* and explores the context of the economic crisis. To him, however, the latter did not start with the financial crisis of 2008 but began as early as the 1970s. Alongside military spending, it was investments in information technologies that helped mitigate the economic downturn during the 1970s. As a result, he argues, entirely new networks emerged between corporations and the military, while the economic crisis intensified. Schiller identifies a clear line of development from the ICT investments of that time right up to the latest crisis. That is why he refers to it as digital depression: "Eventually, we now know, the bright line of the ICT investment led on to a precipice as the financial collapses of 2008 transformed into a digital depression." (ibid.: 71) In Schiller's view, then, this crisis is all but over, the events of 2008/09 merely having marked the beginning. He contends that the crisis was still ongoing when his book was published (2014). Although governments[15] were eventually able to contain the crisis in isolated locations and for limited periods of time, they never managed to overcome it entirely. And, while the crisis became increasingly entrenched, network technologies provided new sources of profit (see ibid.: 151).

Michael Betancourt also takes the financial system into account—not only with respect to the latest financial crisis, but more generally: in his view, the United States' Federal Reserve System is itself a giant Ponzi scheme (see 2015: 210). He argues that every Ponzi scheme resembles a microcosm of capitalist capital formation and works only as long as the number of investible expectations of future profits remains constant and no sources of income exist that require repayment, thus dropping out of the system of exchange and circulation. Even given these restrictions, however, a collapse is possible at any point (see ibid.). Betancourt emphasises: "the earlier the investor, the greater their profit" (ibid.: 211). He thus also considers the crisis, or, more precisely, the system's susceptibility to crisis, to be inevitable. He goes on to highlight, in more detail, two of the preconditions

14 Interestingly, however, neither Dan Schiller nor Michael Betancourt make any reference to David Graeber (2011), who, in his anthropological and historical study of the role of debt over the past 5,000 years of human history, is in fact able to prove precisely this link. The history of debt in modernity, i.e. since the days of King Philip II of Spain, shows: government debt is always war debt as well (see ibid.: 307–360); at least in the case of the United States, this is illustrated by the curves depicting government debt and military spending, which, between 1959 and 2008, followed a remarkably similar trajectory and, moreover, both steeply surged—almost exponentially—between 2000 and 2008 (see ibid. and figure: 366).

15 His analyses continue to focus mainly on the United States. At the same time, however, Dan Schiller, from his geopolitical vantage point, does deal at length with China, asking what may follow after the US-centred Internet (see 2014: 185–210).

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required to keep the Ponzi scheme running: firstly, profits must be quasi-recycled by being converted into new investments. This is exactly what the US Fed does when it buys government bonds and thus ultimately its own debt. Secondly, the task is to always create new investment sources via financial markets and the related products, such as derivatives (see ibid.: 212). Betancourt regards this as a process with long historical precursors. In contrast to Schiller, however, he does not substantiate the connection to digitalisation with investments in digital technology and infrastructure: in order to keep the Ponzi scheme from collapsing, he argues, the base of the pyramid must be constantly expanded, meaning that ever new areas must be harnessed for valorisation. In this, the specific role of the Digital is to turn social behaviour (particularly on social media platforms) into a commodity (see ibid.: 217): "As the Ponzi model suggests, digital capitalism is threatened with immanent collapse when this circulation ceases. Asset 'bubbles' are not only required by this system, they are a function of digital capitalism in action; thus the necessity for bailouts when asset bubbles burst.' (ibid.: 223).

In this sense, according to Betancourt, the cryptocurrency Bitcoin also simulates a scarcity of capital when attempting to produce value. The scarcity of material goods is created by the algorithm that imposes physical constraints on the mining of the cryptocurrency and by a specified limit to the total amount of potentially available coins (Betancourt 2015: 66). And indeed, the maximum number of Bitcoins is limited to 21 million units (and not 2.1 million, as Betancourt erroneously indicates, see ibid.).[16]

Understanding Betancourt's argument—and why it is flawed—requires a brief introduction to the world of cryptocurrencies. Betancourt refers almost exclusively to Bitcoin, which is certainly the most well known and most mined, but it is just one among thousands.[17] Cryptocurrencies are based on the blockchain technology that was developed during the early 1990s: decentralised database architectures, the smallest unit of which is a block. Each block is assigned a hash value, a kind of mathematically calculated individual fingerprint. Since the calculation of a block's hash is always coupled to the hash of the previous block, the linking of the blocks is specific and could only be manipulated if all the hashes in an entire chain were recalculated anew. To do that is extremely complex. But even in the absence of manipulation attempts, the entire chain of previous transactions

16 Furthermore, there are additional quasi-physical restrictions that Michael Betancourt does not mention, such as the predetermined block size or the speed of the transaction. These restrictions pertain to the network protocol level and can therefore not be altered. The issue of scaling, however, has been debated in the cryptocurrency community, and there is in fact the possibility of creating a 'Hard Fork', which is when a branch point is generated based on a new network protocol which is no longer compatible with the original downstream protocol.

17 At the time of this writing, there are around 11,180 cryptocurrencies in existence (see CoinMarketCap 2021).

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must be somehow verified, as it changes with each transaction. Given that a trustworthy third party or centralised audit body is intentionally dispensed with, a consensual procedure must be applied if new blocks are to be created. This procedure is called 'proof of work', which is quite an apt term considering our topic. The calculations required as a result of the mass of transactions are fairly complex and rely on colossal server capacities. Providing such capacities—and being paid to do so in cryptocurrency—constitutes the equally profane and, ultimately, physical precondition of the whole undertaking. This is the actual process that is referred to by the term 'mining'.[18]

The electricity consumption of the Bitcoin network was estimated between 2.6 and 7.7 gigawatts in 2018. A single transaction requires as much electricity as an average household in the Netherlands consumes per month (see Vries 2018). Even though the logic of the forward projection may be questionable—the increase in user numbers corresponds to those in other digital technologies, yet the transaction frequency cannot be equated with user numbers—, another study (see Mora et al. 2018) concludes that Bitcoin mining significantly contributes to climate change. Moreover, one could critically note that the energy consumption for other digital transactions, too, such as intraday trading or between banks, is likely quite substantial as well. That said, this whole debate would go beyond the scope of this study. What is relevant here is that the mining of cryptocurrencies is by no means immaterial, its physical requirements and constraints are more than a mere parameter specified by the network protocol. It relies on very material prerequisites: different kinds of power plants (to a large extent, coal-fired power plants in China), substations, power lines, routers, servers, deep-sea cables, satellites, etc. Although Betancourt does mention the energy consumption and the fact that computers are needed for mining Bitcoins (see Betancourt 2015: 62), he maintains that it is immaterial labour. Yet there is one thing that all these basic or active mining components contain: human labour. This includes people who work in the control room of a power plant, manufacture servers somewhere in the world, as well as others who set up and update these servers, build and maintain substations and so forth. If there is anything infinite about all this, then it is the complex interplay between various forms of human labour at different points in time and in different places, extending into the many unpaid reproductive activities, too. It is all this labour that enables a single Bitcoin transaction. Betancourt's

18 Michael Betancourt should be rather pleased to see that the blockchain technology can help sniff out fraudulent Ponzi schemes. This has been proven for the cryptocurrency Ethereum (see Chen et al. 2019). But then again, Betancourt does seek to portray the entire economic system as one giant Ponzi scheme, not just individual fraudulent activities within the system. The example demonstrates, nevertheless, that digitalisation could also be used to at least mitigate the most extreme and crisis-inducing excesses of financial market capitalism—should society and political decision makers be in favour thereof and act accordingly.

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argument about capitalism resembling a giant Ponzi scheme does not somehow become more 'digital', nor does his general hypothesis about capitalism apply any more specifically to digital capitalism as a result of his deliberations on Bitcoins.

In my view, the argument could be reversed: what we are dealing with are strategies that are not only characteristic of digital capitalism, but of capitalism in general. The same mechanisms cannot only be found in the finance or the Internet economy, but also in the real (productive) economy and were even present in industrial capitalism. What characterises digital capitalism (historically) is the fact that it came onto the scene at a point in time, after about two centuries of the 'old' capitalism, in which capital was (and still is) as superabundant as never before. This is, firstly, because values have permanently been extracted from the real economy for such a long time and, secondly, because the finance economy has long been decoupled from the real economy. And when there is so much capital 'left over', the most rational investment strategy is to put money into those markets which promise not only the quickest possible growth but also a closure in terms of market control, although the latter promise goes largely unfulfilled. The object of this investment strategy resulting from the superabundance of rentier capital (a term that already featured in Marx's writings, and for good reason) may be a certain business model in the digital economy today, or one in biotechnology tomorrow. What is decisive is not whether the 'object' is digital, but that capital strives to and must flow.

We could also ask: what does growth mean? Ultimately, of course, it means that the greatest possible amount of value is realised, that is to say, that products—be they digital or not—are successfully introduced to the circulation sphere in large quantities. And what does closure mean? Simply making it difficult or, better yet, even impossible for competitors to join the game of value realisation. The platform economy is one way of achieving as much. Value realisation means nothing other than sales. However, the product must not only be 'sold' to end users or online buyers (they are often only the generator for surplus behaviour as per Zuboff, depending on the respective digital business model), but also to individual and institutional investors (who have to believe in the promises of growth and closure) and those who enable those business models, even if other spheres of the economy suffer 'disruptive' damage as a result. And indeed, the dominance of Internet business models geared towards advertising and distribution, or, rather, the circulation sphere, is remarkable, as we shall see in Chapter 6.

Comparing the financial and the digital world, as well as their respective logics, is undoubtedly intriguing. And there certainly are numerous parallels between the two if we focus on their specific phenomena. The real question, however, is how these parallels can be explained. Are they mere structural similarities that can be easily justified because both areas are being considered within the same period of capitalism and both are an expression of the same basic under-

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lying economic logic? This is certainly one part of the explanation. One may also add that there are functional and technological parallels at the level of 'production' processes and work 'objects': in both cases, we are dealing with data-based processes, statistical evaluations as well as predictions and options of relatively easily implementable algorithmic automation—an automation that need not factor in the uncertainties of material production. This may also entail similarities, extending even into the professional habitus. A third explanation may be that the logic of production is eclipsed by the more dominant logic of speculation in both spheres. After all, the logic of financial markets has always had, and indeed is increasingly having, an impact on the real economy—from the logic of quarterly figures and reports, etc. to shareholder dominance and the effects of futures trading on commodity prices. Businesses have to find a way of dealing with all this in specific terms by creating complementary business structures, developing adaptive, compatible data structures and thinking and acting in sync. All these are issues that could potentially reveal the driving force of the mechanism behind empirically discernible structural equivalence. Unfortunately, Betancourt fails to follow these subsequent steps in his analysis. For there is one thing that cannot be concluded from the—albeit somewhat constructed, but nonetheless undeniable—similarity: whether digital capitalism differs fundamentally from its predecessor. Although Betancourt does present compelling phenomena and reveal striking parallels, he fails to explain why it actually works and why it works today—except for once again falling back on the ultimate explanation of digital capitalism by reference to the Digital. Yet my point here is this: the parallelism can be explained by the economic structures and dynamics, some of which can currently be more easily implemented in the digital sphere.

2.5 Much said—any questions answered?

So far, I have discussed the analyses of digital capitalism by Dan Schiller and Michael Betancourt on the basis of three distinct thematic areas with three key concepts each, adding some more or less extensive criticism. Before I move on, proceeding from Mariana Mazzucato, to address the concept of 'value' in more detail—which constitutes a bridge between the two analyses outlined here and my own analytical approach to the distributive forces—allow me to briefly summarise the main reflections of the two authors with regard to the three concepts concerned.

In terms of the first thematic area, *Dynamic—Transformation—Actors*, we can establish that while Dan Schiller considers the development *Dynamic* to arise from the contradiction between technological revolution and capitalist stagna-

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tion, Betancourt regards the immateriality of the Digital to constitute the initial impetus.

The question of *Transformation* is also answered by the two authors in both different and complementary ways. Neither follows the primacy of 'disruption', which is currently dominating relevant debates. While Dan Schiller emphasises capitalism's permanent susceptibility to crisis, in which new options for capital formation always carry the seed of the subsequent crisis, to Michael Betancourt, everything converges into a single gigantic speculative bubble that will inevitably burst with a bang.

With a view to *Actors*, Dan Schiller is most specific and cites, based on several illustrative examples, the role of the state and capital—not just the tech corporations. In the process, he broadens his view to include the geopolitical strategies of China alongside those of the United States. Michael Betancourt, by contrast, adopts a rather general perspective: to him, the *Actor* is capitalism, as a system and producer of ignorance as well as the Federal Reserve System of the US (albeit in an implementing role).

What unites both authors, is an analytically elaborate view that is—at times more, at others less—critical of capitalism. The differences can be explained by their distinct disciplinary perspectives, but also by the specific aspect of digitalisation each of them selects for study: in Dan Schiller's work, this is above all the digital infrastructure (or, rather, the infrastructure of the Digital), whereas Michael Betancourt focuses on blockchain and social media.

As both authors promise a political-economic perspective on digital capitalism, they raise high expectations of a new insight to the implications of the Immaterial and the related consequences for labour and value. After all, labour and value constitute essential categories in (the critique of) political economy. And one question that arises is whether labour in fact loses its value-generating potential—due to the increase in the Immaterial—and whether this may be what is actually new about digital capitalism. This triad of *Immateriality—Labour—Value* was addressed in the second thematic area.

Concerning *Immateriality*, a clear distinction between the two authors is initially striking: Dan Schiller focuses not on the immaterial but the very material, physical side of the Internet. In doing so, he refers to three things: the Internet's infrastructure, the corresponding global value chains and the various forms of hardware. Yet Michael Betancourt is hardly interested in the different facets of digitalisation. To him, the Immaterial is both the starting point of his deliberations and the crucial expression of what is new about digital capitalism. The pivotal distinction is that between immaterial and physical goods: the latter are always limited, whereas the former are infinite and cost-free.

The topic of *Labour* hardly features in Dan Schiller's analysis, but is only referenced in terms of an analytical level when the author quotes Marx. In Michael

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Betancourt's work, we find many sections that address the question of labour. According to Betancourt, digital production conceals labour more effectively, meaning that it is not the relevance of labour that is decreasing, but its visibility. His somewhat crude juxtaposition of production-related labour and intellectual labour and his relatively vague conceptualisation of intellectual and immaterial labour, however, cloud his analysis rather than make it more precise.

The last of the three thematic areas dealt with the specifically—at least for the most part—economic driving force behind digital capitalism. While both authors are able to contribute to each of the three key terms of the two previous sections, this is not the case with regard to *Scarcity—Superabundance—Crisis*: Dan Schiller does speak at length about the question of crisis, yet he leaves the issue of scarcity and superabundance largely unaddressed. Betancourt identifies a parallelism between the financial market and digital capitalism, linking both to the issue of crisis. To Betancourt, the scarcity of capital is the defining economic feature of digital capitalism. In industrial capitalism, he argues, there were too many goods in relation to demand (overproduction). But today, there is a lack of capital in relation to the associated investment promises, that is to say, between the existing values of today and the number of potential future claims. The promises of returns on invested capital have exceeded the scope of what is redeemable; they cannot ever be fulfilled through labour and production.

Dan Schiller does not speak of the scarcity or superabundance of capital, though he does address capital's urge to sell already produced goods. Circulation is the all-decisive factor to him. And that is also how he establishes the link to the question of *crisis*. His argument is that capitalism has been in constant crisis ever since the 1970s. Investments in information technologies were an attempt to counteract this tendency, a measure that does not avert the crisis, however, but protracts it, if anything. The latest financial crisis—the 'digital depression'—was therefore no more than a preliminary manifestation of the long ongoing crisis, meaning that the latter is far from over.

The driver of the crisis is capitalism itself, and the respective technologies are only a means of mitigating the crisis. Betancourt likewise sees capitalism as engulfed in permanent crisis. To describe this, he applies the metaphor of the Ponzi scheme, as capitalism always requires new spheres of valorisation in order to mitigate the crisis. To him, digitalisation is also a means to serve precisely that objective, but not because of the investments, as argued by Schiller, but rather because it is a way of opening up what was not valorisable thus far—namely social behaviour—to valorisation.

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3. The First Blind Spot: Value in Digital Capitalism

If we are to interpret the current age—in which digital technologies exert an unprecedented influence—beyond this observation and render visible at least the contours of a new capitalism, it is vital to first take a closer look at basic economic processes. Has the nature of these processes changed? Or are we simply seeing a new set of options and phenomena embedded in familiar economic processes? My use of the word 'simply' is not to be misunderstood: to my knowledge, no-one ever proclaimed a 'supermarket capitalism' when corner shops disappeared. Nevertheless, this change entailed a dramatic cultural shift, for instance, in consumption patterns and food value chains, among the actors involved and in terms of working conditions, all of which had countless economic and social implications, including the concept of supermarkets finding its way into the Cold War's ideological battle (Hamilton 2018). Regardless, it certainly seems appropriate to consider whether basic economic mechanisms are changing in digital capitalism.

The analyses presented in the previous chapter ultimately focus precisely on this aspect, albeit without reaching a convincing conclusion. One question that is at the heart of any analysis of capitalism—including digital capitalism—and that is left unanswered (by both authors) is the question of where and through which mechanisms *value* is created. Dan Schiller effectively omits this level (although he does clearly name the actors who benefit the most), critically addressing only the *value chains* (as opposed to the *commodity chains* he favours), a term which, from his vantage point, is highly suspicious in terms of ideological motivation. Michael Betancourt directs our attention to the valorisation of behaviour on social media platforms, but imprecisely equates value and exchange value. Hence, he offers no explanation as to whether or where exactly value would have to be reconsidered or conceived differently in digital capitalism.

We shall therefore begin this chapter with this very subject matter, i.e. the question of value. In order to do so, we can draw on Mariana Mazzucato (Chapter 3.1) and her book *The Value of Everything* (2018), in which she examines, among other things, the issue of value and the question of how and where it is created. In doing so, she exposes the ideological motivation behind most standard explanations offered by the world's business schools. Her perspective both complements

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and questions the claims put forward by Dan Schiller and Michael Betancourt. Above all, however, through her focus on value creation, she opens the door to more in-depth considerations. What becomes clear is that we live in a world in which the creation of value and the corresponding mechanisms are interpreted rather obliquely, if not at least rather one-sidedly. Breaking through this pattern is imperative for an analysis of capitalism in the digital age. In a second step (Chapter 3.2), we shall dig a little deeper in categorial terms, indeed into the concept of value, and consider value's two facets under the capitalist mode of production: use value and exchange value. Drawing on Scott Lash (2002), we raise the question of whether these two facets—or rather, the relation between the two—have reached their end in digital capitalism. As I hope to demonstrate, both aspects of value remain intact in digital capitalism, as does the contradictory relationship between them, which is not at all disappearing, but, in fact, becoming more visible once again. The categories of value, as well as use value and exchange value, take us one crucial step further in our analysis of digital capitalism and in tackling the remaining questions (Chapter 3.3). The third subchapter thus forms a kind of bridge to the development of my own central hypothesis on the increased significance of the distributive forces, the foundations of which shall be subsequently addressed.

3.1 Mazzucato or the rediscovery of value

One voice that is frequently cited in the debate on capitalism in the digital age is that of London-based economist Mariana Mazzucato. She has shown how much of the supposed innovative entrepreneurial capacity of Silicon Valley and (not only) the digital economy was ultimately based on government funding and thus public subsidies (Mazzucato 2018: 189–228, 2015). Unlike the two authors introduced above, who focus on the digital aspects of current capitalism, Mazzucato explores the economic logics and processes as well as the altered role of the state. According to Mazzucato, the latter acts as *entrepreneurial state* and bears the investment risks, while the private economy only enters the fray once profits can be made at minimum risk. To Mazzucato, the Digital is only one of many examples thereof, alongside, e.g. the pharmaceutical industry (see Mazzucato 2018: 207–213, 2015: 70–73 and 87–90;) or 'green' technology (see 2015: 121–152 and 153–178).

Mazzucato illustrates the digital phenomena of current capitalism with many empirical examples, all of which prove the same dynamic: the state bears the risks, while the actual rewards are reaped by the private economy and its investors. Much like Dan Schiller (see Chapter 2.1), Mazzucato takes the US Department of Defense and the advent of the Internet as her starting point (see Mazzucato 2015: 80–85), reconstructing a similar evolutionary process for other technologies,

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too, which were in fact vital for the development of iPhones and iPads (see ibid: 93–120). In her analysis, Mazzucato seeks above all to demonstrate a normatively desired, new role of the state, which not only creates favourable conditions for innovation, but also benefits from its success. Her examples are not always convincing nor is every detail accurate, a weakness in the text that has gladly been pointed out by those adhering to the kind of economic schools that prefer the free market and a 'lean state' (see, e.g. Mingardi 2015). Yet the essence of her argument remains unaffected: innovation is not the result of entrepreneurial activity alone, but requires an enabling social and institutional setting. Karl Marx would refer to this setting as the 'development of the productive forces'—which we shall return to in Chapter 4.1.

So, while Mazzucato's focus is on the dynamic as such, she does not consider it to be an intrinsic phenomenon of what Dan Schiller calls 'digital capitalism'. In her book on value, the Digital has a marginal role and does not constitute the decisive causal variable. And yes, Mazzucato also addresses the dynamics of network effects, the significance of the 'first movers', the virtual monopoly position of Google, Facebook, etc. and the market-creating base constituted by digital platforms (see 2018: 213–219). Nevertheless, she spends little time exploring these observations shared by a wide range of authors, from those writing in features sections to Paul Mason. Mazzucato makes a fundamental distinction between value creation and value extraction and proceeds from this vantage point in her examination of the phenomena of the digital economy—particularly the platform economy (see ibid.: 219–221). She proposes returning to the long outdated economic differentiation between productive and unproductive labour (see ibid: 220). We shall examine Mazzucato's analytical categories in more detail shortly. What is important to establish at this point is her most central argument that the labour through which Google, Amazon, etc. generate their earnings and profits—advertising revenues—is ultimately unproductive, as it adds no value to an actual productive act (i.e. the search request on Google, the message posted on Facebook). The value that Google and others extract, she argues, emerges from the extra-economic sphere: the public purse continues to fund the infrastructure—from the Internet to 5G networks—while the behaviour of users constitutes the unpaid productive collective base. Mazzucato not only describes these processes, but she considers them through an analytical economic lens and criticises the prevailing logic, according to which the enormous advertising revenues of the Internet giants are considered productive by GDP measures, although they are in fact unproductive. Moreover, she criticises the fact that the innovation that is only made possible through us

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all collectively in the form of Big Data is being appropriated by private economic interests.[1]

It is certainly worthwhile to briefly turn to the new (and renewed) consideration of value and its significance which Mazzucato develops in her book *The Value of Everything* (2018). Firstly, her brief history of value (see 2018: 21–56) shows how economic theory initially defined value on the basis of a collective, almost existential utility and via the involved labour: while the mercantilists of the 16th century followed a restricted notion of value creation pertaining only to elementary goods (such as food or housing, but also gold) (see ibid.: 21–28), the 18th-century physiocrats regarded the necessary labour ploughed into agriculture and the soil as the source of value creation (see ibid.: 28–33). The 19th-century classical economists like Adam Smith and David Ricardo also concentrated on the expenditure of labour (see ibid.: 33–47), though they expanded their view to take into account the significance of machines and industry. During that same period, Marx demonstrated *why* (and not only *that*) human labour is the decisive factor for creating value (see ibid.: 47–55).

Mazzucato starts off by spelling out Marx's central views regarding value creation. To him, the only source of value is human labour. It is the determining factor of value and the source of Marx's famous surplus value, which emerges from the difference between the value created by wage labour and the wage paid for the time worked. Capitalists appropriate this surplus value, i.e. they generate a profit by exploiting workers. Here, Mazzucato emphasises that the "production boundary" follows a different course than, say, in Adam Smith (see Mazzucato 2018: 8–11).

This "production boundary" shift is one of Mazzucato's central arguments. In her view, it can be logically deduced from her brief history of value in economic theory with which it remains closely intertwined. In both instances, it is defined who or what is productive (in the sense of creating value) and who or what is unproductive (in the sense of extracting value). The side of that boundary that

1 Shoshana Zuboff's argument is similar in economic terms, although it focuses on user behaviour: she analyses this as surplus behaviour which the digital corporations (above all Google) had not even aimed at originally. What she means by "behavioral surplus" (see 2019: 63–98) are the data on behaviour that are no longer used only for the improvement of services (see ibid.: 75) and may encompass all levels of our (online) behaviour: "our voices, personalities and emotions" (ibid.: 8). What ought to be added to this list, in my view, are those data that do not pertain to behaviour, but its precondition: life itself—vital signs such as pulse frequency, sleep rhythm or heart rate variability. Zuboff traces how Google, too, took a while to understand what could emerge from this "behavioral surplus" in combination with "data science, material infrastructure, computational power, algorithmic systems, and automated platforms": "an unprecedented and lucrative brew". As a result of this "lucrative brew", the "behavioral surplus" becomes the "cornerstone" of a new way of acting (ibid.: 83).

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an industry, a profession, a social sphere or class then occupies decides whether they are "makers" or "takers". This, in turn, has far-reaching implications for the social status and economic opportunities of the respective recipient of such an ascription. Mazzucato regards this ascription as one of the main causes of social inequality, particularly because the extraction of value by "makers" (in industry) is considered legitimate and thus automatically merely conceded to the "takers" (in finance).

In her historical depiction of how the definition of value was first modified and ultimately abandoned, Mazzucato seeks to show one thing in particular: the question of where the boundaries run between productive and non-productive, between value creation and value extraction, depends on ascriptions, narratives and ideology—and is not determined by some economically unequivocal fact. Rents,[2] which doubtlessly lie outside the production boundaries, are thus understood as "*unearned* income" in classic value theory, whereas "[p]rofits were instead the returns earned for productive activity inside the boundary." (2018: 9)[3]

Mazzucato focuses her attention on the question of where and with which rationale the boundary between productive and unproductive is drawn, referencing in this context the corresponding differences well known to classic economics: to Marx, she asserts, labour is always productive for capital, as it generates surplus value and thus profit—including the labour associated with the circulation sphere. She notes that unlike Smith, who classified production labour as productive, but service labour as unproductive, Marx acknowledges the 'productivity' of both spheres for capital and makes no distinction along the lines of work tasks, professions or industries. To Smith, for example, the skilled worker at an assembly line in the car manufacturing industry would be productive, yet the marketing agent at that same company would not; by contrast, in the eyes of Marx, both fulfil a productive role from the perspective of capital, the worker in the production sphere and the marketing agent in—or, rather, directed at—the circulation sphere. We shall return to the Marxian argument at a later point and seek to clarify why the labour of the skilled worker is as indispensable for the generation of value (or, in Mazzucato's words, the creation of value) as that of the marketing agent **is** for the realisation of value on the market. The value created 'at the front' can only be extracted 'at the back' if it is sold on the market. One central aspect she develops in

2 Mazzucato uses the word 'rent' here, meaning all forms of regular income obtained through the provision or use of a certain good (be it housing space, licences or temporary rights to usage). If we were to follow this definition, any gain resulting from streaming services or SaaS would also constitute 'rent' and thus unproductive and unearned income in the digital economy. Marx also uses the term 'rent' to denote unproductive income, e.g. earnings from financial speculation.

3 Here, in an endnote, she refers to a book on physiocratic theories that was published in the 1960s. A glance at the book by Ronald L. Meek shows that the wording in this school of economic thought was even more catchy, as the unproductive areas were referred to as "sterile" (2008: 20).

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this context is that the generation of value has already been optimised—not least aided by digitalisation—to its very limits, which is why the realisation of value becomes increasingly important to businesses strategically, and many of the current phenomena of the digital economy associated with their business models aim precisely at this: ensuring and optimising the realisation of value on the market. Considering my own hypothesis in this book, Mazzucato's rediscovery of value thus represents a far more helpful approach than Dan Schiller's analysis of digital capitalism.

After all, Mazzucato also, and in particular, shows how the view of economic theory on value initially continued to change historically and substantively, only to effectively disappear entirely with time. Before the classic proponents of value theory, such as Smith, Ricardo and Marx, the debate about the definition and the sources of value creation took centre stage in economic theory formation for centuries. Then, all of a sudden, the debate shifted—but not to reconceive the category or further refine it: to put it simply, the matter "virtually vanished from economics departments" (Mazzucato 2018: 8). That which had constituted the subject of lively scholarly disputes and the core of opposing economic schools of thought for centuries gave way to the "intellectually impoverished idea of value […] that value is determined by the dynamics of price, due to scarcity and preferences" (ibid.). This shift was completed by the marginalists of neoclassical economics during the 20th century (see ibid.: 57–74), who subjectivised the concept of value: value arises from what individuals deem valuable to them. The—always insinuated—scarcity of a good further adds to an increase in value. If something is scarcely available, demand rises—supply and demand become the decisive factors. Value is no longer the result of expended labour, but the price that is paid: "what is bought has value" (ibid.: 11). She thereby criticises a reductionist concept of value, which, as we have identified, is the guiding theme in many of the analyses of digital capitalism produced thus far (see Chapter 2.3).

Mazzucato aims at a macro-analysis of present-day capitalism and especially at the altered relationship between the financial and the real economy. In her book, she therefore critically addresses venture-capital dynamics and the innovation label attributed to entrepreneurs, presenting examples from the digital economy and, particularly, Silicon Valley (2018: 189–227). Yet still, the analysis or even the proclamation of digital capitalism is not her objective. At the heart of her study lies what she refers to as "casino capitalism" (see ibid.: 135–160) and the critique of economic indicators that blur the connection between value generation and value extraction. Guided by theoretical precision and based on empirical analyses, she expounds on how comprehensively the investment logic of the financial world has been adopted by modern capitalism and what effects this is having on the economy, society and the public sector. "Asset management has grown into one of modern capitalism's defining characteristics." (ibid.: 159) Whether the Digital

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is heralding a new phase of capitalism is left unanswered by Mazzucato. She does, however, embark on a path that may well take us forward: if we wish to trace the changes in capitalism, it might be advisable to first retreat from the visible phenomena and start off with fundamental economic concepts. Mazzucato directs our attention to the concept of value, and I would like to follow in these productive footsteps on the next few pages. We shall heed her recommendation to engage with Karl Marx's labour theory of value: "In Marx's hands, value theory became a powerful tool for analysing society." (ibid.: 57) Yet instead of inspecting macro-links proceeding from the concept of value, the analysis initially leads us, so to speak, even deeper into the concept of value, namely to the two sides of a commodity: exchange value and use value.

3.2 Whoever speaks of value ...

According to the previously discussed diagnoses of digital capitalism, everything is becoming more abstract and immaterial—only Dan Schiller points out the material side of the Internet. However, there are just as many empirically confirmed and theoretically well-founded counterarguments, ranging from Ursula Huw's critique of the myth of the "weightless economy" (1999) to the proposition of a both material and virtual, all-encompassing (accidental) megastructure called *The Stack* by Benjamin Bratton (2016). Nevertheless, this strand of scholarly engagement with digital capitalism rather remains at the margins and hardly makes any mark, especially beyond academic discourse. So, why does the Immaterial continue to be overemphasised? Why do those diagnoses receive the most attention that deal with the abstract, and often only a snapshot thereof, such as the platform economy or social media?

Apart from the many possible explanations that likely have more to do with publishers' marketing strategies and media resonance, there is at least one thing that is striking about the analyses of digital capitalism presented on the previous pages—except for that by Mariana Mazzucato (2018): both authors, Schiller as well as Betancourt, operate with Marxist terminology, albeit rather imprecisely. At times, only fragments from his *Critique of Political Economy* are adopted as long as they fit the authors' own argument; at other times, individual terms are used but not actively applied as analytical tools.

What is lost in this is precisely what makes Karl Marx's political economy so unique: a comprehensive analytical and dialectical perspective. Only Mariana Mazzucato, through her analysis of value, points in this direction. And while Dan Schiller does indeed describe the material side of digital capitalism and thereby emphasises the 'other' side of the Immaterial, he does not actively incorporate the contradiction between the material and the Immaterial into a dialectical analysis.

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Michael Betancourt, for his part, fully sides with the Immaterial and defines the material as part of old industrial capitalism. Such a one-sided interpretation of digital capitalism can frequently be found. Often enough, this may be due simply to the fascination with novelty and innovation and the urge to understand it. Still, other analyses not only reject such a combined consideration of the Immaterial and material *within* digital capitalism, but, against the digital background, declare the whole idea of dialectics to be antiquated.

To Scott Lash (2002), for example, the proclaimed end of the industrial society simultaneously entails the obsolescence of dialectics as a whole (from Hegel via Marx to the French poststructuralists). He illustrates this with a view to the "dualism" of use and exchange value. According to Lash, this "dualism" is a characteristic feature of industrial society and therefore automatically becomes anachronistic in the information society (which was the term still used back in 2002). Old, traditional commodity-producing capitalism was still driven by the contradistinction between use value and exchange value, which is to say, between the transcendent, in the sense of the sphere of use value, and the empirical, instrumental rationality of the exchange value (see ibid.: 9). Apart from the baseless boldness of releasing use value, of all things, into transcendence and thus situating it outside the realm of our sensuous perception (raising the question of how the actual 'use' could ever be performed), Lash's argument appears to fall short for two other reasons: *firstly*, particularly at the height of industrialisation, capitalism produced masses of immaterial goods alongside material commodities: services, products of intellectual labour, information and entire systems of cultural practices of scientification. Any one-sided interpretation that associates 'old' with 'material' and 'new' with 'immaterial' neglects the fact that, empirically speaking, both aspects unquestionably existed and exist in both phases of capitalism. *Secondly*, Lash fails to present a reason why the dualism of use value and exchange value dissolves in the information society; once again, the driving force simply seems to be the pure dominance of the Immaterial: "But the logic of informationalization is altogether different. Unlike the logic of commodification, it is not dualist. It is an immanentist logic. It explodes and partly marginalises the exchange value/use value couple." (Lash 2002: 9)

While the logic of commodification—i.e. the process of becoming (or turning something into) a commodity—still exhibited the dualism of use value and exchange value, both become irrelevant as a result of informatisation, simply because of a logic immanent to information and the sheer mass of information, Lash contends. This argument is hardly convincing. It seems as if the Digital is particularly good at one thing: commodification. Ever since the birth of capitalism, the commodity form has burgeoned; it is proliferating and incorporating ever more areas and spheres of human and social life, making the latter predictable in the truest sense of the word. Although this is not an invention of digital

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capitalism, commodification reaches an unprecedented scale as a result of digitalisation. In her book *Surveillance Capitalism*, Shoshana Zuboff (2019) more recently expounded quite trenchantly on what we all experience in our everyday lives: the way in which—in the current state of digitalisation—even individual social micro-acts or human utterances can be turned into commodities. Indeed, this would rather suggest that the significance of the contradistinction between use value and exchange value was increasing. Lash does not explain his contrary claim and leaves the question unanswered as to how and why digitalisation, of all things, should decouple use value and exchange value. Instead, he describes the manifestations of this process of disintegration—as everything is becoming 'disembedded': actors, humans, non-humans, networks, cultural and material objects and above all—and here the argument becomes circular—information. Lash thus rather imprecisely applies Marxist theory while nonetheless claiming it to be the basis of his argument. Although it is important to note that while I use the word 'imprecisely', that is not to say that Marx's writings ought to always be adhered to adamantly as if they were Holy Scripture. On the contrary, if the world changes and existing categories are no longer appropriate, he can and should be dethroned. In fact, Marx would be the first to do just that: his famous self-description, 'All I know is that I am not a Marxist', is no coquetry.[4]

Lash is imprecise, even with regard to his central topic, as he uses dualism and dialectics synonymously. Yet these two terms must be distinguished very carefully. Dualism comprises two matters or properties which are clearly and distinctly distinguishable as being different in nature such as fish and meat, although this distinction is often interpreted unobtrusively as a contradistinction (see Ritsert 1997: 76). In dialectics, by contrast, it is necessary to distinguish dialec-

4 In the original: "*Tout ce que je sais, c'est que je ne suis pas Marxiste*." (Engels 2001: 7; emphasis in the original) This remark is taken from a letter by Friedrich Engels to Conrad Schmidt from 1890. In it, he describes how Marx critically distanced himself from the French 'Marxists' of his day; with a view to the debate in Germany, Engels himself criticises: "In general the word 'materialist' is used by many of the younger writers in Germany as a mere cliché with which to label anything and everything without bothering to study it any further; in other words, having once attached the label, they imagine they have sorted things out." (Ibid.: 8) However, according to Engels, it is simply a "guide to study", not a "tool for constructing objects" (ibid.). Engels considers the task at hand to be investigating in detail "the existential conditions of the various social formations […] before an attempt is made to deduce therefrom the political, legal, aesthetic, philosophical, religious, etc., standpoints that correspond to them. Little has been done along these lines hitherto because very few people have seriously set their minds to it […] Instead, the only use to which the cliché (anything can be turned into a cliché) of historical materialism has been put by all too many […] is hastily to run up a jerry-built system out of their own relatively inadequate historical knowledge—for economic history is as yet in its infancy—thus becoming great prodigies in their own eyes." (Ibid.) If we were to replace the term 'materialist' with 'digital' and 'historical materialism' with 'digital capitalism', the quote would indeed appear highly topical.

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tical oneness in contradiction from logical identity in difference: "Common sense isolates an immobilizes qualities, properties and aspects of things. […] Dialectical logic transcends static assertions but it does not destroy them. It does not reject the principle of identity, it gives it a content." (Lefebvre 2009: 26) The analytical distinction between dialectics and dualism is not so simple, however, for whoever engages with dialectics cannot help but use dualistic terms as well, yet dialectical thought overcomes the simplicity of dualism: "All dialectical relations are intrinsic relations, but the reverse does not hold true. Intrinsic relations are characterized by their relata being separate but interdependent, in an opposing and complementary way, and in that they form a unity or totality." (Israel 1979: 57)

We could dismiss this as philosophical hair-splitting and academic banter. And indeed, it is undoubtedly of zero relevance for our next Amazon purchase. Yet for the question of whether digital capitalism differs at its core from its industrial predecessor, this differentiation between dualism and dialectics is quite crucial.

The dualist considers exchange value and use value to be two distinct manifestations of a commodity. As a result, one of the two may change without affecting the other in any way. The dialectician, then, sees use value and exchange value as interlocked in an infinite struggle. They represent two entirely irreconcilable concepts—quality versus quantity—and yet they cannot exist without one another. Any product can have only a use value. A commodity, by contrast, always has both. A product is initially produced only for use, regardless of whether this is the early hominid hand axe or an open source algorithm for Machine Learning. Yet the commodity has been produced for sale and therefore invariably contains both: use value and exchange value. If one value side changes, then this must, at least from a dialectical perspective, necessarily entail an effect on the other side of value, or at least on the relation between the two or even on the entire commodity form as such. A dualistic perspective is in a somewhat more convenient position here, as it can claim the dissolution of one side or the other without the entire construct of the commodity, with its two manifestations of value, collapsing.

Of course, both perspectives are admissible, and my aim here is not to declare one of them false and the other true. Everybody is free to analyse our digitalised world with whatever intellectual toolkit they wish. After all, academic and social discourses thrive on informed friction and perhaps also on the contestation of the different concepts (incidentally, these days, it sometimes appears as if we have forgotten the fact that dispute—of course, always assuming a civilised form—can be something highly productive). My intention, however, is to demonstrate why a dialectical perspective can contribute far more to an understanding of current and allegedly digital capitalism than a dualistic perspective.

Few will be surprised to learn that Karl Marx expresses his rejection of the misunderstanding of dualism as dialectics. In his text *The Poverty of Philosophy* (1976a), for example, he deals in great detail with the dialectics of Proudhon and

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exposes it as a moralist dualism of good and evil. Yet above all—and Mariana Mazzucato has concisely and precisely transferred this subject matter into the present (see Chapter 3.1)—Marx explicitly rejects a dualist notion of use value and exchange value, instead preferring a dialectical understanding: "So far two aspects of the commodity—use value and exchange value—have been examined, but each time one-sidedly. The commodity, however, is the direct unity of use value and exchange value, and at the same time it is a commodity only in relation to other commodities." (Marx 1987: 282)[5] We could also say: one refers to substance, the other is (merely) the relation. To Marx, use value and exchange value not only oppose one another in a contradictory relation (in the sense of 'distinct'), but they determine one another and are inextricably coupled within the commodity. "A commodity can only therefore become a use value if it is realised as an exchange value, while it can only be realised as an exchange value if it is alienated and functions as a use value." (Marx 1987: 284) In other words: "While one values the commodity as a means of survival, the other sees such necessities as a means of valorization." (Haug 1986: 15)

Correspondingly, if the aim is to analyse digital *capitalism*, one has to argue either with or against Karl Marx (and, by all means, beyond him), but one cannot elude him. And it is certainly worthwhile being open to his ideas. Particularly the distinction between product and commodity, use value and exchange value, shows how inspiring it can be to make clear-cut analytical distinctions between something that in real life we only encounter in intertwined forms. Because we only buy what we need (or think we need). And because only that which someone, somewhere, at some point in time, needs (or think they need) can be sold. It is this intricacy that sets dialectics apart from the dualism: understanding that in the real capitalist economy we turn a product with substantial and specific use qualities into a commodity, thereby attributing a second and entirely contradictory side to one and the same 'thing' which is determined exclusively in quantifiable and rational terms.

Exchange value and use value differ in their logic from fish and meat. The relation between the two differs in a fundamental and contradictory way, while

5 *Translators note*: For an overview of which texts by Marx's and Engels's are included in which of the many volumes, go to: https://www.marxists.org/archive/marx/works/cw/. For volumes I, II and III of *Capital*, which have been taken from the MECW here (Vols. 35, 36, 37), we should also mention the translations by Ben Fowkes and David Fernbach (Penguin), as they are also commonly used as English reference, occasionally varying in the specific wording. For the sake of consistency and online retrievability, however, all Marx and Engels quotes in this book are taken from the MECW, published between 1975 and 2004 by International Publishers (New York) (in collaboration with Progress Publishers (Moscow) and Lawrence and Wishart (London)) and re-edited as e-books by Lawrence and Wishart in 2010, with in-text references referring to the original publication date of the respective volume.

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they are closely interwoven nonetheless. Neither the use value nor the exchange value of a commodity come separately—if they are separated from one another, the commodity form ceases to exist. A car is produced as a commodity, i.e. for the market; in this market, however, the exchange value can only be achieved (or, in simple terms: a sale can only be made) if someone actually needs and can make use of the car's use value (pertaining to the vehicle's capacity to drive and provide transport, but today this also includes the online entertainment system or the car's value as a status symbol). Yet, as we all know, the need is not enough: the person willing to buy the commodity must also be able to afford the requested sales price (if need be, via leasing contracts or instalment payments).

Let us return once more to the example of the hand axe and the open source algorithm. Both are products that were made by humans because someone (either oneself or someone else) has a specific use for the produced 'thing'—at least this is assumed (and the hominid may be just as mistaken here as the program developer who shares her code on GitHub or Tensorflow). And yet, there are material differences: the hominid will have had little time and few resources left over to make a very specific, new variant of hand axe without any prospect of an exchange; the demand for that particular tool should have existed at least in their own or neighbouring tribes. And given that there would have been only very few other human settlements nearby, the extent of the effort ought to be carefully calculated. As should the production itself: one chip too many or at the wrong angle or with slightly excessive force, and not only would the whole effort have been in vain, but the potentially rare, hard raw material would become useless.

For the coder, things are somewhat easier: she can connect with potentially interested users across the world. So, if there is no-one in her village or hip urban neighbourhood who needs the most recent variant of Nearest-Neighbour calculations, then there will still always be somebody somewhere in the world who recognises the code's use value and wants to use it. Likewise, potential mistakes are not a problem. Should the code still be 'buggy', it can be fixed. A mistake with the statistical models? Presumed the wrong data type somewhere? A too narrow or too broad parameter setting? Not a problem: all you need is debugging and an update.

The hominid may in fact barter the produced hand axe, say, for a wild boar or something else. The probability of such an exchange occurring depends on whether both sides see a comparable use value satisfied by the object of their respective counterpart. The open source coder actually does not exchange; she makes her work available at no charge. But that is something particular in her world, which is why it has its own name. It is not simply software development (where it is insinuated that someone wants to earn money). She lives under capitalism and in an age in which exchange cannot even take place without exchange value, i.e. quantification. And in which most of what is produced sees the light of day precisely because of this exchange value. In this world, everything is trans-

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lated into money, so to speak. Exchange is no barter, but a purchase or sale. Our open source coder has (at least in this instance) intentionally removed herself from this cycle. She would have to be able to afford this, of course, as no-one is going to pay her rent just because she provides such a beautiful, elegant and (hopefully largely) bug-free code at no charge.

It would be difficult to explain all this to the hominid. Perhaps he or she is already familiar with market-like meetings with other groups of hominids at which various use values are exchanged. And the negotiations will most likely focus not only on the need and use, but also on the labour that was expended in the hand axe's production. And the idea to use shells or something similar as a medium of exchange might have even already been around, too.

The crucial difference, interpreted from a dualistic perspective, would be that the hand axe is material, whereas the open source code is immaterial. As a result, the potential beneficiaries of the use value, the error resilience in production and the respective resource consumption would be different in each case. The hand axe can only ever be used by one person at a time and shows wear and tear; the open source code can be used by an infinite number of users again and again, and there is no material wear and tear (although there might be rapid obsolescence due to technological advancement). Broadly speaking, this is, by and large, the lens through which most diagnoses of digital capitalism have to be read: the argument is that because one is material and the other immaterial, because production dominates one form and information the other, because while in the past the decisive factors were hands, muscle power and material, today they are clicks, brains and bandwidth, and because one shows wear and tear and cannot be copied while the other can be infinitely reproduced and remains as immaculate as on day one, digital capitalism is a new kind of capitalism. This is ultimately what we learn from the analyses presented by Michael Betancourt and Scott Lash.

It was in fact intentional that I did not compare a 1970s Detroit plant worker at General Motors to a software developer at SAP in Waldorf or a 21st-century Silicon Valley start-up. The example of hand axe versus open source code is a contradistinction that can actually work in the dualistic sense. Yet neither of the two examples is genuinely capitalist. The hominid was spared the onset of capitalism and its predecessors. The open source coder, of course, lives in the midst of capitalism, but this small segment of her activity in life creates an intentionally non-capitalist niche (albeit a highly fragile one that is long being beguiled—if not downright engulfed—by the exchange logic). Seeing as both the hominid and the open source coder create products—but not commodities—and thus use values—with no intention of exchange, it suffices to consider those differences resulting from the material conditions (in the narrowest sense of the word) of production in each case, the distinct constitution of the products and the correspondingly differing forms of use.

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Yet if we were to consider the car industry worker and the salaried software developer through the same analytical lens, a—to continue in the vein of Scott Lash, dualistic—erroneous outcome would be the result. For if we merely compare the materiality of the produced car and its material production process to the immateriality of software and its programming (in the sense of non-material), we certainly gain a number of intriguing insights at the micro-level of activity. But to base the otherness of two distinct forms of capitalism (i.e. social modes of economic activity and production) on this alone is inadmissible for logical reasons. Indeed, the analyses presented thus far (Chapters 2.2 to 2.4) are not limited to this comparison, but proceed from it: use value is characterised by the Digital; it can be endlessly reproduced, and, as a result, the corresponding exchange value becomes negligibly small.

If digital capitalism were to entirely and fundamentally differ from its predecessor, the task would be to investigate—and Scott Lash did attempt just that, albeit with a rather unconvincing outcome—whether this dialectical contradiction between use value and exchange value is undergoing any kind of change or at least some sort of shift. After all, this dialectical relation is characteristic of capitalist economic forms and represents, not only to Karl Marx but also to Karl Polanyi, a key moment in the emergence of modern industrial capitalism (Chapter 4).

Hence, it is worth taking a closer look at this relation and possible changes thereof in digital capitalism. Let us first try to better understand what exactly Marx is describing when he refers to the dialectical contrastive pair of use value and exchange value. While the exchange value, in the sense of a quantitative relation, expresses a proportion, a quantitative ratio, on the basis of which the most diverse use values are exchanged, the use value pertains to the qualitative aspects, the actual usefulness of a commodity:

> "The utility of a thing makes it a use value. But this utility is not a thing of air. Being limited by the physical properties of the commodity, it has no existence apart from that commodity. A commodity, such as iron, corn, or a diamond, is therefore, so far as it is a material thing, a use value, something useful. This property of a commodity is independent of the amount of labour required to appropriate its useful qualities. When treating of use value, we always assume to be dealing with definite quantities, such as dozens of watches, yards of linen, or tons of iron. The use values of commodities furnish the material for a special study, that of the commercial knowledge of commodities. *Use values become a reality only by use or consumption*: they also constitute the substance of all wealth, whatever maybe the social form of that wealth. In the form of society we are about to consider, they are, in addition, the material depositories of exchange-value." (Marx 1996: 46; emphasis added)

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The slightly old-fashioned language aside, Marx is saying something equally fundamental and central in this passage: the use value of a commodity denotes nothing more and nothing less than the fact that it can—potentially—be needed by someone for something; that this need is utterly and completely of a qualitative nature and can thus not be quantified as such; that this need can arise situationally and individually, meaning that it indicates no ratios or figures that would allow to ascertain required quantities for exchange.

That is to say, if the use value can be measured by usefulness, which, moreover, can only ever be realised exclusively through human appropriation and use, there is primarily no reason why this definition cannot be transferred to non-physical-material goods. Correspondingly, the use value of an e-book can only come to fruition through the act of reading, the usefulness of an image editing software only in its specific application, namely the editing of a digital image, and a computer game only when it is played (and perhaps not even really so until you reach level 3). One may, however, feel inclined nonetheless to call into question Marx's remarks with a view to digital capitalism, seeing as the 'ton of iron' and the reference to the commercial knowledge of commodities sound so temptingly obsolete and like industrial society, they almost 'smell' of anachronism.

Yet use value is potentially inherent to any commodity. Every commodity may have a certain use for a certain purpose at a certain point in time, regardless of whether what Marx calls the physical body of the commodity is material or immaterial. Should the use value that is potentially contained in the commodity be realised, this requires human activity. The use value must be processed, depleted, used or consumed—i.e. appropriated in some way or another. In this sense, use value is something that may potentially be inherent in the respective form of a thing, but can only be realised during the process of appropriation. This statement also applies to those products that could be regarded as paradigmatic of digital capitalism. The (seeming) non-materiality of an operating system or a software, an app or a bot is not as immaterial as the authors discussed here would have it. Code is not nothing; it enables certain things and prevents other things. Software, for example, is always specifically optimised for a certain type of processor, compatible with a certain operating system, etc. The Immaterial, too, harbours a certain sphere of purpose, a potential usefulness—a use value. The use value of text editing becomes accessible during the process of writing. And no matter what you do or how hard you may try, you will neither elicit a 3D animation from a text editing program nor from a script language like HTML or any other programming language that is not capable of 3D functions.

So, ultimately, when applied to seemingly immaterial products, nothing has changed about Marx's fundamental message concerning the use value. I therefore refer to them not as immaterial, but as abstract-physical. What applies to both types of products is that a potential use value is inscribed in both the physical-ma-

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terial and the abstract-physical bodies of the commodity, such as driving as the potential use value of a car or the writing of a text as the potential use value of a text editing program. What both physical bodies of the commodities share, moreover, is that the potential use value produced in each case cannot be separated at will from the material-physical or abstract-physical conditions of the body of the commodity. Hence, both—the car and the text editing program—can in fact be used in multiple ways, but only within certain given limits, i.e. in some way or another that is posited in a material sense: "One and the same use value can be used in various ways. But the extent of its possible applications is limited by its existence as an object with distinct properties." (Marx 1987: 269)

In sum, there is no qualitative difference in the use value of abstract-physical and material-physical products. The topicality of use value can thus be salvaged for digital capitalism. This does not tell us, however, whether the dialectical relation between use value and exchange value remains equally untouched. After all, compared to industrial capitalism, there is a fundamental difference in the production of (the physical bodies of) the commodities bearing the respective use values, as is addressed by Jeremy Rifkin, Michael Betancourt and Paul Mason.

So, what holds equally true for both cars and software as physical bodies of commodities is that their potential use value is realised exclusively in the context of their use or appropriation.[6] That is why it may be true that each car has to be produced anew, while software can simply be copied to another device via download and thereby be appropriated through use by another person. For, while potential use values that are tied to material-physical bodies of commodities cannot be reproduced at will but always require the production of a new physical commodity, the potential use values associated with abstract-physical commodities can be reproduced as desired, as only the data medium of the actual 'immaterial' body of the commodity needs to be 'produced' or copied or simply made accessible via the cloud. In this sense, the dialectical relation between use value and exchange value must by all means be considered more carefully.

Yet if there are no substantial changes to the use value in the digital age, as we have seen, then there would have to be some sort of change to the exchange value side, otherwise, from a dialectical perspective, there would be no fundamental shift to be observed in the first place. All of the authors cited thus far agree that the exchange value is decreasing, even though they speak, somewhat imprecisely,

6 For the sake of completeness, it should be added here that the use value/exchange value dialectics also continue to apply in the case of the seemingly immaterial good of a person-oriented service: the difference compared to material-physical commodities is simply that the transaction between service client and service provider, the production process of the commodity and its appropriation by the service client are not separated temporally as a sequence of events, but that the production of use value, the appropriation of use value and the realisation of exchange value all coincide simultaneously in accordance with the *uno actu* principle.

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about price or costs or zero-marginal costs. It decreases because less living human labour had to be invested to produce another product in the sense of a new (albeit digitally materialised) use value. This is enabled by technological progress in the digital realm (more bandwidth, more powerful processors, more sophisticated frameworks and SDKs, etc.) and numerous organisational optimisations (from standardisation via agile software development and *continuous integration, dockers and sandboxing* to flexible server rent that is dynamically adjusted to the actual amount of traffic, and much more).[7] As a result of the combination of both—technological progress and organisational optimisation—the variable costs per 'produced' unit decrease. The required labour is less. The value decreases (which says nothing about the price that can ultimately be achieved on the market). This diagnosis is in fact shared by a diverse range of economists—and whoever bases themselves on Marx might add that all this would also have implications for the surplus value, profit rates and similar. This dispute, then, is of no interest to us at this point. What is important is something far simpler, and an indispensable element of the next step in the argument: reducing production costs per unit through technical and organisational measures is anything but typical for digital capitalism. Indeed, the entire history of capitalism could be written (and in fact often is) as a long sequence of technical and organisational improvements in the various manufacturing industries, always in an attempt to minimise variable capital—i.e. human labour—and achieve precisely one effect: cost reduction.

Yes, the phenomena are changing. Something like a 5-axis turning milling centre and server farms cannot be easily compared to one another. Nor can holistic production systems and agile development processes (although in both cases the old and the new display more similarity than one might assume at first glance). And yet, nothing about the economic core, at the analytical level and in the dialectical relation between use value and exchange value, changes under digital capitalism—at least initially. Use value and exchange value arise from the same mechanisms; they are of a similar substance analytically, they remain mutually contradictory and yet continue to be bound to one another. In other words, business as usual? Not quite. There is a change in the dialectical relationship—at least I would claim as much: the dialectical relation is not dissolved, but *the paradox arises that the increasing exchange value compatibility of the physical bodies of the commodities renders the potential use values more visible—and more significant*.

The example of an app illustrates this: the initial production process that needs to be performed just once (i.e. in the act of programming) engenders an abstract-physical commodity (the code) which proves particularly compatible with

7 As it were, this is also made possible by the general transformation of the social forces of production, which includes, say, the corresponding educational institutions and professional profiles, but we shall leave this aspect aside here.

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exchange value (through compilations and reproducibility): if one wishes to supply more commodities to the market, this requires no renewed production process in the sense of programming; the app must simply be made available via, say, Apple's App Store. This seemingly complete separation of the production of use value from commodity production initially appears like the capitalist dream come true: invest just once in means of production and living labour for the production process of app programming, reproduce the use value as often as needed at very low investment costs for cloud server structures and realise an exchange value on the market each time that is far above the cost of making the app available.

These conclusions, which derive from the reproducibility of the potential use value, may indeed be interpreted as a new direction of movement in the dialectical relationship between use value and exchange value. Only when this relationship is reduced to the alleged dualism of use value and exchange value, as Scott Lash does (see above), do you run the risk of mistakenly concluding that the relationship might by irrelevant or dissolving altogether. In reality, the ostensible assertion of the dominance of exchange value leads to the opposite: it renders visible, in a new quality, the significance of living labour and the use value aspect of its products and processes of appropriation.

On the one hand, what remains unchanged is that the potential use value is equally and indistinguishably inherent both in the original and the copy, and also remains relevant for the realisation of value: only the app that meets an existing need or one that has been created (through human labour) will be downloaded and bought. The use value itself continues to be realised through usage, which also represents some form of human labour or playful activity. On the other hand, it becomes clear that if no additional human labour is expended or this occurs only in a very mediated form, in order to 'produce' another product, then no new exchange value is created either. That is to say, this additionally created use value would not really have to cost much or even anything at all. The fact that access to this use value costs a fee regardless appears normal to us and is explained or indeed justified—pointed out by Mariana Mazzucato, as shown above—in the dominant economic theories with reference to demand and supply or the genius of an individual entrepreneur. Given the (virtually) zero marginal costs, Paul Mason hopes for the end of capitalism. In order to realise exchange value regardless, new and if possible exclusively controlled ways of exchange are invented, which brings us to all the other diagnoses in which the platform economy is identified as the truly novel feature of digital capitalism. There is—and current diagnoses of the times indeed expose as much—discursive and real obfuscation of what is becoming more visible: only if human labour is expended does the product, as a commodity, acquire an economically measurable value.

The more interchangeable the form of a commodity becomes, and the more the commodity approximates the exchange value in terms of its quality (seeing

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as it is abstract-physical in this case), or only appears to do so (given that the exchange value is an economic abstraction, after all)—the more it points to that which (seemingly) lies behind it. This direction of movement illustrates with unrivalled clarity that exchange value and use value are also locked in a dialectical relation in digital capitalism: there is no chance that one might assert itself over the other; one can gain in dominance only if the other (and that which lies behind it) becomes more visible as well. Use values—and even workers' interests—can be realised "only through the needle's eye of valorization" (Negt/Kluge 1993: 57). And this circumstance has so far not changed substantially under digital capitalism—yet the eye of the needle is becoming more visible, and therefore also that which is supposed to pass through it. The character of the eye of the needle itself will continue to be of interest to us in the following, as will the question of whether the relation between use value and exchange value of the most special of all commodities—labour power—has changed under digital capitalism.

3.3 Continuing the search for the new

The analyses put forward by Mariana Mazzucato help us understand capitalism in the digital age, whereas those proclaiming a digital capitalism do not. Mazzucato considers what is changing economically, and she regards the Digital as phenomenon, not cause. Michael Betancourt also claims to do the same, and yet, his analyses are not nearly as economically motivated and sound as those of Mazzucato. This became especially obvious in our above discussion of the concept of value. Likewise, the engagement with Scott Lash's thesis on the change in the relation between use value and exchange value has taken us a step further. Yet several questions remain that need clarification.

The productive element of unproductive labour: why do capitalism and economic theory succeed in maintaining the myth of the (un-)productive, which the latter itself exposed? Ideologies and narratives can undoubtedly be extremely powerful, and linguistic reframing persists even in the face of all obvious inadequacy (one need only consider the example of employee (in German: *Arbeitnehmer*, literally: 'labour taker') and employer (in German: *Arbeitgeber*; lit.: 'labour giver'): who really gives and who receives in this relationship?). All of this may be true. But could and should one not ask: *for whom* is this relationship productive, or unproductive, beyond this narrative? Karl Marx emphasises that non-productive labour can by all means add to the productive power of capital, and that the "production of the means of communication, the physical conditions of circulation, […] do not constitute a special case". (Marx 1986: 457)

No advertising revenues without the commitment to advertising spending: almost all current analyses of the digital economy more or less elaborately address the

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particularly high levels of advertising revenue earned by Google and friends, criticising the unpaid labour by users that is harnessed to that purpose (in Zuboff: 'behavioural surplus'). This is correct and largely undisputed. What is often overlooked in this context, however, is that online user behaviour is an important asset for designing far more targeted and better individually adapted advertising than in the past. Yet all of this is only lucrative (that is, in the sense of active capital, 'productive') if other individual capitals are willing to pay for this advertising. If the advertising budgets are only shifted from offline to online media, then this may simply point to a change in the use of media. And if advertising budgets rise significantly and online advertising is merely added to offline advertising, then this could be explained by strategies of market expansion. In that case, that which is new would be a mere phenomenon of digitality. But could this change not also hint at a shift in significance that is occurring at a deeper economic level? After all, only then would it be legitimate to speak of digital capitalism.

The new superabundance, really? I may be excused for adding this rather colloquial question tag, but what can you say when superabundance (of exchange values or capital) in one form or another is actually presented as something that is new about digital capitalism? Mariana Mazzucato has shown how the redefinition of value as something subjective is also accompanied by the insinuation that scarcity increases the value. Many current analyses of digital capitalism regard its alleged capacity to produce digital products in infinite numbers, and at almost no cost, as a systemically new quality of digital capitalism. In these approaches, superabundance is something new in this particular stage of capitalism. But is it really specific to present-day capitalism? Which consequences (apart from endlessly increasing profits among only a small number of players) would this entail?

Place and source of value realisation: Mariana Mazzucato has brought the question of value *creation* (or value generation) back onto the agenda in a very inspiring way. And she has sharpened our view of (new) processes of value *appropriation* or value extraction. And yet, do these two perspectives suffice to understand current capitalism and the special role of the Digital in it? After all, the blind spot—including in Mazzucato's brilliant *tour de force* through various centuries of economic theory—continues to be the *realisation* of value. Does it exhibit a new or changed significance in current capitalism? Does it at least help to partially explain the success of current digital business models, and more convincingly so than the mere reference to the fact that they exist?

If these four questions can be answered and these answers unearth something new in analytical terms, or at least some new shifts in meaning become visible, then the talk of digital capitalism would perhaps make sense. I claim that value realisation—thus far, the second blind spot in the presented analyses—holds the actual answer. I believe that capitalism has reached a level at which the realisation of value constitutes the true challenge for many businesses. After all, most

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businesses have optimised value creation to the utmost, and only few major players profit systematically from value extraction. Mazzucato already touches upon this aspect. With reference to Marx, she briefly describes the significance of value realisation on the market and cites Marx's prediction that corporations will emerge—commercial capitalists—whose business model is geared towards the value realisation of other, value-generating businesses. Mazzucato illustrates this based on the example of Amazon, without further developing the argument: "Under capitalism the commercial capitalists realize the value produced by the production capitalists. To apply Marx' theory to a modern-world example, Amazon is a commercial capitalist because it is a means by which production capitalists sell their goods and realize surplus value." (Mazzucato 2018: 53)

We shall see at a later point that the fact that commercial capitalists use the Internet today is by far not the only new phenomenon—otherwise even Amazon would essentially be no different from a commercial capitalist in pre-digital times. The only thing that would have changed in this case would be that not only the means of commerce but also the markets on which trade takes place are based on digital infrastructures and therefore take on a global dimension. This is certainly new, particularly to this extent, and merits attention for that reason alone—but it can only be the starting point, not the endpoint of the analysis of modern-day capitalism.

One reason for this may be that superabundance—or, in old-fashioned terms, the logic of overproduction—has reached a point, just like Michael Betancourt's scarcity of capital—again, to use an old-fashioned term, over-accumulation—, whereby the realisation of value on the market has become the actual obstacle. Ultimately, only what can be sold is productive, which brings us back to Marx. What Mazzucato exposes as the narrative of economics is thus not only ideology but reflects the state of current capitalism itself. This could explain *why* the digitally enabled forms of advertising and marketing and the major players of digital commercial capital are so important, not only as a business model of commercial capital but particularly for production capital and its increasing strategic reliance on value realisation. We shall continue to pursue this argument—the allegedly increased relevance of value realisation—in Chapter 5. However, before we do, we need to overhaul our theoretical toolkit and, moreover, examine whether the analyses of the emergence of original—i.e. production-based, industrial—capitalism can really help us to understand capitalism in the digital age.

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4. Transformation and the Productive Forces

So far, we are still searching for a digital capitalism that is analytically defined by more than its digital means (see Chapter 2). Marx would associate the altered, now digital means with the level of phenomena, the materiality of which must by all means be taken seriously. And yet, he would only proclaim a new stage of capitalism if the economic principles as such had altered in some way or another. Consequently, our search ought to continue by investigating what lies 'behind' the phenomena and venturing into the domain of economic principles. At the same time, the fundamental economic principles of capitalism must remain in place to some extent if the term capitalism is still to apply. At least with regard to use value and exchange value, we have seen that this is the case (see Chapter 3): both sides of value and their relation to one another do not disappear in digital capitalism; instead, what becomes clear, quite paradoxically, is that human labour continues to be the crucial factor for the generation of exchange value and the appropriation of use value even in the (allegedly) new type of capitalism. And indeed, some intriguing shifts do become apparent. However, one question raised by all diagnoses of digital capitalism remains unanswered: what new aspect is *really* underlying the fact that many things are becoming (more) digital? What would be the justification for a discourse on digital capitalism in which the 'digital' were to refer not only to the—without question, utterly dramatic—otherness of the means, but also signal a more fundamental economic shift within capitalism?

The platform economy, as a new form of marketplace, appears to constitute an important—yet inconclusive—response by digital capitalism. Whether or not we are seeing only a temporary formation of monopolies, which may be swiftly brought under control by government regulation and market competition—both of which constitute common self-descriptions of democratic states and economic actors—is impossible to say at this point.[1] For now, it seems promising to continue

1 It is but more evidence of Marx's dialectics that he does not consider the formation of monopolies in direct opposition to competition, nor as the end point of a development, but as a movement: "In present-day economic life you will find, not only competition and monopoly, but also their synthesis, which is not a *formula* but a *movement*. Monopoly produces competition, competition produces monopoly." (Marx 1982: 101; emphasis in the original). And even though he is, of course,

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along this path a little further. After all, according to Karl Polanyi, the *Great Transformation* (2001) that led to capitalism also entailed the creation of a market that had been unknown up to that point. It is Polanyi's understanding that during the 15th and 16th centuries, the state enforced the national and competitive market very purposefully and in spite of opposition from towns, which initially walled themselves off, while local and international markets had existed long before—albeit for the most part not as competitive markets. Market implied, above all, bartering and exchange, not competition: exchange and bartering at the local level in order to guarantee the subsistence of the community and long-distance trade based on a division of labour that emerged naturally from differing geographical and climatic conditions. In his deliberations on the 'Evolution of the Market Pattern' (ibid., pp. 59–70), Polanyi thus also dispels two myths that are still quite common today: firstly, that national and international markets emerged naturally from local markets and from the respective economic activities. In this regard, Mariana Mazzucato also notes: "In Karl Polanyi's epic book […], he argued the State created—pushing, not only nudging—the most 'capitalist' of all markets, the 'national market' (while local and international ones have pre-dated capitalism)." (Mazzucato 2015: 209) Secondly, and, in my view, more importantly, Polanyi also reckons with the idea—which may appear rather inconceivable to us these days—that market and competition need not necessarily be equated.

Before returning to Karl Marx, we will first briefly digress to Karl Polanyi (Chapter 4.1). His analysis of the *Great Transformation*—i.e. the emergence of industrial capitalism—can perhaps help us better understand the current transformation and its specific character. We will witness that Karl Polanyi sees one crucial change in the role of the merchant and the act of buying. Besides that, he is far more critical of capitalism and the possibility of its restriction than is often assumed today. To Polanyi, the transformation begins with the purchase of something that was previously not a commodity: human labour. He does not limit his diagnosis to purely economic or technological explanations, but places these dimensions in relation to (social and institutional) reactions from within society.

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also interested in the cause of monopoly formation, he does not neglect the devastating effects for other, smaller companies—a concern that one sometimes misses among those who so enthusiastically address the middle classes in their soap-box oratories: "Concentration grows at the same time, since beyond certain limits a large capital with a lower rate of profit accumulates more quickly than a small capital with a higher rate of profit. This growing concentration leads in turn, at a certain level, to a new fall in the rate of profit. The mass of small fragmented capitals are thereby forced onto adventurous paths: speculation, credit swindles, share swindles, crises." (Marx 1998: 249). The formation of monopolies and the global dominance of 'corporate giants' continues to be a phenomenon away from the digital economy, as Tim Wu (see 2020) demonstrates for the case of meat production—even though the tech explosion of the 1980s and 90s and today's tech giants do play a significant role in his view as well.

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Karl Marx analyses the evolving capitalism of his day in a similarly complex manner, applying the term of the 'development of the productive forces' (Chapter 4.2). Both Karls reconstruct the technological, economic and social changes in at times perplexingly detailed empirical depth, often with a good grasp of specific technological issues. In contrast to Polanyi, however, Marx rigorously focuses on the productive process, which remains a peculiar black box in Polanyi's analysis. Marx's productive forces provide us with a highly productive (as would fit our terminology here) analytical screen that not only conceives of technology, the economy and society as one, but which pinpoints the mechanisms of their interplay and inherent contradictions, and thus brings the dynamic of change itself into view. The triad of productive forces, relations of production and the resulting mode of production thus reveals additional layers of analysis and insight that seem particularly conducive to systematically studying current capitalism in its digital incarnation.

Proceeding from this perspective, we will then once again take aim at the current discourse surrounding digital capitalism (Chapter 4.3) and assess whether it has in fact been exhaustively studied using the analytical tools provided by these two key economic thinkers. We will see that both are vaguely referenced, but that particularly the somewhat more multi-layered Marxian approach of the development of the productive forces is used in an insufficiently complex and often merely metaphoric manner, leaving the explosive force of this analytical toolkit unused. On the contrary, when it comes to the question of the development of the productive forces, we find either hollow exaggeration claiming a leap in development or empiricist reductionism. Only rarely were the tracks laid out by Karl Polanyi and Karl Marx earnestly and skilfully pursued. Just how unfortunate that is becomes obvious when considering that the clear and precise structure of their ideas, their empirical seriousness and analytical breadth suggest a way forward that also seems promising for an understanding of today's digital capitalism.

Taking into account Polanyi's merchant and the altered significance of buying, and Marx's production-based analysis and the momentum of the development of the productive forces in isolation, does not, however, explain what is really new about digital capitalism. Yet at the end of this chapter, we should be somewhat better equipped theoretically to reveal just that. Although the answer is unlikely to be fully elucidated, it will hopefully be much clearer which blind spot(s) still require attention.

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4.1 Polanyi's Great Transformation

While Marx addresses mainly the (dys-)functional mechanisms of capitalism, Polanyi historically reconstructs the emergence of capitalism in England. This detailed focus on the transformation itself (instead of its 'outcome')[2] appears productive for our search for digital capitalism's novel feature(s). After all, we are looking for something that suggests change on a far greater scale than what would be considered normal in modern societies. So, is it really more dramatic, life-changing—'starker'? Karl Polanyi at least begins his famous diagnosis of the *Great Transformation*, originally published in 1944, by describing a comprehensive collapse in his dramatic opening statement: "[n]ineteenth century civilization has collapsed" (2001: 3); a collapse that has its roots in the utopia of a self-regulating market: "Our thesis is that the idea of a self-adjusting[3] market implied a stark Utopia." (ibid.) This might be precisely the reason for the rediscovery of and engagement with his work in recent years: today, there seems to be a sense that the end of the 20th century also heralded the end of all its associated social dimensions.

Correspondingly, a whole host of publications on Karl Polanyi has appeared, particularly concerning his *Great Transformation*, owing not only to the 75th anniversary of the book's original publication, which was marked in 2019. The German-language publications include, for example, the comprehensive special issue of the *Berliner Journal für Soziologie* (Dörre et al. 2019), which adds a question mark to the title (*Great Transformation?*) with a view to the threat of ecological collapse. Back in 2011, an ecological report submitted to the German government (WBGU 2011) adopted Polanyi's title and sparked renewed interest in his work—which was originally supposed to be called *The Origins of Our Time* (see Sachs 2013: 19); however, Polanyi himself would probably be turning in his grave were he to read this report, which—blissfully clinging to the notion of 'feasibility' as it does—shows absolutely no intention of calling the market into question (see ibid., p. 22).

Gareth Dale, Christopher Holmes and Maria Markantonatou (see 2019), for example, present a comprehensive introduction to Polanyi's work that is intentionally not only designed with economics departments in mind, but open to all disciplines, and which discusses each of his central concepts in dedicated chapters (e.g. commodification, the gold standard, geopolitical economy, etc.). Peadar

2 Likewise, Karl Marx, of course, not only considers the 'outcome'; he and Friedrich Engels also always closely inspect the historical stages and predecessors of capitalism. Their primary intention, however, is to analyse the particular mechanisms of the capitalist mode of production (and especially its crises). Karl Polanyi, with his special focus on historical development, goes more into detail and pursues a kind of path of economic sociology with a focus on institutional interrelations.

3 Karl Polanyi, for the most part, speaks of 'self-regulating markets'; his use of the term 'self-adjusting' is to be understood synonymously here.

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Kirby (2020), by contrast, builds on Karl Polanyi's theories to develop his own theses on the ecological and socioeconomic crisis, as well as a model of eco-socialism that he seeks to position in critical distance to the weaknesses of Marxism. In a collected volume edited by Radhika Desai and Kari Polanyi Levitt (2020), comprising conference papers and lectures from the year 2014, the question is pursued, among others, whether Karl Polanyi's work will be as influential in the 21st century as that of John Maynard Keynes and Friedrich A. Hayek was in the 20th. From the discussion presented in this book, we learn that *The Great Transformation* in fact re-emerged in economic discourse as early as the 1990s. Ever since, the interest in Polanyi has steadily grown (see an overview in Polanyi Levitt 2020). As is the fate of all the major economic thinkers, the interpretations of Karl Polanyi's work (or rather: his intentions) vary in accordance with the views of the respective person doing the interpreting. Gareth Dale (2016: 4–5), for instance, describes how Polanyi has been referred to by various authors either as 'soft', in the sense of 'social democratic mainstream', or 'hard', meaning 'red-blooded socialist'. Michael Brie distinguishes between three interpretations of Polanyi, alternating between "'Polanyi Light', 'Polanyi Faked', and 'Polanyi Himself'" (2017: 12).

It is not just Polanyi, but also his critics who are being rediscovered. There is the book *Has Market Capitalism Collapsed?* by Allen M. Sievers (2020), for example, originally published in 1949 and re-edited in 2020, which critically engages with Karl Polanyi and already casts doubt on the 'collapse' in the book's title. However, it has not always been as *en vogue* to align oneself with or oppose Polanyi. For instance, the author of an early review of Sievers' book raises the question as to whether Karl Polanyi's *Great Transformation* is even sufficiently relevant to be dealt with in such detail. He concludes: "Here a negative answer seems in order." (Oliver Jr. 1950: 366) After all, he contends, Polanyi's work has neither had any major impact nor has it led to anything resembling a status of authority.[4] This has undoubtedly changed since.

For the objective we are pursuing here—i.e. a more profound understanding of digital capitalism—a glance at the original work by Karl Polanyi seems appropriate. Polanyi very succinctly sums up his central theses on the introductory pages of his book: in his understanding, 19th-century society was based on four institutions that ensured a degree of stability and continued development—or, as he put it: a "'hundred years' peace" (Polanyi 2001: 5). Between 1815 and 1914, he explains, there was a total period of only 18 months of war between England, France, Prus-

4 However, according to Oliver, both books—Polanyi's original and Sievers' criticism—are valuable in their own right, as they argue against both laissez faire and interventionist economics which still assume that society and economy can be considered separately. Besides this, the review's author shows appreciation for the "aesthetic merit" and "strict logic" of "Marx, Polanyi, *et al.*" (Oliver Jr. 1950: 366)

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sia, Austria, Italy and Russia, "a phenomenon unheard of in the annals of Western civilization", as Polanyi emphasises. However: "This triumph of a pragmatic pacifism was certainly not the result of an absence of grave causes for conflict." (ibid.: 5) As a result of the "rising tide of the Industrial Revolution", "peaceful business as a universal interest" (ibid.: 7) was established. And this did not simply happen automatically. What it required was an authority that would effectively assert the objective of peace. According to Polanyi, it was *haute finance* that assumed this role (ibid.: 10). The actors in that context were not particularly pacifist—in fact, many had accumulated their wealth by funding wars. And yet, even at the time, *haute finance* already had a supranational function and was recognised as an intermediary between governments and industrial enterprises in a rapidly growing global economy. What emerged as a result was one of the most complex organisational forms in human history: "Organizationally, *haute finance* was the nucleus of one of the most complex institutions the history of man has produced." (ibid.: 11) So, this is the context in which Polanyi sees the emergence of the four relevant institutions occurring: a political balance of forces that is viable in the long term; the gold standard; the liberal state and the self-regulating market (see ibid.: 3). Yet he does not consider these four institutions to be equal or interchangeable. On the contrary: the self-regulating market assumes a key position. Not only does it initiate the formation of the other three institutions, but it is also, and above all, the cause of potential destruction as a result. According to Polanyi, "Such an institution [the self-regulating market] could not exist for any length of time without annihilating the human and natural substance of society; it would have physically destroyed man and transformed his surroundings into a wilderness." (ibid.: 3) From today's perspective, we might add that this wilderness would also be destroyed and turned into barren land.

In order to prevent this from happening, society was forced to take protective measures, which then damaged the self-regulating mechanisms of the market and led to the disorganisation of industrial development and shattered the related social structure (see ibid., p. 4). The point Polanyi makes is not that an ultimately socially and ecologically destructive economic form needs to be socially controlled, but that this economic form *will (necessarily) have a destructive impact with or without social control*. Polanyi admits that his assertion on the self-regulating market-system is quite extreme and "shocking in its crass materialism" (ibid.: 31). Yet, as he notes, the mechanism through which the hunt for profit was originally set in motion is comparable, if at all, with "the most violent outbursts of religious fervor in history"—and the world was subjected to this unbridled authority only a generation later (see ibid.).

Now, let us consider the developments of the 20th century through Polanyi's analytical lens: up until the late 1980s, the balance of forces between the two superpowers was the all-determining factor. The market economy, which had

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been re-established in Western countries, was constituted as a 'social' market economy and thus as one that was to be politically and socially controlled. It is since this decade that the measures to restrict market society established after World War II have continuously been dismantled, while the process of globalisation has simultaneously been further institutionalised transnationally. The end of the community of Socialist countries was ultimately accompanied by a largely unimpeded expansion of a world-spanning, self-regulating market which today—to put Polanyi's argument in a nutshell—requires a new quality of restriction. When reading Polanyi's remarks on the historical emergence of the self-regulating market economy, however, it becomes clear: to him, the re-establishment of a profit-driven market economy following World War II and then once again after the collapse of the Eastern bloc would constitute a more fundamental 'knitting flaw', once more inevitably causing the destruction of human beings, nature and society. Admittedly, today's global, for the most part fully implemented market society is also anything but self-regulating and thus fails to live up to its own utopia. But in Polanyi's view—and this is overlooked by all those who read his work as a one-sided call for market restriction—both directions of a 'double movement' (towards the self-regulation of the market and back to its restriction in order to protect society) equally represent phenomena of the same major, and ultimately destructive, transformation:[5] "Social history in the nineteenth century was thus the result of a double movement: the extension of the market organization in respect to genuine commodities was accompanied by its restriction in respect to fictitious ones." (Polanyi 2001: 79)

From this perspective, renewed destruction is inevitable, even if the forms and paths were to take an unexpected direction and possibly entail completely different tendencies and manifestations of destruction than those that influenced Polanyi's work. Only this reading, which construes market restriction as ultimately destructive as well (even though it may not constitute the actual cause of destruction), makes it comprehensible why Polanyi referred to his own assertion as "crass" and "shocking" (ibid.: 31). The assumption of a market economy that generally requires some sort of restrictive measures may offer many starting points for reforms (and to many different interested parties, too). Polanyi, however, is concerned with carving out the destructive force inherent in both the nature of

5 Polanyi considers any restriction of the self-regulating market—even frequently called for by economic liberals—as something that ultimately reinforces the utopia of the self-regulating market: on the one hand, free market liberals can claim that short-sighted union officials and Marxist intellectuals, greedy industrialists and reactionary landowners are preventing the utopia from materialising, while the opposite side can point to the restrictions as evidence of a threat to society posed by a utopian principle of a self-regulating market (2001: 157). So, according to Polanyi, both protagonists and critics ultimately promote the same utopia.

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the market economy and in all attempts at its restriction, for that destructive element, to him, is the revolutionary aspect.

The Industrial Revolution, he asserts, improved the means of production in wondrous ways, yet people's lives changed dramatically for the worse: "In the heart of the Industrial Revolution of the eighteenth century there was an almost miraculous improvement in the tools of production, which was accompanied by a catastrophic dislocation of the lives of the common people." (Polanyi 2001: 35) This development of the productive forces has permanently continued ever since and today, aided by digitalisation, once again descends on people's lives, both globally and locally, in rather polarising ways: it affects everyone—high-income groups, but also those high potentials threatened by burnout as a result of their flexible and packed work schedule; the hip yet precarious self-employed digital worker; the Indian family who shares an account on a micro-task platform; the skilled worker in the automotive industry who is exposed to the relentless competition between production locations, or the unemployed person whose level of qualification is labelled an 'obstacle for placement' (*Vermittlungshemmnis*) on the local labour market. Phenomena of dislocation can be seen as much in Böblingen as in Bangalore. Those affected are subjected to the constantly advancing improvement of the means of production everywhere (or, in fact, actively involved in this process via production-related Continual Improvement Processes (CIP) or Objectives and Key Results (OKR)) and confronted with production methods that are more reminiscent of Polanyi's time than ours. What they all have in common is the participation in consumption—with differing financial possibilities and very diverse individual motivations for doing so; we will return to this later.

This condensed summary of some of Karl Polanyi's central theses regarding the first *Great Transformation* must necessarily remain somewhat simplistic. Some parallels with the current situation and with digital capitalism have already been hinted at and indeed seem plausible. At least one aspect that is conspicuous is that although Polanyi believes this sea change in human history to be overwhelmingly dramatic, he does not consider this shift to be a phenomenon of the new mechanical means of production, let alone try to explain it from such a perspective. He displays a very differentiated understanding of development, which is often lost in the engagement with his work. For example, he emphasises that the often-told story of the Industrial Revolution cannot be reduced to a single cause, but resulted from the interplay of economic (market expansion, a vast number of destitute people), social (free institutions), technical (innovation in raw material processing and machinery) and natural (raw material supply, climate) factors:

> "The story [of the Industrial Revolution] has been told innumerable times: how the expansion of markets, the presence of coal and iron as well as a humid climate favorable to the cotton industry, the multitude of people dispossessed by the new

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> eighteenth-century enclosures, the existence of free institutions, the invention of the machines, and other causes interacted in such a manner as to bring about the Industrial Revolution. It has been shown conclusively that no one single cause deserves to be lifted out of the chain and set apart as *the* cause of that sudden and unexpected event." (Polanyi 2001: 42)

This shows that Polanyi rejects the kind of reductionism that we are faced with once again in discursive terms and which, in the debate surrounding 'Industry 4.0'—the four stages of which are each, per definition, causally linked to a specific technology—is seeing a seemingly unending resurgence much like the living dead in a zombie movie. Yet Polanyi is equally discontent with simply listing the characteristic phenomena and relevant conditions of that which is new. Instead, he raises the question we should also be asking with regard to digital capitalism: what exactly makes this process of digitalisation so revolutionary? What is being brought into the world that is so fundamentally new?

> "But how shall this revolution itself be defined? What was its basic characteristic? Was it the rise of the factory towns, the emergence of slums, the long working hours of children, the low wages of certain categories of workers, the rise in the rate of population increase, or the concentration of industries? We submit that all these were merely incidental to one basic change, the establishment of market economy, and that the nature of this institution cannot be fully grasped unless the impact of the machine on a commercial society is realized. We do not intend to assert that the machine caused that which happened, but we insist that once elaborate machines and plant were used for production in a commercial society, the idea of a self-regulating market system was bound to take shape." (Polanyi 2001: 42–43)

Similarly, we may ask today: is it the relocation of production facilities to other countries? It is the emergence of slums in the former centres of industrialisation? Is it the endless working hours of the highly skilled? Is it the low wages paid to workers at Amazon's fulfilment centres or to Facebook's outsourced content moderators? Is it the population growth in some and the simultaneous over-aging in other regions of the world? Or is it the concentration of digital infrastructure companies? As in the past, Polanyi would today disagree with merely listing phenomena and effects. Instead, he would be keen to know: how is this revolution itself to be defined? What is (or was) its characteristic feature?

His response consists of two components: to him, the introduction of the market economy marks the beginning of a fundamental change. The nature of this institution, however, can only be fully comprehended with an understanding of how the machines—i.e. the novel technology—affect the previous commercial

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society. Polanyi does not see technology itself as the actual cause of change but is instead much more concerned with what happens when a certain technology encounters existing economic mechanisms. To him, the concept of a self-regulating market system took shape in reality at the very moment in which production machines were applied in a commercial society. *That which is technologically new, then, must in some way or another be able to link up with existing economic mechanisms in order for something economically new to emerge* (which to both Karl Polanyi and Karl Marx also always means 'socially new').

So, if we follow this logic, what would be the answer to the question raised above? That is to say: what happens if it is not production machines that encounter commercial society, but information machines that encounter production capitalism? *Which existing economic mechanisms are digital capitalism's novel technological features forging links with?* Interestingly, we find fairly similar questions being raised by Polanyi: he explains that, in the course of the emergence of the market economy, towns, which themselves emerged from markets, acted not only as protectors of these markets but were also supposed to prevent the expansion of markets and thus the destabilisation of the existing economic organisation of society (see ibid.: 65). Towns thus had a dual function: they developed markets and simultaneously limited the expansion of this model: development *and* closure. The parallels with the platform economy become apparent if we replace only a few words in Karl Polanyi's original text:

> "*Platforms* [Towns], insofar as they sprang from markets, *are* [were] not only the protectors of those markets, but also the means of preventing them from expanding into the *whole economy* [countryside] and thus encroaching on the prevailing economic organization of society. The two meanings of the word 'contain' express perhaps best this double function of the *platforms* [towns], in respect to the markets which they both enveloped and prevented from developing." (Polanyi 2001: 65; words in italics have been added, the original wording is in brackets)

So, the only change that the proprietary markets of the platform economy would entail is that the erstwhile geographic and political ties to the town have been severed. Would Polanyi consider this a fundamentally new development or rather interpret it as a—no less intriguing, or consequential—continuation, or perhaps even an intensified development? In my view, the latter seems more likely. This becomes clear when we continue to trace Polanyi's search for the new. Before doing so, however, let us briefly consider two more recent texts that examine the platform economy through Polanyi's analytical lens.

In a study conducted by Gernot Grabher and Jonas König (2020), the authors draw a parallel between Polanyi's remarks on the steam engine and today's digital platforms: to Polanyi, they inform us, "'the industrial revolution, not the rise

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of capitalism is the turning point of modern history', as he repeatedly emphasises 'that machinery is the driver of marketization, and not capital accumulation'." (ibid.: 100) This reading degrades Polanyi—in my view, unfairly so—from an analyst and critic of capitalism to a technology-deterministic historian. A few pages on, the authors do qualify this impression to some extent, yet only to once again equate Polanyi's statement that the machine cries out for workers' hands with the notion that the platform economy cries out for data: "We recall Polanyi's […] theatrical portrayal of machines that 'were crying out for human hands.' The ramifications of the proliferation of the new digital infrastructures are no less far-reaching, albeit they 'cry out' for another essential resource: data." (ibid.: 105) If we refer to the actual passage in Polanyi (see 2001: 92–93)), we find that he is not referring to technology, but to the conflicts between political and economic actors surrounding the regulation of labour, as it became necessary to supply the capitalist mode of production with sufficient 'free' labour forces. As Polanyi states in his historical review of the Speenhamland system, it was not a response to some technical requirements, but to the arrival of capitalism, which appeared on the scene unexpectedly for the corresponding actors: "Capitalism arrived unannounced." (ibid.: 93)

Grabher and König classify 'data' as another one of Polanyi's fictitious commodities of land, labour and money: "Data, then, correspond with Polanyi's […] construal of 'fictitious commodities': they are brought to the market, but are 'not produced for sale'." (2020: 105) Here, again, a glance at the original source is worthwhile. In my view, there is far more we can learn about the platform economy from Polanyi's argument than to declare data a fictitious commodity. Polanyi initially considers the complexity of the whole and the requirement for everything to be dissected into supply and demand and receive a price in order to comply with the market logic:

> "In practice this means that there must be markets for every element of industry; that in these markets each of these elements is organized into a supply and a demand group; and that each element has a price which interacts with demand and supply. These markets—and they are numberless—are interconnected and form One Big Market.
>
> The crucial point is this: labor, land, and money are essential elements of industry; they also must be organized in markets; in fact, these markets form an absolutely vital part of the economic system. But labor, land, and money are obviously *not* commodities; the postulate that anything that is bought and sold must have been produced for sale is emphatically untrue in regard to them." (Polanyi 2001: 75)

Only in this context, Polanyi continues, do land, labour and money not become fictitious commodities as themselves, in their substance; what then becomes ficti-

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tious is to refer to them and treat them as such. A fine, yet crucial distinction: 'The commodity description of labor, land, and money is entirely fictitious.' (ibid.: 76)

A recent study published by the *Berkeley Roundtable on the International Economy* (BRIE) also critically engages with the deliberations by Grabher and König (Kenney et al. 2020). Initially, the authors draw parallels with Polanyi (and Marx) themselves. They state, for example, that the platform economy entails an intensified process of commodification, extending into ever more areas of social life (see ibid.: 4). Furthermore, they continue, attempts at government regulation can increasingly be observed (see ibid.: 6), as in the case of the legal battles in California surrounding the question of whether Uber drivers ought to be regarded as employees (see ibid.: 10). Although the authors find the idea of viewing data as another fictitious commodity in the Polanyian sense inspiring, they are not entirely convinced by it: in their view, raw data becomes a commodity only when processed by algorithms and human beings: "Being a by-product does not make something a fictitious commodity." (ibid.: 13) Besides this, the authors write, the platforms' business model consists precisely of extracting value from data, which is why the classification as "not produced for sale" would appear inaccurate in this case, while it is also "uncertain how much greater analytic precision is gained by labeling it a fictitious commodity." (ibid.: 14) It is quite likely that a degree of uncertainty regarding that last point will arise in every attempt at theoretical classification. Still, the second point concerning the processing by human beings does not convince me, for even if labour itself remains an essential source of value in digital capitalism, this does not rule out the commodity character of data as raw material or of processed data as end product.

But let us return to the original. It is not the question of the commodity fiction that lies at the heart of Polanyi's considerations, but, at least most importantly, the altered function of the merchant. According to Polanyi, the reason why a form of production that used specialised, complex and expensive machinery could be introduced in a commercial society was that this new form of production could be made compatible with the existing dominant economic mechanisms—buying and selling—namely by the central actor called 'merchant' (see 2001: 43). So, as we can see once more: that which is new must link up with what is already there, and actors who have been powerful thus far are also the protagonists who pave the way.

That is not to say that the protagonist of the old economic model is simply handed a new toy. Something about the mechanisms themselves changes, and something about the role of the protagonists, too. As a result, as Polanyi shows, everything remains the same on the sales side: the merchant continues to sell products on markets. On the buying side, however, crucial changes occur: The merchant no longer buys finished products which he can sell on to others with a surcharge, but begins to acquire entirely different commodities: labour power and raw materials. Yet, seeing as they have to be brought into a systematic inter-

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play, the merchant takes charge of an additional task and assumes a new role. He becomes an entrepreneur, a commercial capitalist—a 'merchant-producer'—at whose command labour forces now produce new finished products from the raw materials: "[Labor capacity and raw materials] put together according to the merchant's instructions, plus some *waiting* which he might have to undertake, amount to the new product." (ibid.: 43; emphasis added)

Polanyi's use of the term 'waiting' at this point is somewhat surprising. It only becomes clear if we compare the new function of the merchant with that of their historical predecessors. Yet this also allows Polanyi to remain silent on what actually occurs during this period of 'waiting'—and what takes centre stage in the Marxian analysis, namely the actual act of production. Needless to say, it is only the merchant-producer who is 'waiting', while the workers are doing the opposite: they are getting to work. It is at least noteworthy that Polanyi, who otherwise strives to conduct such detailed and lucid economic analysis, displays a moment of remarkable evasion here. Production itself remains a black box, impenetrable to both Polanyi's analytical view and the merchant. And yet, at the same time, what is going on inside that black box is supposed to be commissioned and set in motion by the merchant. In this instance, Polanyi's argument exhibits a peculiar blind spot, though it has little impact on his analysis as such. After all, Karl Marx has already thoroughly engegaged with—to continue with the metaphor—the content of that black box in great detail and sees it as the origin of profit. What concerns Polanyi, by contrast, is the significant impact the changes on the buying side have on society.

> "Contrast, for example, the merchant-producer's selling activities with his buying activities; his sales concern only artifacts; whether he succeeds or not in finding purchasers, the fabric of society need not be affected. But what he buys is raw materials and labor—nature and man. Machine production in a commercial society involves, in effect, no less a transformation than that of the natural and human substance of society into commodities." (Polanyi 2001: 44)

That is to say: on the selling side, the merchant-producer's actions and the implications thereof do not differ from those of their predecessor: that which is sold—or not, should there be nobody willing to buy—are products. Yet the social structure remains as it was. So, if we consider, in analytical terms, only the selling side, then the commercial and capitalist market society appear unchanged. This differs on the buying side: here, Polanyi locates the actual novelty that to him marks the society-transforming dynamic. The commodities being bought are not some random objects, but raw materials and human labour power. Both nature and humans turn into something they were never meant to be: a commodity. At first glance, it may be objected that the merchant already sold raw materials to trades-

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men in medieval times, or slaves to aristocratic households in antiquity. Of course, Polanyi is also aware of that. The particular aspect he refers to is not the fact that nature and human beings are traded like commodities. If the already ongoing commercial process consists of *Purchase of commodity X—Sale of commodity X*—in which the commodity always remains unchanged, regardless of whether it is a finished product, raw material or labour force—then a new factor now enters the equation, changing the process itself: *Purchase of commodity X and Y—Creation of new commodity Z—Sale of commodity Z*. The intermediary step of creating a new commodity—only possible, according to Marx, because human labour is introduced to the process—is, however, precisely the step that Polanyi transfers to the black box of 'waiting' and which his analysis fails to address.

As a result of incorporating machine production into the economic mechanisms of commercial society, these mechanisms change. Nature and humans, the natural and human substance of society, are made general commodities. Polanyi locates the society-transforming potential of the *Great Transformation*—which to him is as complete and irreversible as the metamorphosis of a caterpillar into a butterfly (see ibid.: 44)—on the buying side, precisely because this is where the substance of society becomes a commodity. What is inevitably linked to this, in Polanyi's view, is the fact that production is constantly fed with raw materials and labour forces which, correspondingly, must be available for purchase in sufficient amounts, or numbers, rather (see ibid.: 43). Yet the selling side is also important to him, even though he does not attribute a transformative quality to it. After all, the merchant is only "fitted to do so as long as this activity will not involve him in a loss." (ibid.) And, given that the machinery in use is expensive, one thing must never cease: the constant sale of the produced commodities (see ibid.).

On the whole, we may deduce two important insights from the analysis of the first *Great Transformation* for our study of digital capitalism: firstly, the question arises as to whether we are seeing the repetition of something generically similar. Are new technological options being integrated into existing economic processes (of production capitalism) and having a transforming impact on existing society? And, secondly, the question must be answered as to where the transformative quality really lies. Is it the buying side once again? Or is it more closely linked to the selling side? In this search for what is really new about digital capitalism, should we perhaps also take a peek at the content of the black box Polanyi refers to as 'waiting' time? We will continue to pursue both of these directions of inquiry. But first, let us return to Karl Marx, for he also links that which is substantially new about production machinery to the economic mechanisms without one-sidedly exaggerating the causal impact of either side. In contrast to Polanyi, however, he places the act of production at the heart of his analysis of capitalism.

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4.2 Marx's development of the productive forces

Karl Polanyi's merchants simply spend their time between the purchase (of raw materials and labour) and the sale (of the finished commodity) 'waiting', Marx views what happens precisely during this time to be crucial. He concentrates on the act of production, in which, through the interplay of human labour and added raw materials, something new is created: it is here that we find the genesis of value. Value is created that did not previously exist. A value that has two sides to it: exchange value and use value (see Chapter 3). The produced commodities engender both of these sides precisely because that is what they are: commodities, produced for the market. This analytical distinction is not only at the heart of Marx's analysis. As we have seen, Polanyi also identifies the commodity form as alien and endowed with a transformative quality. To Marx, however, the period of 'waiting'—or, more precisely, of production—is famously important for another reason: it is the origin of profit and surplus value because human labour creates more values than its own exchange value costs; after all, it has itself become a commodity. It would appear highly unlikely that Polanyi, who references Marx in various instances,[6] should have been unaware of how central this, as he calls it, 'waiting' time, is to Marx.

If we read the original passage containing Polanyi's above cited notion that it is merely a fiction to view nature and human beings as commodities, it does sound quite closely in line with Marx. According to Polanyi, the names and descriptions we use are the problem ('wage labour' instead of 'activity', 'land' instead of 'nature', 'money' instead of 'purchasing power'). None of this was originally produced to be sold, which is why he considers the commodity ascription to be fictitious:

> "Labor is only another name for a human activity which goes with life itself, which in its turn is not produced for sale but for entirely different reasons, nor can that

6 Polanyi avoids Marxist terminology, even though he is concerned with the same phenomena and analytical implications. Correspondingly, Polanyi's merchant in the market society is no different from the capitalist in capitalism. Nor does Polanyi explicate that there is no substantial difference between the purchase of raw materials and finished products, but there undoubtedly is between the purchase of these two goods and that of labour power. He does mention Marx in several instances, referring to him as the "state-socialist" (2001: 113). Particularly with regard to the debates of his day surrounding the issue of poverty, Polanyi considers Marxian economics to be too close to Ricardo and liberal economic views, and in this sense "an essentially unsuccessful attempt" (ibid.: 131). For instance, Polanyi refers to the 'Ten Hours Bill' of 1847, which Karl Marx celebrated as the first victory of socialism, as no more than the "work of enlightened reactionaries" (ibid.: 174). However, Polanyi also differentiates between a popular Marxism with a narrow class theory and the actual philosophy of Karl Marx, which by all means views society as a totality and takes non-economic human nature into account (see ibid.: 158).

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> activity be detached from the rest of life, be stored or mobilized; land is only another name for nature, which is not produced by man; actual money, finally, is merely a token of purchasing power which, as a rule, is not produced at all, but comes into being through the mechanism of banking or state finance. None of them is produced for sale. The commodity description of labor, land, and money is entirely fictitious." (Polanyi 2001: 76)

In a footnote on the same page (see ibid.: 76), then, Polanyi clarifies that his argument differs from that of Marx, or rather pertains to an object that is distinct from that of Marx: the latter's thesis on the fetish character of the commodity value, Polanyi states, refers only to the exchange value of genuine commodities and has nothing to do with Polanyi's fictitious commodities. One might suspect what Marx might have replied: the exchange value only arises because human beings turn something into a commodity—and this constitutes a fiction to Marx as well (because: it is unnecessary); or, rather, as for Polanyi: a fiction with considerable implications (see Chapter 3.2). In this instance, Polanyi seems to be much closer to Marx than he would have admitted. After all, Marx also regards the socially transformative force of capitalism to be constituted by the fact that it commodifies that which was never meant to be a commodity:[7] humans and nature; human activities in a metabolistic interplay with nature. In his analysis, Marx focuses on the cause of transformation and repeatedly emphasises that he will initially ignore other aspects.[8] That is what we shall also do for now, and instead turn to the production

7 This ultimately normative dictum cannot only be found in Polanyi (indeed, the better part of his entire argument is based on it), but also in Marx—if we understand his Early Writings not as youthful misdeed, but as an expression of the more comprehensive perspective of his critique of capitalism (on the debate concerning the significance of Marx's Early Writings, see Pfeiffer 2004, pp. 153–159). (on the debate concerning the significance of Marx's Early Writings, see Pfeiffer 2004: 153–159)

8 This explosive force in the ideas of Karl Marx is underestimated and overlooked in the (both sympathetic and critical) engagement with his work: as the philosopher that he is, his strategy often consists of initially reducing economic processes to their bare core in order to then conduct an analysis that would be impossible when considering the empirical phenomena alone. Yet to deduce from this that Marx in fact really viewed the world and its workings in such a reductionist way is an utterly mistaken conclusion. Unfortunately, even in the social-science debate, we have to some extent unlearnt the art of struggling for an analysis that provides the greatest possible lucidity. Semantic precision and the clear spelling out of what is being considered analytically and what, for that very reason, is being analytically (but not in real terms or empirically) omitted would mark a competence that has to be once again taught and learned in the social sciences (I am not exempting myself from this criticism of the discipline; it is a collective deficiency which requires a collective effort to be overcome). At the same time, even the most beautiful and intellectually sophisticated analysis can become somewhat bloodless if it abandons empirical verification procedures and the will to correlate or compare the one with the other.

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side of commodities, Polanyi's 'waiting' time, and thus to the analytical level of value genesis. The greater the discrepancy between expended human labour and its price for a certain period of time, the more (surplus) value is created. We need not even delve any deeper into the details of the Marxian analysis at this point (and explain, for example, the difference between variable and constant capital, or between absolute and relative surplus value). For now, it suffices to establish what everyone knows: every business enterprise will naturally seek to generate a surplus in commodities and thus in newly created value per purchased hour of labour power. The lower the wages, the more standardised the procedures, the faster the labour forces, the more innovative the product and process engineering technologies and, most importantly, the more effective the applied technical and organisational measures are, the easier it is to achieve such value generation. Seeing as all enterprises constantly advance along this path, a more generalised process ensues, which Marx refers to as the development of the productive forces.

In the introduction to their edited volume, *Marx und die Roboter* [*Marx and the Robots*, forthcoming in English], Sabine Nuss and Florian Butollo address four functions of the term 'productive forces' (also: 'productive power') (see 2019: 12–17). According to the authors, the term helps sensitise us to the fact that the "the development of the productive forces is not an end in itself, but rather a mere means for capital accumulation"; it facilitates "a more precise definition of what is really new and revolutionary and what is not" (ibid.: 12, 13; translation amended), which is why it illustrates that the current changes are part of an historical continuity; the term also takes into account the meaning of cooperation, qualification, science and hierarchical forms; finally, it also directs our attention to the relationship between the development of the productive forces and the relations of production. From this perspective—and this applies especially to the second point—, the term 'productive forces' relegates digitalisation, in materialist terms, to a more modest position (ibid.: 13). Correspondingly, they see no indication of any second *Great Transformation*, but rather of continuity, i.e. of capitalism with digital means.

As is so often the case, a glance at the original proves illuminating. Karl Marx and Friedrich Engels carve out the concept of the productive forces primarily in the texts *The Poverty of Philosophy* (1976a) and *The German Ideology* (Marx/Engels 1976b). Yet the development of the productive forces is far more than a term. It is a complex—as we would say today, socio-technical—concept that draws a connection between the interplay of society and economy and of change and transformation and, at the same time, takes the micro-, meso- and macro-dimensions and their interrelatedness into consideration. For that reason alone, it ought to be clear that you cannot reduce the development of the productive forces to a single facet, such as (digital) means of labour. That said, dismissing the latter would equally contradict the concept:

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> "Machinery is no more an economic category than the bullock that drags the plough. Machinery is merely a productive force. The modern workshop, which is based on the application of machinery, is a social production relation, an economic category." (Marx 1976a: 183)

In this instance, Marx differentiates between the productive forces and the relations of production to which they correspond, i.e. how and for what purpose production takes place. Both converge in the factory. To Marx, of course, this means that the purpose of production in the capitalist factory is profit. Or, to put it in less Marxist terms (although saying the same thing, which can also be found in any random corporate mission statement): the objective of the company is to successfully create growing value added. Up to here, Marx essentially agrees with today's business consultants and business economists, although he does disagree with them regarding the source of profit, or 'value added', and how profit is socially distributed. Besides that, he would most likely argue with them spiritedly on the question of whether profit and value creation (and the concomitant relations of production) allow for economic and social progress in the long term.

That is why the factory, to him, represents an economic category, even though—and Marx was the last person to deny this fact—it is simultaneously an assembly of technical (and human) productive forces of a very special kind. Marx also sees the labour forces and the respective abilities and skills as productive forces. Yet if the relations of production are capitalist in nature, then the technology, in a way, turns against the humans, then "[…] the appliance of machinery is but one of the many methods for increasing the productive powers of labour. This very same development which makes common labour relatively redundant simplifies on the other hand skilled labour, and thus depreciates it" (Marx 1985: 147)

Here, Marx addresses issues that are also being discussed in the context of today's digitalisation debate: namely, the question of how, or rather to what extent, technological advancement is being used to replace human labour and, at the same time, standardise human tasks. Unlike the claims put forward in the current academic and public discourse, to Marx this is in no way a question of technology *versus* human beings. In other words, Marx is less concerned with the rivalry between these two productive forces than with the relations of production and their economic dynamic, which causes business enterprises to try to outdo one another in the race to minimise the share of the productive force 'labour' (i.e. human beings) through the greatest possible use of the productive force 'technology' (which, to Marx, can only occur to a limited extent, as the former constitutes the actual source of profit).

Similarly, the current debate on digitalisation is hardly conceivable without the topic of 'innovation'. For the most part, it is interpreted as the main lever and driving force of technological development or attributed to the genius of individ-

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ual entrepreneurs.[9] Freidrich Engels, who engaged thoroughly with the technological innovations of his time (ranging from electricity to chemistry to the Theory of Evolution), groups innovations with the productive forces, although they do not always achieve the desired effects, captured in his sardonic subsequent phrase: "That in a good many cases the productive power of labour is increased by inventions and discoveries (but also that in very many cases it is not increased, as is proved by the mass of waste-paper in the archives of every patent office in the world) we knew long ago." (Engels 1987: 206)

Concerning a holistic conception of economy and society, of technology and labour and of innovation and change, the concept of the development of the productive forces is more comprehensive and up to date for an interpretation of present-day digitalisation than many would think.

The forces and relations of production together constitute the mode of production. We could also say: what Karl Polanyi encapsulates in the term *Great Transformation* is the establishment of capitalism as a new mode of production to Marx. Indeed, this is precisely what Sabine Nuss and Florian Butollo are implying when they speak of a more modest position of digitalisation: although the productive forces may be currently undergoing a process of change, the capitalist relations of production are not (at least not automatically)—although it is precisely this hope that seems to resonate in the works by Jeremy Rifkin and Paul Mason. Most diagnoses of society under digital capitalism, however, follow a more pessimistic interpretation of current processes and place less emphasis on emancipatory potential. They are convinced that the mode of production that emerged during the *Great Transformation* and to this day, by and large, has brought its processes and operations to perfection is becoming more expansive and yet more volatile (and, in a Marxian dialectical reading, is thus also inevitably 'co-perfecting' its own limits and contradictions).

According to Marx, the productive power of labour is determined by an overall social diversity that is of a dizzying scale, especially when trying to devise a research design that represents all these factors and traces their changes and mutual interrelations. Its main determining factors, he states, include the natural conditions of labour, such as the soil's fertility, the availability of natural resources, etc., and the "progressive improvement of the Social Powers of Labour, such as are derived from production on a grand scale", which includes the "concentration of capital and combination of labour, subdivision of labour, machinery, improved methods, appliance of chemical and other natural agencies." (Marx 1985: 125) Yet Marx does not stop at the material base, but also lists aspects which

9 Mariana Mazzucato (2015) has contributed considerably to demystifying this one-sided interpretation—unfortunately, without changing much about the dominant discourse, despite all empirical evidence.

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would most likely be regarded as marking the crucial difference between digital capitalism and its industrial predecessor today: the "shortening of time and space by means of communication and transport, and every other contrivance by which science presses natural agencies into the service of labour, and by which the social or co-operative character of labour is developed." (ibid.) Yet none of this simply happens coincidentally, let alone as the inevitable consequence of technological change (although the latter may well play a significant part in the process), but for a very specific purpose: reducing the share of living labour per product (see ibid.).

Incidentally, some economic studies that appear entirely unsuspicious of Marxism are a good example of the foresight Marx and Engels displayed. In their *Economic Complexity Index* (ECI), César A. Hidalgo and Ricardo Hausman seek to empirically represent at least some of the phenomena which the two key economic thinkers capture in the concept of the development of the productive forces (albeit without referencing Marx and Engels directly or citing the term 'development of the productive forces'). According to the authors, the complexity of a national economy increases in relation to the level of diversity of the products it exports and the volume of non-tradeable goods it produces, such as property rights, regulations, infrastructures and specific skill levels of labour forces, i.e. resources which cannot simply be imported or copied by other countries (Hidalgo/Hausmann 2009). It would also be accurate to say that the ECI seeks to represent the complexity of a national economy based on the diversity of useful knowledge, or knowledge that is used in that specific economy. This diversity of products is included in the index as a measurement parameter, as is the relative export of products, i.e. how many other countries export similar products.

Figure 1 shows some ECI values for selected countries between 1995 and 2018. Japan and Pakistan are included to underscore the value range: while Japan, Switzerland and Germany have been ranked top for a long time, Pakistan is one of the lowest-ranking countries (as well as having comprehensive data available for all years covered by the index). From the perspective of the development of the productive forces, we could interpret this chart in the sense that the productive forces built up in countries like Japan and Germany since the *Great Transformation* are stagnating at a high level, while they are currently being developed in South Korea, China, India and Singapore, albeit following distinct trajectories and dynamics. In the UK and the United States, by comparison, a decline in the development of productive forces can be ascertained, beginning around the end of the New Economy. This may seem surprising, seeing as the US is the home of GAFAM, yet the (regional) impulses emanating from Silicon Valley are apparently unable to offset the downward dynamics in other regions of the US like the Rust Belt.

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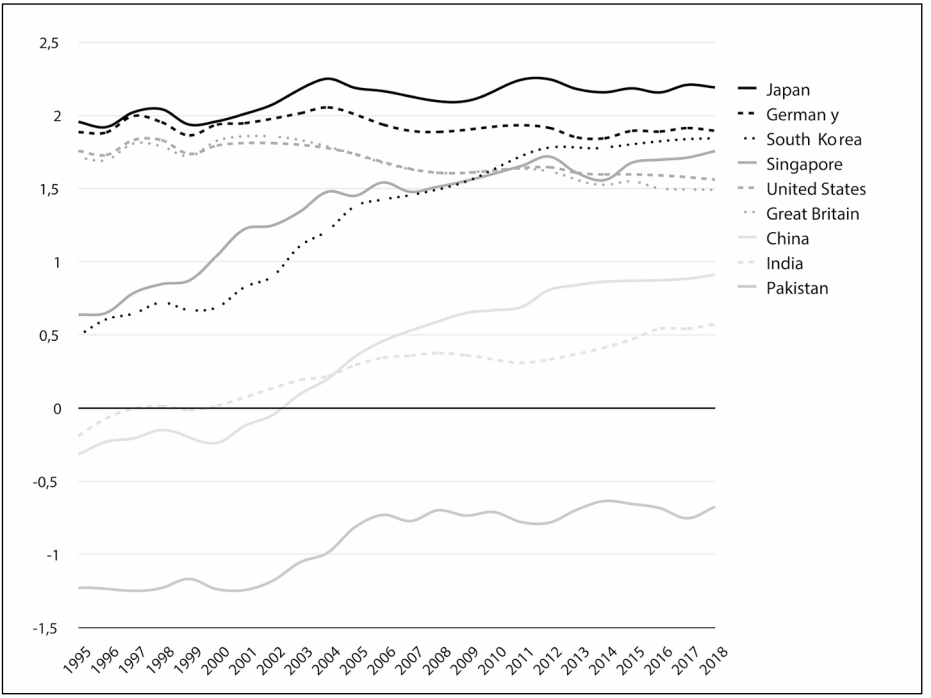
Fig. 1: Development of economic complexity



Data basis: extract from the Economic Complexity Index 1995-2018 (OEC 2020).

The index was also complemented by additional data pertaining to immaterial goods and used for growth and income forecasts (Albeaik et al. 2017; Hartmann et al. 2017; Hausmann/Hidalgo 2011), and it received some criticism regarding its content and methodology (Kemp-Benedict 2014). Yet, on the whole, given its effort at completeness in the sense of a quantitative national economic balance, the index probably captures best what Marx and Engels refer to as the productive forces.[10] The development of the productive forces is thus just as much the result as the precondition of the competition between corporations and countries.

10 Hidalgo also published a book more recently in which—if you will, quite similar to Engels—he seeks to establish a material parallelism between natural-science dynamics and economic developments. Although it does amount to an inspiring read, it is ultimately unconvincing. The only thing worth mentioning with a view to digital capitalism is that Hidalgo interprets information in a physical sense: "The word information became a synonym for the ethereal, the unphysical, the digital, the weightless, the immaterial. But information is physical. It is as physical as Boltzmann's atoms […]. Information is not tangible; it is not solid or fluid. […] Information is incorporeal, but it is always physically embodied. Information is not a thing; rather, it is the ar-

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> "The relations of different nations among themselves depend upon the extent to which each has developed its productive forces, the division of labour and internal intercourse. […] But not only the relation of one nation to others, but also the whole internal structure of the nation itself depends on the stage of development reached by its production and its internal and external intercourse." (Marx/Engels 1976b: 32)

With the onset of capitalism, the development of the productive forces is accelerated and expanded on a scale unprecedented in human history. Marx repeatedly pays homage to this aspect, and, as is probably well known, considers capitalism to be an historical stage in the development of humanity that is just as indispensable as it requires overcoming. The Marxian diagnosis (or, rather, prediction) is gleefully and frequently attacked for its notion of an historical quasi-inevitability, not least because, in the so-called actually-existing Socialist countries, this idea in particular was reduced and endlessly, boldly and simplistically spelled out and parroted under the banner of historical materialism. And yet, the basic notion of a development for the better is a very modern idea, variations of which can be found in a vast range of schools of thought and theories. What is currently new about this idea is that the utopias are being devised and framed by the tech corporations of the world and discursively marketed and sold by business consultants. Although these utopias do always entail the now proverbial 'make the world a better place', one thing is never called into question: the dominant economic logic of distribution.[11] But that is, of course, precisely what concerns Marx in particular. And this applies not, as is often insinuated, 'solely' to direct exploitation, i.e. capitalists appropriating the surplus value that the workers dependent on them have created. Marx is more concerned with a greater and more all-encompassing contradiction that can only be grasped through a broader understanding of his notion of productive forces. For the crux of the matter is: what evolves and unfolds so

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rangement of physical things. It is physical order, like what distinguishes different shuffles of a deck of cards. What is surprising to most people, however, is that information is meaningless […]." (Hidalgo 2016: xv)

11 In the utopias of Silicon Valley, deregulation is in fact being promoted and driven forward quite consciously. There are long-standing precursors in this regard: from the influence of market-libertarian objectivism along the lines of Ayn Rand on the post-humanist ideas of important entrepreneurs in Silicon Valley (see Murnane 2018) to the so-called Californian ideology, which combines traits as contradictory as "the free-wheeling spirit of the hippies and the entrepreneurial zeal of the yuppies" (Barbrook/Cameron 1996: 44). This can currently be empirically verified in the intentionally instigated discourses via institutional coalitions between tech companies and venture capital (see Rothstein 2020). Besides this, global actors can be identified who tie considerable economic interests to the seemingly purely technologically inspired discourse of the digital future (Pfeiffer 2017).

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dramatically and impressively with the emergence of capitalism is ultimately no achievement of the market, nor of individual entrepreneurs. This process, which continues to this day, is a huge social achievement (though there is the related collateral damage that is at least as immense). That is precisely why the fruits of this achievement should be returned to society as a whole (while the negative consequences and risks should equally not be borne by just one part of society alone). The owner of the manufacture, who gradually turns into the factory owner, does not successfully accomplish this transformation of simple means of production into powerful productive forces

> "without transforming them, at the same time, from means of production of the individual into social means of production only workable by a collectivity of men. The spinning-wheel, the hand-loom, the blacksmith's hammer, were replaced by the spinning-machine, the power-loom, the steam-hammer; the individual workshop by the factory implying the cooperation of hundreds and thousands of workmen. In like manner, production itself changed from a series of individual into a series of social acts, and the products from individual to social products." (Engels 1987: 256)

The vigorous attacks Friedrich Engels launches at his contemporary Eugen Dühring in this 'Anti-Dühring' text show the society-encompassing scope in which the economy is conceived here. The text offers a stark reminder of how strongly we experience and comprehend the dominant economic principles of today as given and unchanging—without alternative, as it were. Karl Marx, also engaging critically with one of his contemporaries, Pierre-Joseph Proudhon, emphasises "[…] that men make cloth, linen or silk materials in definite relations of production" but "that these definite social relations are just as much produced by men as linen, flax, etc." (Marx 1976a: 165–166) Most importantly, however, it becomes clear how comprehensively Engels and Marx conceive of economy, society and change. And we can see the extent to which material-physical conditions and social and economic conditions are interwoven:

> "Social relations are closely bound up with productive forces. In acquiring new productive forces men change their mode of production; and in changing their mode of production, in changing the way of earning their living, they change all their social relations. The hand-mill gives you society with the feudal lord; the steam-mill, society with the industrial capitalist." (ibid.)

The call issued time and again by economic sociology to consider the economy as embedded in society; the social aspects of technology which the sociology of

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technology has repeatedly emphasised; and even sociology's '*material turn*'[12] and the fear of technological determinism[13]—none of this would even have to be mentioned if we, in the sociology department, were able to overcome the discipline-based division of labour and consider, in the sense of Karl Marx's forces and relations of production, the bigger picture in all its complexity and with all the inherent interrelations. Marx even goes one step further, taking into account social change and the discursive level as well—these integral parts (and simultaneously the expression) of the forces and relations of production:

> "The same men who establish their social relations in conformity with their material productivity, produce also principles, ideas and categories, in conformity with their social relations.
>
> Thus these ideas, these categories, are as little eternal as the relations they express. They are historical and transitory products.
>
> There is a continual movement of growth in productive forces, of destruction in social relations, of formation in ideas; the only immutable thing is the abstraction of movement […]." (Marx 1976a: 166)

Even if one is reluctant to follow Marx, many would most likely intuitively agree with the last phrase in this quote as an accurate diagnosis of our present day: we live in the midst of a constant movement, the destruction (and creation) of social

12 In contrast to what the term 'material turn' may suggest, it has not led to the social sciences taking the material more seriously. Historian Jan Keupp (2017), tired of the interdisciplinary links being forged with sociology, sums this up in a wonderful polemic: he laments that the "self-referential theoretical caprioles" are "hardly substantial" and sees them as a "refusal to commit oneself to clear standpoints and observant perspectives"; much like the "pot and the potter", "humans and things, sense and being" are blended into a "fleeting, sheer incomprehensible amalgam" (ibid.; translation amended).

13 Ever since a German sociologist proclaimed the "end of technological determinism" (Lutz 1987), the interest in the material aspects of technology has largely been lost in the German sociology of work and industrial sociology. At the time, Lutz did not even reject taking technology seriously, but the notion that this necessarily implies social consequences. On the contrary, he actually made very specific proposals as to how sociological technology research could be flanked institutionally. Had his advice been heeded at the time, sociology would most likely be able to contribute significantly more to the current digitalisation debate and, more importantly, draw on a far greater theoretical and empirical material in order to answer the question of 'what is really new?'. Karl Marx and those who build on his ideas have been accused time and again of deterministic conceptions (see, for example, Dafoe 2015; Kline 2001), although it is precisely the multi-layered concept of the productive forces that illustrates the baselessness of such accusations.

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relations, the formation of ideas—all of which can be found in the discourses surrounding the digital transformation. Yet there are many who have used Marx's analytical lens to examine current changes and addressed the Digital drawing on the concept of the development of the productive forces. These current diagnoses will take centre stage in the following step—and, who knows, we might just encounter that last piece of the puzzle we are looking for to understand digital capitalism.

4.3 The productive forces and digital capitalism: reductionism and misunderstandings

Of course, it seems natural to apply the Marxian term 'productive forces' and their development to digital capitalism. After all, all the analyses cited here pertain to a fundamental change in capitalism, which is (also) linked to a change in technology. If we did not know better, this would appear as a veritable invitation. And yet, the analyses of digital capitalism presented here (see Chapter 2) largely ignore the term 'forces of production'. This is indeed rather surprising. Dan Schiller (2014) does not use the term 'productive forces' once; though he does speak of 'productive capacity' here and there, but refers to nothing more than quantitative production capacities, which, for example, increased after World War II (see ibid.: 21), or virtually exploded as a result of the production networks of multinational corporations expanding during the 20th century (see ibid., p. 38). Michael Betancourt hardly uses the term productive forces, except in the context of his diagnosis that the role of capital will shift from that of a means of storing or representing value towards one denoting a claim to future productive forces (see Betancourt 2015: 174).[14]

With regard to the development dynamics of the productive forces, we may recall one of the three *laws on dialectics* Friedrich Engels outlines and in which he assumes, based on observations, for example, in thermodynamics, that the transition from quantitative increase to qualitative change could also apply to socio-historical processes as an almost naturally-occurring dynamic. At first glance, it may seem plausible to revitalise this outdated approach. Ultimately, the more recently popularised concept of 'singularity' (Kurzweil 2005) follows a similar line of thought (albeit entirely without any intention of criticising capitalism—*au contraire*). Ray Kurzweil transfers erratic dynamics from biology to technological and

14 Most of the time, Michael Betancourt does not even use the term 'productive forces', but instead, for instance, "production capacity" (2015: 14), which ought not to be confused with one another. After all, according to Marx, the workers' skills are part of the productive forces, but not identical with them.

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social developments, and he is also concerned (although he certainly does not see himself in the tradition of Engels) with the hypothesis of a natural law that manifests itself in processes initiated by human beings; and to Kurzweil, too, quantity (exponentially growing Artificial Intelligence) eventually leads to a change in quality (a technological consciousness in its own right, i.e. the singularity). This view shows a kind of religious fervour. If we were to interpret digitalisation as a qualitative turning point in the productive forces, however, there is substantial need for clarification: what exactly is increasing quantitatively (the expansion of the cyberspace, the number of people who work in it, a concomitant increase in productivity?) and what exactly is qualitatively new (a different, more global, or even a self-transcending capitalism)?

Pointing out what is new, then, does not yet constitute an analysis. That might be the reason why it is so successful: this way, the reader who is critical of capitalism may feel just as personally addressed as those believing in the singularity; the left-wing trade unionist feels as close to the intensifying contradictions of late capitalism as the consultant who has adopted a currently rather successful business model that has harnessed the very disruptive transformation proclaimed in the course of digitalisation.

Christian Fuchs references Marx when proposing "[to] think about the Internet dialectically just like Marx thought about technology in capitalism as being shaped by an antagonism between productive forces and relations of production." (2015: 37) He illustrates this contradiction (albeit not entirely convincingly) with a view to the problem of orienting a supposedly public Internet towards the common good and the new possibilities of surveillance and valorisation of private user behaviour (ibid.). Mike Wayne also vaguely references the Marxian concept of the development of the productive forces when distinguishing between the three sides of productive forces, namely machinery, human labour capacity and natural resources, as long as the latter are made accessible through human labour (see Wayne 2003: 38–60; in particular: 39). On the whole, neither of the two authors establishes any kind of elaborate links between digital capitalism and the Marxian theorem of the development of the productive forces. In sum, the reviewed body of work concerned with applying the Marxian concept of productive forces to the Digital has so far failed to provide us with the piece of the puzzle that we are missing for a comprehensive understanding of digital capitalism.

As we have seen, the development of the productive forces entails far more than an increase in productivity. And yet, there is one connection that keeps resurfacing. Many individual measures introduced by companies to increase productivity substantially contribute to the permanent development of the productive forces. So, whoever speaks of the Marxist concept of productive forces will not be able to avoid the term 'productivity'. Yet productivity and its growth is regarded as a legitimate and central objective of entrepreneurial activity and, from a non-Marx-

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ist perspective, a driver of the application of technology on the shop floor, too. Given the increasing application of digital technology, however, the link between the use of technology and productivity increase is becoming weaker. Digitalisation seems to be a peculiar variant of technology, or rather, a technological productive force that is unreliable in its productivity—as the repeated diagnosis of a so-called productivity paradox can be found only in connection with precisely this productive force (i.e. digitalisation). What does this mean?

As is well known, productivity is one of the key economic indicators, linked to the expectation of lasting growth—and whenever productivity does not increase, investors and economists get nervous. During each new digitalisation hype—first Industry 4.0, now Artificial Intelligence and Machine Learning—the business consultants and business associations frantically try to outdo one another with sometimes breathtaking forecasts of growth in value creation and productivity. That is, of course, always on the condition that businesses and the national economy do not miss the hype and invest in the new, promising technologies. That is the message to the—sometimes rather hesitant—traditional entrepreneurs. In fact, this message—investment in productivity increase—harbours a contradiction, at least in the short term, as major investments initially lead to a decrease in both (at least for those who are investing): value creation and productivity. But in the slightly longer term, there is an expectation of even greater growth.

Another aspect that is repeatedly mentioned in the context of digitalisation is the productivity paradox, most prominently by the following quote: "You can see the computer age everywhere but in the productivity statistics." (Solow 1987: 36) This witty phrase is not from a conclusion of a study on the topic, but from a one-page book review in the *New York Times* (of Cohen/Zysman 1987), which addresses not digitalisation but productivity. Although Robert M. Solow has been awarded the Nobel Prize for his neoclassic model for calculating growth (1956), he himself never actually conducted a study on the link between IT and productivity. He later self-critically admitted that, in order to obtain straightforward results, he conceptualised technological change as exclusively beneficial to capital and neglected effects that benefited employment or output (2007: 13).[15]

Added to this is the fact that the existing empirical evidence is inconclusive: while at least half of the decline in productivity growth between 2010 and 2014

15 Following Solow's interpretation in the aforementioned book review, the reviewed authors as well as everyone else were 'somewhat embarrassed', given that the technological revolution everybody could sense was not showing in the form of productivity growth. Although the authors, in their study on the significance of production, do make a far more important statement regarding the object of our study here—which is the productive forces, and not just productivity—that would these days probably be discussed using the catchword eco-system: "Advantage in a national economy is embodied not simply in the capacities of specific firms but in the web of interconnections that establishes possibilities for all firms" (Cohen/Zysman 1987: 102).

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can be ascribed to a decline in demand, only the other half can be explained by the subsiding of the IT-induced productivity boost, particularly in the United States (see Bughin et al. 2018). Other calculations suggest that billions of dollars' worth of immaterial goods have been produced for IT-related capital that never actually made it into the national accounts. The output and productivity effects of so-called base technologies are initially underestimated and later overestimated once the earnings of the immaterial investments start to roll in (see Brynjolfsson et al. 2018). A meta study (Biagi 2013) on the productivity effects of digitalisation detects an IT-related productivity increase even between 1995 and 2005, especially in the US, which receded only afterwards. Two aspects concerning the numbers presented in this study stand out: the organisational change that commonly accompanies IT investments represents a substantial financial strain on companies and has a negative effect on productivity. Even in the United States, productivity gains occur less in the IT-based manufacturing industries than in the IT industry itself, and above all in wholesale, retail and finance (see ibid.: 59–60). In other words: in the sphere of distribution, not production. This finding is no coincidence, but has more systematic reasons (Chapter 5) and entails specific phenomena (Chapter 6) and implications (Chapter 7) to which we will return later.

A more recent approach to calculating national accounts (Rahmati et al. 2020) no longer uses the item of IT investments alone, but instead seeks to depict the extent to which digital elements are being introduced to previously non-digital products and services. This measurement of *digital proximity* suggests a close link with the immaterial value of a company (defined as the relation between market value and asset value). This approach promises more complex answers and—translated across to the object of our study here—not only searches for productivity effects but also more strongly looks for additional indicators of shifts within the productive forces. This represents another hint at the missing piece of the puzzle, though we do not yet have any idea about its place, shape or colour. This limited insight into the sometimes contradictory studies on the productivity paradox proves at least one thing: it appears that digitalisation, in its various manifestations since the 1970s, has been unable to slow down or stop the continuing trend of secular stagnation—i.e. the state of declining growth rates (on the theories, figures and the link with social inequality, see Anselmann 2020). What we need to be explain, then, is why the economy as a whole, businesses and politics have such a great interest in these particular productive forces, which seem to lack precisely one thing: the potential for productivity increase. One reason might be that there are other areas that are deemed better suited for their economically advantageous deployment. We will take up this thread again in Chapter 5. Another explanation, then, might be the expectation of a fundamental transformation of the economy owing to digitalisation and resulting investment strategies that pin their hopes not on today's productivity increase but on tomorrow's business opportunities.

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The discourse surrounding the digital transformation, an alleged disruption, exponential development and the leap into the 4.0 world has been with us—and particularly with people in decision-making positions—for some years. Although long-term investment strategies are not regarded as a particular strength of management teams guided by quarterly figures, the transformation factor may nonetheless be part of the explanation. After all, the transformative force of the development of the productive forces cannot only be ascertained by productivity increases, as it manifests itself in far more complex interconnected processes. This can also be found in Karl Marx—which is why we return to some of his remarks in this section: alongside what is also commonly considered a productivity increase today, i.e. when "the mass of the product [increases] in proportion to the labour power employed" as a result of, say, a "mere improvement in methods […]." (Marx 1998: 231), Marx also addresses two further aspects.

Firstly, the issue of regulation, which is similarly fraught with diverging interests in the current digitalisation debate: "The same occurs, if the productive power of labour […] is freed from hindrances in communications, from arbitrary or other restrictions which have become obstacles in the course of time; from fetters of all kinds, without directly affecting the ratio of variable to constant capital." (ibid.) It is a well-known fact that the digital economy in particular is very keen to 'liberate' labour as far as possible from existing regulations. This circumstance has long motivated social and labour disputes. In the context of paid work, this ranges from legal attempts in the state of California to declare the officially self-employed drivers at Uber and Lyft company employees, to Amazon's attempts to prevent unionisation (see Cattero/D'Onofrio 2018) or to fight corresponding efforts by means of veritable (counter)intelligence operations, i.e. union busting campaigns.[16] In the area of unpaid work (such as that which we all perform when we use Internet search engines or social media) or in questions concerning net neutrality, this also includes the considerable lobby efforts orchestrated by the large tech corporations which have repeatedly sought to influence legislative initiatives advancing work safety or digital sovereignty (see Popiel 2018).

16 Seeing as Amazon regards union and environment-related activities by workers as such a risk, the company has hired private investigators Pinkerton to spy on their workers (see Gurley 2020). Pinkerton has been notorious for more than 170 years in the field of union busting, among other things, and was also involved in the false testimony that led to the executions of Ferdinando N. Sacco and Bartolomeo Vanzetti (see Young 1985: 27–29, 31–32 and 48–52). Facebook, Google and Apple also collaborate with the detective agency, although it seems that they do so mainly to prevent tech leaks (see Solon 2018). The Pinkerton National Detective Agency may be one of the oldest and most infamous among these detective agencies and consulting firms, yet a lucrative "union busting industry" (see Young 1985: 97–117) has in fact been established all over the world since the end of World War II.

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Secondly, Marx also already addresses what would today perhaps feature under the heading of 'taker takes it all'—an amalgamation of the 'winner takes it all' strategy and Mariana Mazzucato's (2018) distinction between 'makers' and 'takers': while the 'winner takes it all' strategy mostly refers to network effects which then prevent other players, say, in the area of social media, from achieving the required scale, this amalgamation rather denotes business success on the backs of others, on a path that was cleared by the pioneer companies, or by use of inventions and infrastructures that were publicly funded. In fact, we can find both in Marx, too: the 'winner takes it all' businesses, in which "[…] a manufacturer who employs a new invention before it becomes generally used, undersells his competitors and yet sells his commodity above its individual value, that is, realises the specifically higher productiveness of the labour he employs as surplus labour. He thus secures a surplus profit." (Marx 1998: 236) But also the 'taker takes it all' strategy:

> "The far greater cost of operating an establishment based on a new invention as compared to later establishments arising out of their ruins, *ex suis ossibus*.[17] This is so very true that the trail-blazers generally go bankrupt, and only those who later buy the buildings, machinery, etc., at a cheaper price, make money out of it. It is, therefore, generally the most worthless and miserable sort of money capitalists who draw the greatest profit out of all new developments of the universal labour of the human spirit and their social application through combined labour" (Marx 1998: 106)

One may refer to such processes as 'integration of external knowledge' and thus legitimise the enticement of talent, the buying up of companies or the Lead User method (see Pangarkar 2018). Or one can appropriate the 'innovation spillovers' and risk business, legal and ethical dilemmas (see Cieślik 2017: 157–194). Jerzy Cieślik cites the famous example of the graphic user interface, which was invented by Xerox, developed by Apple and used by Microsoft. Here, he quotes Bill Gates' response to the accusation from Steve Jobs that Microsoft stole this technology from Apple: "Well, Steve, I think there's more than one way of looking at it. I think it's more like we both had this rich neighbour named Xerox and I broke into his house to steal the TV set and found out that you had already stolen it." (Isaacson 2011; quoted in Cieślik 2017: 177, emphasis in italics in the cited work)

17 The translation stated in a footnote reads: 'from its bones' (see ibid.).

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5. The Second Blind Spot: The Realisation of Value in (Digital) Capitalism

So, how far have we come in our analysis of digital capitalism? *Firstly*, we have learnt from Karl Polanyi that what he defines as the *Great Transformation* is not determined by technological means, but by economic aspects (see Chapter 4.1): it is not the steam engine that is new, but the altered role of the merchant. He starts buying a commodity to which he previously had no access: labour. And, as a result, a crucial change has taken place on the buying side: nature and humans become commodities. Consequently, Polanyi locates the transformative character of capitalism on the buying side.

Secondly, we have seen that Karl Marx's analysis focuses on the very topic that disappears in Polanyi's vague term of 'waiting' (see Chapter 4.2), i.e. the actual process of production, which, to Marx, always also constitutes exploitation as well under capitalism. To him, it is not only outrageous that human beings (or, rather, their labour power) are turned into a commodity. He is just as enraged by the fact that this purchased commodity we call labour power is an actual human being, whose living labour produces more than he or she is compensated in wages as part of the terms agreed with the employer. Marx considers this surplus value and its appropriation by the capitalist (who consequently is more than simply the 'waiting' merchant) to be only one of two problems. The other is that this *generation of surplus value* is only made possible in the first place by a general social effort he refers to as the *development of the productive forces*. The entire ensemble of collective, social and technical elements, in a sophisticated, institutional division of labour, contributes to this process and, at the same time, becomes an expression thereof.

Even though the concept of the development of the productive forces, with its analytical breadth and depth, appears as a potential tool for fathoming the current—supposedly new and greate*r*, but, at any rate—*digital* transformation, we have seen, *thirdly* (Chapter 4.3) that it hardly features as such a tool (if at all) in existing analyses of digital capitalism. Wherever it *is* used, we usually encounter either exaggeration, suggesting a leap in development, or a reductionist diagnosis of (unexpectedly meagre) productivity increases. Considering the productivity paradox by itself, we would probably be unable to ascertain any transformative quality of digital capitalism.

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Fourthly, the two Karls have provided us with an insight into their comprehensive understanding of technology, enriched by the social sciences. Both do indeed take technology seriously as an enabler of transformation—not as its sole cause, but rather closely and multifariously linked to social dynamics. In this sense, technology represents both the precondition and the outcome of social and economic interaction. Aided by technology, the buying side and production—or the period of 'waiting'—have effectively been revolutionised and, correspondingly, economic and social relations are undergoing a transformation.

What is left unanswered at this point is the question concerning the end. And I am not referring to the end of capitalism (although there is plenty we could learn about capitalist crises especially from Marx—but, again, the crisis dynamic is not our topic here). I am rather referring to the end of our line of inquiry that began with Polanyi on the buying side and led us to Marx's illumination of the production process. There is no doubt that digital capitalism has caused both to become accelerated, intensified, globalised, automated and virtualised. And yet, the economic substance of existing analyses in this regard still seems to be accurate. So, what happens at the end, on the buying side? Is there anything here that might be undergoing transformation? Polanyi and Marx initially neglect this aspect. However, one thing is clear: starting with the *Great Transformation*, the beginning and intermediate stages have always required a functioning *end*. This end is constituted by the market and consumption. After all, one economic requirement of capitalism in all its variations is the realisation of the produced values on the market and the related imperative of a constant expansion of markets and consumption. Digital capitalism can in this sense only be comprehended after the fundamental economic problem of surplus value realisation and the two 'places' where this occurs—on the market (Chapter 5.1) and through consumption (Chapter 5.2)—are thoroughly understood. From early on, digitalisation was used as a kind of conveyor element or interface linking up production with the market and the market with consumption. Marx in fact already emphasises the significance of the means of communication. However, this does not solve the fundamental economic problems of (digital) capitalism, nor does it adequately explain its permanent susceptibility to crisis (Chapter 5.3). The corresponding theoretical foundation presented here should then serve to facilitate an understanding of what is really new about digital capitalism (Chapter 6).

5.1 Expansion and the market

The greatest product that is produced as a commodity for the market is not worth the effort if it is not met with corresponding demand. That is, of course, a platitude. Every child that has tried to sell their old toys at a yard sale or flea market

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in order to save up for their first PlayStation knows that this will be impossible without other children willing to make the purchase (or grandparents who at least appear willing to do so). Yet Marx is not only concerned with supply and demand, nor with a simple transaction. The child at the flea market represents the old merchant, the one that existed prior to the *Great Transformation*. The child only sells. He or she can obtain a certain price, but there is no surplus value to be appropriated. The once beloved, now unwanted cuddly toy was produced elsewhere by others and, most likely, as a commodity. The surplus value generated at the time was realised on the market and appropriated by the toy's producer at some point in the past.

In his analysis, Karl Marx initially focuses on the tricky aspect of surplus value. And it is certainly not easily pinpointed, as it is—back then and, even more so, today—concealed by the seemingly exclusively relevant mechanism of supply and demand. The more complex the development of the phenomena of production and circulation, the more difficult to render it visible. And yet, Marx brought this surplus value to light. Not only did he make it comprehensible through intellectual precision, but he also illustrated it with numerous calculations. This section (like most others) is definitely worth engaging with, even (or, perhaps, particularly) today. At any rate, the surplus (or added) value remains both the starting point and the end point of an analysis through which digitalisation is to be defined as digital capitalism. Marx focused so heavily on the origin of surplus value because he saw it as the economic essence of capitalism.

Whether or not this means that he had no particular interest in the other side, i.e. value realisation, has been and continues to be debated, be it by Rosa Luxemburg (1951) or, more recently, by Christian Siefkes (2016). In the process, the glance at 'the other side' is captured, among other things, by the term 'schemes of reproduction'.[1] Marx locates one of the limits to unabated capitalist growth in the relation between production capital and consumption capital. Or, simply put: in the question of whether both the capitalists and their workers have enough money at their disposal to buy all the produced commodities. Regardless of the distribution between capital and labour—the amount of capital available for consumption will always be less than that of productive capital, which is why the values realised will

1 The so-called 'schemes of reproduction' commonly refer to Marx's Chapter XX on 'Simple Reproduction' and Chapter XXI on 'Reproduction on an Extended Scale' in *Capital, Vol. II*. (see Marx 1997: 390–488 and 488–523). According to Hans-Peter Nissen, Marx thus provided a "very elaborate" description of the "circular relationships in a capitalist economic system" (1992: 251; translation amended). As he does so, Marx divides the production sphere into two departments: that of the means of production and that of articles of consumption. His concern are the input-output relations between these two departments, as well as the respective consumption capabilities of the two classes of capital and labour. The "dry matter" of the schemes of reproduction, Ulrich Krause notes, certainly effected a "colourful history of impact." (1982: 327; translation amended)

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always be lower than those produced. Rosa Luxemburg[2] sought to challenge, or, rather, refine Marx's calculations, while others, in turn, have called her formulas into question—yet this is not the place for expanding on the "wonderful history of the Marxian schemes of reproduction." (Krause 1982: 330; translation amended) Nonetheless, the schemes of reproduction are certainly regarded as an "essential contribution to the theoretical development of modern national account systems for capitalist market societies" (Nissen 1992: 251–252; translation amended) to this day, in spite of some (at times productive) criticism. And they demonstrate that to Marx, the link between production and consumption is not only important; he also detects a fundamental cause of capitalism's crises here, as well as a problem that each business enterprise must solve anew each and every day. Like a playwright, Marx breaks the process down into two acts, with the first act comprising pure production and thus the generation of surplus value:

> "As soon as all all the surplus labour it was possible to suqeeze out has been objectified in commodities, the surplus-value has been produced. But this production of surplus-value completes but the first act of the capitalist process of production—the direct production process. Capital has absorbed so and so much unpaid labour." (Marx 1998: 242)

Because the development of the productive forces is used to consistently refine the processes of production and surplus value generation, Marx argues that "the mass of surplus-value thus produced swells to immense dimensions, and only at this point does the "second act in the process" begin: what is produced "must be sold" (ibid.). From the perspective of the entrepreneur, then, this is not free of risk and anything but an automatic process:

> "If this is not done, or done only in part, or only at prices below the prices of production, the labourer has been indeed exploited, but his exploitation is not realised as such for the capitalist, and this can be bound up with a total or partial to realise the srplus value presed out of him, indeed even with theo totale or partial loss of the capital." (Marx 1998: 242–243)

2 With reference to Rosa Luxemburg, David Harvey notes one essential capitalist strategy of dealing with the limits to demand: "Whole populations had to be mobilised as consumers rather than as workers" (Harvey 2011b: 108). From this perspective, the collapse of the Eastern bloc appears in an entirely new light, i.e. not only in terms of an end to the battle between economic and political systems, but as a lifeline for capitalism, simply because it produced, overnight, millions (and, with China joining in, billions) of people who could henceforth be mobilised for consumption.

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In other words, all the effort exerted in the first act would have been entirely in vain if the second act were to fail. That is what Marx refers to as the "the *salto mortale* of the commodity" (Marx 1996: 116). The stage is prepared, the show has begun—but the performance cannot be sustained up to the final applause. And the consequences for the theatre owner might prove fatal (to keep with the metaphor). Most entrepreneurs and managers would very likely agree with these statements—provided that we conceal Marx's authorship and translate the passage into today's consulting jargon, like so: even the best production and process optimisations are worthless if a prompt and profitable sale cannot be ensured. Only the combination of both factors guarantees successful business models and continuously rising profits in the long term. It is one aspect in particular that makes Marx so analytically appealing and ensures his analysis remains relevant beyond his time: he separates the actual process in reality from the concept, and the empiricism from the analysis, thereby rendering visible what empiricism alone may have hinted at but failed to comprehensively convey:

> 'The conditions of direct exploitation, and those of realising it, are not identical. They diverge not only in place and time, but also logically. The first are only limited by the productive power of society, the latter by the proportional relation of the various branches of production and the consumer power of society." (Marx 1998: 243)

What Marx is most concerned with here is capitalism's susceptibility to crisis. After all, the power of consumption is inevitably always lower than the mountain of produced commodities, no matter whether this refers to the consumption by another company or the average private consumer: even if businesses are currently investing significant amounts in the advancement of their means of production; even if the public hand substantially stimulates consumption or increases its own spending (along the lines of Keynes or, as is the case today, by printing money); and generally irrespective of whether the minimum wage, real wages or employers' commitment to collective bargaining agreements are high or low for most workers. Even if the entire ('absolute') power of consumption were optimised to the utmost and a maximum of values were to be realised, this would still fail to match the values (and thus surplus values) previously generated in the production process. We could ask: what if the capitalist were to spend (i.e. consume) everything subsequently, including the appropriated surplus value? Could this not be transferred entirely back into consumption, thereby realising the value of all the produced goods? Would this, in fact, not be a possible way of conceiving of a frictionless cycle of creation and consumption, in which the market acts merely as a facilitator? As tempting as this may sound, it does not add up: capitalists, as private individuals, can consume consumer goods; as capitalists, however, they will

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also 'consume' investment goods, i.e. invest in means of production and/or labour forces through which they can produce even more commodities and increase productivity. As a result, the mass of values generated and the share of generated surplus value per product further increase. The productive power has risen and, consequently, superseded the level of existing power of consumption once again. It would appear we are unable, even conceptually, to escape an economic cycle whose objective is the maximum production of surplus value. This means that even in the hypothetical case of 'absolute' power of consumption (which is improbable in reality and, at any rate, undesirable in ecological terms), it would nevertheless remain below the total value produced. And it is precisely this aspect which Marx identifies as the cause of one of the central and, in his view, most unescapable crisis dynamics of capitalism.[3]

As previously mentioned, crisis dynamics are not our main topic. One important aspect, however, is the fact that because they render the entire process a risky undertaking as such—for the individual company, for entire national economies and, ultimately, for capitalism as a whole—the market, reliable access to the market and the (if possible, to the utmost possible extent guaranteed) sale of produced goods become critical. And, because all capitalist actors pursue this objective, this eventually changes the market itself:

> "The market must, therefore, be continually extended, so that its interrelations and the conditions regulating them assume more and more the form of a natural law working independently of the producer, and become ever more uncontrollable. This internal contradiction seeks to resolve itself through expansion of the outlying field of production. But the more the productive power develops, the more it finds itself at variance with the narrow basis on which the conditions of consumption rest." (Marx 1998: 243)

The market, as the place for surplus value realisation, therefore, becomes increasingly important and turns into the paramount sphere of business activities. What may appear to us today as an unchanging state of affairs, almost resembling a natural order, is in fact the manifestation of a certain—in this case, capitalist—

3 Incidentally, Marx does not mean this in a general and abstract sense, but, in fact, quite remarkably pinpoints the historical moment that marked the beginning of a production volume which, under existing conditions, cannot possibly be consumed: "Up till 1825—when the first general crisis occurred—it might be said that the requirements of consumption as a whole were growing more rapidly than production, and that the development of machinery was the necessary consequence of the needs of the market." (Marx 1982: 99). This is one of the passages in Marx illustrating that he refused to adhere to a diagnosis of capitalism that is still common today, seeing as the dictum of scarcity—insinuating that the demand is always too great for supply to keep up—is among the fundamental principles of conventional economics.

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mode of production. *The economic logic of production in capitalism inevitably enforces expansion: first, that of production itself, then that of markets and consumption*.

It is thus no coincidence that this is precisely what the venture capital logic regarding investments in start-ups and unicorns is geared towards: the scaling, i.e. the maximum conceivable expansion of the business model and user numbers (Chapter 8.2). However, this promise comes to fruition only for a small number of business start-ups (and their investors), "[a] narrow class of startups that can quickly grow to a large scale over a decade or less is the most desirable model." (Kenney/Zysman 2018a: 22)

Capitalism, as described by Marx and Polanyi, is primarily (and remains to this day) concerned with producing an increasing number of values in ever-shorter cycles and at constantly decreasing costs. The development of the productive forces is supposed to lead to a gradually rising surplus value per product. Yet, given that all businesses do the same and (are forced to) outdo their rivals, the number of commodities rapidly increases—and always does so at a faster pace than the power of consumption and markets. After all, the masses' power of consumption depends on their wages, which in turn the capitalist seeks to keep as low as possible in order to realise the greatest possible surplus value: in capitalism, the "consumption of the bulk of society" is reduced "to a minimum varying within more or less narrow limits." (Marx 1998: 243)

In order to break free from this contradiction (at least temporarily), businesses, as will be well known to most readers, take advantage of distinct national economic settings—or, in other words, global wage differentials. This allows them to generate a higher surplus value in the respective national economy where production is sourced and simultaneously benefit from the higher power of consumption in the sales markets. We could also say that there is a spillover of parts of the technical and organisational forces of production: capitalist actors are able to draw, firstly, on the low exchange value for the commodity of labour in the producing national economy—in line with the distinct locally developed social forces of production—as well as, at least in part, the locally developed technical and organisational productive forces for local organisation and production. Concerning digital products and digital means of production today, the method of outsourcing is, of course, accompanied by other forms such as offshoring, crowdworking or the unpaid labour provided by users and customers.[4] Alongside permanent automa-

4 While, on a global scale, the differences between so-called developing countries and advanced capitalist economies represented the crucial factor for a long time, today this can once again be achieved in one's 'own house'. This is the case, for example, when the spatial or geographic inequalities within a national economy have increased to such an extent that intra-national differentials offer lucrative conditions to capitalists. In the United States, such discrepancies have sharply increased once again ever since the 1980s. A study by Shambaugh und Nunn (2018), in which the authors examine the development of indicators such as income, poverty, life expec-

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tion and rationalisation measures, all this contributes to a constant expansion of production.

Needless to say, these strategies only have a limited effect in the long term, for the fundamental underlying problem cannot be solved by the expansion of production but is rather aggravated: the amassed surplus value is of little use to a company if the produced commodities are not sold. Again, the generated surplus value must be realised on the market. Against the backdrop of continued capitalist development, then, solving this already difficult problem becomes even harder: precisely because production expands, there is an inevitable concomitant expansion of consumption and of markets on which the produced surplus value can be realised.

The constant "expansion of industry is conditioned by the expansion of markets." Even in 19th-century capitalism, the productive forces increased "disproportionately faster" than markets could increase (Engels 1978: 295). Under capitalism, market expansion thus constitutes a necessary process which always lags behind the expansion of production. This implies that this development does not in the least occur in chronological order or in the sense of one-directional path dependence. Marx already elaborates on this aspect in the introduction to his *Critique of Political Economy*. Although he does repeatedly posit production as the point of origin, he emphasises the complexity and mutual interdependency:

> "A definite [mode of] production thus determines a definite [mode of] consumption, distribution, exchange and *definite relations of these different moments to one another.* Production *in its one-sided form*, however, is in its turn also determined by the other moments. For example, if the market, e.g. the sphere of exchange, expands, production grows in volume, and becomes more differentiated. Changes in distribution, i.e. concentration of capital, different distribution of the population in town and country, and the like, entail changes in production. Lastly, production is deter-

tancy or vacant properties in more than 3,000 US Counties from 1960 to 2016, illustrates that after years of gradual approximation between richer and poorer regions, this trend was reversed from 1980 onwards, producing a "yawning gap" (ibid.: 1). Such regional differences have implications, say, for Amazon's selection of locations for its fulfilment centres. And this affects not only low-paid workers, but can just as well affect well-paid IT specialists: against the backdrop of the COVID-19 crisis, Mark Zuckerberg announced in May 2020 that he believed more than half of Facebook's workforce would be working entirely 'remotely' (i.e. from home) within the coming five to ten years. He added that this would entail changes to the pay structure, as, for example, the place of residence would be factored in, while dishonesty in this regard would be responded to with drastic measures (see Murphy 2020). Even the constant cash flow of the venture capital investors is unequally distributed in the US: 84 per cent of all AUM (assets under management) are managed in the states of California, Massachusetts and New York (NVCA 2020: 12), while these same states also received 86 per cent of all new investments in 2019 (see ibid.: 21).

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> mined by the needs of consumption. There is an interaction between the different moments. This is the case with any organic entity." (Marx 1986: 36–37)

That is to say, the expansion of production and the market is accompanied by a 'surplus' in the supply of consumer goods: there is a "multiplication of production branches, hence products" as well as a "progressively increasing mass of use values and enjoyments" (Marx 1998: 217). However: "Use values become a reality only by use or consumption." (Marx 1996: 46). What is needed at the same time is a specific individual who can consume the use value or enjoy whatever is to be enjoyed. Yet while there is usually no lack of those willing to consume and enjoy, and the 'drive' of capitalist production develops the productive forces as if there were some kind of "absolute consuming power of society" (ibid.: 483) regardless, there is always a mismatch due to the relations of distribution inherent in the capitalist mode of production. So, we may conclude that manufacturing enterprises compete with one another not only in the context of the permanent refinement of production methods, but also for an always insufficient number of consumers.

Marx outlined all this—the significance of value realisation, the constantly progressing expansion of production and the market, and the inescapable limits to society's power of consumption—not only in the sense of a prediction pertaining to some distant future, but as an empirically verifiable fact that could be observed even in his time. That is to say, they were already common phenomena in 'good old' industrial capitalism, and not some specificities of digital capitalism which Marx somehow predicted through his genius. If we imagine the further trajectory of these processes—which Marx described so vividly and which perpetually continue in mutual interdependence—all the way to our present day, then digitalisation, as we will see, becomes particularly significant. But first, we will address a consequence of the triad of value realisation, expansion and the market that prompts further complex developments and is key to understanding digital capitalism: the social (and societal) importance of consumption.

5.2 Consumption and society

As we can learn from a more recent, self-professed 'political-economic' study:

> "The extreme proliferation of digitomation has resulted in the rapid growth of inter- and intra-country data flow […]. This […] has given birth to consumers across the globe who are demanding, and vocal in nature. As more and more integrated and informed consumers seek premium consumption experiences and lifestyles at lower price tags, firms are increasingly compelled to move toward a higher technology intensive production process, thereby substituting unskilled laborers in

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> the workforce by machines. We, the modern buyers, are influencing the providers of goods and services, or the sellers, to embrace technology to enable perfection in their products and services. The modern buyers value precision and perfection and do not seem to pay attention to the fact that the more precise a product is, the more reliant the sellers are on automation, which in turn results in replacement of low- and mid-skilled workers by machines and technology." (Majumder/SenGupta 2020: 70)

According to the authors, technological change leads to changes in consumer behaviour, which in turn causes further automation of production. On the other hand, there are humans in their role as labour forces and as sellers ('we sellers'), respectively, who have become increasingly distant from one another (because digitalisation allows for an ever more precise measurement and transparency of their performance; see ibid.: 50–51). This is quite an astonishing contortion of economic reality. Added to this, one involved actor—namely the capital side—is reduced to an entirely reactive element, almost compelled by existing conditions (and the rest of us). According to this logic, extra-economic mechanisms are at work, and digitalisation appears as an exogenous driver. And, of course, there are no antagonistic classes confronting one another, but rather the 'sellers', in the sense of a polarised workforce, on one side, and the 'buyers', with their increasingly homogeneous and rising demands, on the other (see ibid.: 84).

We can find a similarly distorting analysis in a historical treatment of the development of trade by historian Claire Holleran (2011), who reconstructs the distinct forms that trade assumed over time. From the days of the Roman Empire to the Middle Ages, and then later to the onset of modernity, these forms remained largely unchanged, she contends (see ibid.: 11–22), until "[…] over the course of the eighteenth and nineteenth centuries the distributive trades were transformed" (ibid.: 15–16). Quite surprisingly, the historian views this transformation not as a result of an emergent capitalism, but as an expression of the rise in demand for consumer goods to which production and trade merely reacted (see ibid.: 15).

It is obvious that this putative analysis does not take us any further either, as it individualises highly complex economic contexts and reduces them to micro-economic acts, posits digitalisation as a given fact and completely neglects the actors (business enterprises, nation states, politicians, etc.). That is why we will once again return to Marx at this point. Although he is mostly associated with the production side, he does develop thoughts on consumption, too. The first sign of this is that he always seeks, in critical engagement with the economists of his time, to present the clearest possible definitions. For example, in a critique of Adam Smith, he emphasises: "The same instruments of labour may in many cases serve either as means of production or as means of consumption." (Marx 1997: 205) In a critique of David Ricardo, he adds: "The same things, the same kinds of things, appear

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in one place as articles of consumption and in another as instruments of labour." (ibid.: 225) That is to say, it is not somehow inherent in the nature of a thing as to whether it is a means of production, consumption or labour; what is decisive is the context of its use. However, not each and every thing can be randomly used in any of the contexts. In this sense, there are "*[m]eans of production*, commodities having a form in which they must, or at least may, pass into productive consumption" (ibid.: 394) and "*[a]rticles of consumption*, commodities having a form in which they pass into the individual consumption" (ibid.: 394)

Another important level of distinction are *necessary means of consumption*,[5] which are consumed by members of both classes—"even if frequently different in quality and value from those of the labourers" and "[a]rticles of *luxury*", which are reserved exclusively for consumption by the capitalist class. Here, again, Marx is less concerned with the materiality of the respective luxury good than with the origin of the funds for its purchase: luxury consumer goods "can therefore be exchanged only for spent surplus value, which never falls to the share of the labourer." (ibid.: 402)

These passages alone illustrate that Marx regards consumption not simply as a virtually ahistorical, ontological process of use or depletion of something by a human being (such as the wearing of a cotton shirt or the eating of a piece of bread). On the contrary: the process of consumption, its conditions and even the quality of the product all reflect the relations in which all this was created and is occurring: "The use of products is determined by the social conditions in which the consumers find themselves placed, and these conditions themselves are based on class antagonism." (Marx 1976a: 133) Following these remarks, Marx goes on to call for the quality and sustainability of products. Neither potatoes and cotton nor brandy and opium were the result of a development towards a better product. Cotton, for example, replaced sheep's wool and linen even though the latter were "of greater utility, if only from the point of view of hygiene." (ibid.: 133) It was always "economics [that] prevailed, and dictated its orders to consumption." (ibid.: 133) The factor determining what the masses are allowed to consume, according to Marx, is exclusively the production cost. Cotton products triumphed over sheep's wool and linen "[b]ecause the least amount of labour is needed to produce them, and, consequently, they have the lowest price." (ibid.: 133) So, in capitalism, it is neither a matter of "absolute utility of these objects" nor of "their intrinsic utility,"

5 As Marx adds, it is entirely "regardless of whether such a product as tobacco is really a consumer necessity from the physiological point of view. It suffices that it is habitually such." (Marx 1997: 402) Such distinctions can actually have a real impact even today, and Karl Marx is certainly more progressive than, for instance, the guidelines used to assess Germany's basic security benefits (ALG II): since 2011, tobacco and alcohol are no longer deemed admissible items in the calculation of the standard rate of social security (see Pfeiffer et al. 2016a), i.e. the habitual use is not considered to constitute an appreciable necessity.

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(ibid.: 133) and certainly not a question of human needs. Instead, capitalism, as the "society founded on *poverty*" that it is, is about "the *poorest* products [having] the fatal prerogative of being used by the greatest number." (ibid.: 133–134)

Sadly, the reference to textiles may appear rather topical to us today. Indeed, the need to monitor global value chains to prevent forms of modern slavery is higher than ever (see Voss et al. 2019). Besides this, the quality of today's second-hand clothes is often so poor that they cannot be reused, as is increasingly lamented by German charity organisations (see Rau 2018). Still, textile production and per capita consumption worldwide have almost doubled over the past two decades (see Shirvanimoghaddam et al. 2020). The logic of lowering costs and quality standards satisfies neither the demand for high-quality employment nor for high-quality products (not to mention the devastating ecological consequences). As a result of (increasingly viral) advertising, the degree to which fashion and textiles have become disposable articles is unimaginable. Even cotton increasingly loses out to synthetic materials, which in turn are often very successfully greenwashed as vegan and/or recycled materials.

Given the increased relevance of consumption since the end of World War II, the complex, deeply socially embedded concept of consumption as conceived by Marx has also inspired more recent analyses. In the following, we will pay a brief 'visit' to three authors who stand out in this regard. First, there is Wolfgang Fritz Haug who, in the early 1970s, critically addressed the role of Commodity Aesthetics, the origin of which he regards to be constituted by the contradiction inherent in the exchange relation and which he illustrates based on strongly differing phenomena: from tie fashion trends (see Haug 1986: 39–44) to the sales pitch and the "moulding of the sales assistant" (ibid.: 63–67); from the "technocracy of sensuality" to sexual illusion (ibid.: 47–52). Haug considers his critique to be a "contribution to the social analysis of the fate of sensuality and the development of needs within capitalism" (ibid.: 5). He explicitly states that he seeks to go beyond the level of phenomena, and instead unfold "the phenomena under investigation from their fundamental economic relations" (ibid.: 6). Correspondingly, he defines commodity aesthetics as follows: "It designates a complex which springs from the commodity form of the products and which is functionally determined by exchange-value—a complex of material phenomena and of the sensual subject-object relations conditioned by these phenomena." (ibid.: 7)

The form and function of the commodities that surround us are therefore determined by the fact that they are commodities. That something is not only produced but also designed and marketed as a commodity, one could say, does something with this 'thing'—and with us, the people who use these things. Haug emphasises that although his main concern is to reveal "the subjective element in the political economy of capitalism", it is so only "in so far as subjectivity is at once a result and a prerequisite of its functioning" (ibid.: 7). It would thus be an utter misapprehension of Haug to read him as a culture-pessimistic critic of consumer

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behaviour. Rather, he insists that he derives "these phenomena […] from the basic functional system of commodity production" (ibid.).

Decades later, Haug complements his deliberations with a second book and refines the critique of commodity aesthetics by taking *High-tech Capitalism* (2009) into consideration. He finds the need for doing so in the fact that the development of the productive forces also revolutionises the "technologies of the imaginary" (ibid.: 216; translation amended). Alongside e-commerce and advertising, he sees additional effects at work as well, which otherwise tend to play, quite surprisingly, only a minor role in the academic engagement with digital capitalism. While other authors often and gladly simply stare, analytically motionless—like a rabbit caught in the headlights—at the alleged immateriality of a product, Haug, by contrast, also emphasises the specific rationalisation effects: "The saving in labour costs, the compression of time as a result of the neutralisation of geographic distance, advertising, customer contacts, procurement and ordering, and similar activities can thus be rationalised" [i.e. automated] (ibid.: 254–255; translation amended). Besides this, intermediary trade could also be eliminated. Finally, Haug also addresses the emergence of a "special market for a novel valorisation strategy", referring not to the marketing of products, but of companies themselves: "The use-value promise that incentivised the purchase here was the expected profit." (ibid.: 256; translation amended) In just a few pages, Haug thus manages to outline more substance—and certainly more analytical dimensions—pertaining to digital capitalism than the analyses presented in Chapter 2. Yet the most intriguing thought for our endeavour might be the following:

> "Not only commodity capital but also commodity aesthetics, which is supposed to facilitate the former's realisation, faces a problem of realisation. The reality of the actual purchase becomes an option only if the advertisement was noticed. That which is potentially perceivable needs to be actually noticed." (Haug 2009: 265; translation amended)

Haug's analysis neither stops at the digital phenomena nor does he update his observations from the 1970s with regard to the new objects. Here, he demonstrates the potential of an alert dialectical view: he is not content with reflecting on whether the Internet-based *Commodity Aesthetics* dissolves or aggravates the contradictions of production capitalism. He searches for new contradictions within *Commodity Aesthetics*. As a result, his thesis is particularly compatible with my own—not only because he salvages his 'old' theory of *Commodity Aesthetics* for digital capitalism through the publication of his second volume, but because he takes this sphere seriously as an historically concrete form in his analysis.

Jean Baudrillard likewise proceeds from Marx to consider the sphere of consumption. However, Wolfgang Fritz Haug raises the question, somewhat unfairly,

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as to how Baudrillard (among others), as a supposedly "radical, critical theoretician", could become the marketing and advertising crowd's favourite philosopher. He suspects that this might be related to the fact that "such cultural critics", "who lack both a critique of political economy and a historical perspective", run the risk of "succumbing to the fascination of the surface themselves." (Haug 2009: 340; translation amended)

Here, however, he is mistaken about Jean Baudrillard, whose topics include more than just cultural criticism. In his introduction to Baudrillard's book, *The Consumer Society*, Georges Ritzer emphasises that he is concerned precisely not with the consumption practices of individuals, but with consumption as a structure. In analogy to Marx's concept of the means of production, Ritzer states, the entire concept of the *Consumer Society* reflects an inherent tension arising from the means of consumption (Ritzer 1998: 15–16). What we find here, from a Marxist perspective, are completely different assessments. So let us give the cornered Baudrillard the opportunity to get a word in.

Jean Baudrillard proclaims the "age of consumption", which, "being the historical culmination of the whole process of accelerated productivity under the sign of capital, is also the age of radical alienation." (1998: 191) As a result, he contends, consumption has become far more than merely the appropriation of use values. After all, the task at hand is also to know what should be consumed: which consumer goods and practices are socially accepted and are suitable for expressing social status. Baudrillard therefore distinguishes between two levels of the consumption process:

> "1. As a process of *signification and communication*, based on a code into which consumption practices fit and from which they derive their meaning. […] 2. As a *process of classification and social differentiation* in which sign/objects are ordered not now merely as significant differences in a code but as status values in a hierarchy […]." (Baudrillard 1998: 60–61; emphasis in the original)

Of course, consumption requires economic buying power. Given decades of declining or stagnating real wages, however, buying power is (seemingly or temporarily) sustained by loans and credit card debt. A step that previous generations would have considered so extreme, namely taking out a considerable mortgage on one's own house, that they reserved it exclusively for long-term use values has long become a standard way to fund just about any form of consumption. In the 28 member states of the European Union, outstanding repayments solely for consumer loans (i.e. excluding property loans) rose from €330 billion to €1,019 billion between 1995 and 2008. Following a nosedive in the wake of the financial crisis, they quickly grew back to €991 billion by 2016 (see Ferretti/Vandone 2019: 11–28); in 2016, some 28 per cent of all private households in the EU alone were indebted

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with consumer loans at an average of €5,000 per household, while the figure for property loans stood at €28,200 per household (median values, see ibid.).

Capitalism is very creative and innovative when it comes to creating the impression of economic buying power: from leasing a car that one cannot actually afford to buy on one's salary/wages to instalment repayments of credit card debt, with people not actually repaying debt, but paying interest—right up to the point at which the individual consumer's house of cards collapses and consumer insolvency proceedings are initiated.[6] Frederico Ferretti and Daniela Vandone (2019) therefore speak of an "Industry of Personal Debt", the business models and financial products of which have become increasingly diversified over time (see ibid.: 29–50). The many different variations aside, private consumer debt can be roughly divided into 40 per cent that are directly product linked (such as the financing of a car) and 60 per cent that are uncommitted consumer loans (see ibid.: 30). Based on numerous examples, Ferretti and Vandone illustrate (see ibid.: 44–50) that this industry also struggles with the dynamics of capitalist logic: on the one hand, increasingly specific loans are tailored to increasingly specific customer groups, while, on the other hand, the expansion of the European market for private credit is leading to more complexity and competition. The combination of these developments and the involvement of increasingly high-risk customer groups diminish the profit margin.

Consumption in a consumer society, then, is not only a matter of economic buying power, but also of participation and skills. For the additional task at hand is to know and understand the significant 'codes' and to translate them into individual buying and consumer behaviour—if you will: a historically new facet of human labour capacity. Consumption thus also becomes a matter of participation in society and, particularly with regard to so-called "poverty consumption" (*Armutskonsum*), and even concerning such essential consumption as food, must be skilfully enabled in the narrow margin that exists between debt and digital possibilities (see Pfeiffer et al. 2015). When he speaks of codes in his book, which was originally published in 1970 and in which he distinguishes quite astutely between today's 'growth society' and the 'affluent society', Baudrillard, of course, is also referring to social codes. Obviously, he was unable to predict at the time the extent to which these codes would be mediated through program codes and algo-

6 On the one hand, this is, of course, a helpful step to provide the person concerned with a way out of their predicament. On the other hand, this legally ensures a "minimum repayment quota" within the "good conduct period", so that the creditors (even those who skilfully and almost imperceptibly set up the debt trap in the first place through corresponding offers) are entitled to at least partial repayment of the debt (see Section 287, Clause 2 of the German Insolvency Code (InsO)); a 'minimum repayment quota' was set at 35 per cent simultaneously to the Law on the shortening of the residual debt discharge procedure and the strengthening of creditors' rights 2014 (GlRStG) coming into effect.

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rithms today (Chapter 8.2). But that does not render his assertions obsolete. We could almost say: today, the program code ensures that the appropriate consumer codes are conveyed to us all in a timely, personalised and occasion-related manner.

Moreover, Baudrillard notices people's experience of radical alienation, referring not merely to an economic but to a political element of consumption. Consumption becomes the initial impetus for human liberation—instead of and despite the failure of political and social liberation. According to Baudrillard, this holds the potential for profound crises and novel contradictions (see ibid.: 85). What is more, when reading Baudrillard, you realise what and how much has happened along the very paths he describes. Correspondingly, even he perceives the reinvention of spaces and targets of consumption as endless; to him, even the body is turned into the 'finest consumer object' and thus beauty and eroticism become functional, fitness becomes a cult and beauty a new obsession (see ibid.: 129–150). Given today's boom in cosmetic surgery, Instagram filters[7] and the *quantified self* movement, his examples appear virtually harmless. And one feels immediately reminded of personalised advertisements, target marketing and the associated digital monopolies when Baudrillard speaks of the logic of "Personalization or the Smallest Marginal Difference" (see ibid.: 87–98). He defines the latter as follows:

> "The logic of personalization […] can be defined historically: it is industrial monopoly concentration which, abolishing the real differences between human beings, homogenizing persons and products, simultaneously ushers in the reign of differentiation." (Baudrillard 1998: 89)

While Baudrillard proclaims *The Consumer Society*, Zygmunt Bauman (2007) speaks of *Consuming Life*. The starting point of his examination are three cases, seemingly taken at random from newspapers. These cases deal with the self-marketing of a very diverse set of people: school students on social media; customers trying to avoid being incorrectly categorised by support software prematurely; and people seeking to qualify for immigration. They all appear in a dual function: "They are, simultaneously, *promoters of commodities* and the *commodities they promote*." (ibid.: 6) No matter how strongly the respective circumstances may differ, "the activity in which all of them are engaged […] is *marketing*." (ibid.) What is

7 In fact, the cosmetic surgery industry and Instagram are even forming alliances: for example, there are filters (which have since been officially banned, but are still shared illegally) which simulate the outcome of cosmetic procedures; at the same time, scientific studies published in academic journals in the field of aesthetic surgery regard Instagram filters as a valuable tool to improve communication between patients and their attending plastic surgeons (see Youn 2019). No wonder the industry is optimistic, as the viewing of social media photos taken after plastic surgery has been found to increase the readiness of viewers to undergo such procedures themselves (see Walker et al. 2019).

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demanded from them (and us all) is "[…] *to recast themselves as commodities*: that is, as products capable of catching the attention and attracting *demand* and *customers*" (ibid., emphasis in the original). To Bauman, these are all phenomena of a fundamental change: from "a society of producers to a society of consumers" (ibid.: 8). Bauman refers to the general and comprehensive commodification of human life as (one) collateral damage (among others, see ibid.: 117–150). This is all the more startling given that Bauman describes this process as a new phenomenon, even though he makes reference to Karl Marx and Karl Polanyi in his introduction (see ibid.: 13–14)—albeit to their commodity fetishism (which Polanyi criticises in Marx). And yet, both (see Chapters 4.1 and 4.2) view the fact that people (or, rather, their labour), things (nature) and the social (society) are turned into commodities as a fundamental feature of capitalism. Commodification itself is nothing new, then, nor is its tendency to pervade all that which was never meant to be for or part of the market. What is new, however, is the perfected and expanded requirement of self-marketing in the different markets of life, which has become increasingly differentiated and a social phenomenon in its own right. Another new aspect is that all this has in turn become the basis of various business models—from job application trainings and style advice to coaching classes for influencers. What emerges are new facets of human labour capacity surrounding advertising, marketing, search engine optimisation, influencing, etc. We will return to this at a later point (see Chapter 6.1), but let us first recap: the fundamental economic problems of capitalism continue to be those of digital capitalism. The need for surplus value realisation, permanent market expansion and the constant stimulation of new consumer needs all requires very specific responses at the level of the individual company.

5.3 Communication and crisis

What is fundamental for the individual company is to enable value realisation in the market at the lowest possible risk and to stimulate and satisfy consumption in increasingly targeted and agile ways. Ever since its onset, digitalisation has been used to accelerate this circulation process and to expand its scale to an increasingly global and all-encompassing level. Yet because all companies are playing and indeed have to play this game, the risk of the failure to achieve surplus value realisation generally does not decrease, but increase (which, in turn, is hoped to be mitigated by new forms of digitalisation).

It is surprising to realise at times just how topical and up-to-date Marx's analyses appear to be from today's perspective. Needless to say, he could not have predicted digitalisation, and yet, the means of communication as part of the produc-

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tive forces and as an 'enabler' of growth and the acceleration of the capitalist mode of production do feature strongly in his considerations:

> "Speaking generally, the growth of the productive forces, with their more rapid means of communication, accelerated circulation and feverish turnover of capital consists in the fact that in the same time more can be produced, and hence, under the law of competition, more must be produced." (Marx 1976b: 430)

Let us illustrate these mechanisms based on an example: over the past 20 years, global textile production has doubled, amounting to an average annual increase of 5 per cent. (Today, more than 100 million tons of textiles and garments are produced globally.) During the same period, the annual per capita consumption of clothing items almost doubled from 7 to 13 kilogrammes (see Shirvanimoghaddam et al. 2020). According to the *Fachverband für Textilrecycling* (Textile Recycling Association), per capita consumption in Germany is twice as high and currently stands at 26 kilogrammes per year (BVSE 2020).

At the same time, however, spending on clothing as a share of overall private consumption has been continually declining in Germany: while it accounted for 7.8 per cent in 1991, it will have declined to 3.9 per cent by 2030 (Bieritz et al. 2017: 10).[8] So, while Germany's consumers buy a greater total volume of textiles today, this figure is falling relative to other areas of consumer spending.

However, this does not mean that turnover in the textile and garment industry has declined in Germany. In 2019, textile and fashion retailers (not including professional, workwear or skiwear) achieved a turnover of €64.6 billion (of which 17 per cent were online sales); five years earlier, this figure was €58.6 billion, which indicates an annual increase of 2 per cent. Despite a minor slump in 2020 (brought about by the coronavirus crisis), the volume is expected to rise to €74.3 billion by 2025. The per-customer earnings in the textile and garment market, amounting to €719.22 in 2014, rose, modestly but steadily, to €773.68 by 2019 (figures based on statistics taken from the retail data portal EHI 2020).

If, in 2014, the number of garment items purchased per capita was 53.9, five years later this figure had risen to 56.2 (see ibid.). So, here, too, we can see an increase, albeit—at 0.8 per cent—quite a moderate one considering the growth in turnover over the same five-year period. Furthermore, the share of luxury fashion remains at a quite constant level of 6 to 7 per cent, with no discernible trend whatsoever, both in the studied five-year period and in the estimates for 2020 and beyond. If we compare the per capita turnover to the per capita number of clothing items, we find that

8 Nominal figures adjusted for price changes, as according to 2010 prices; database: Einkommens- und Verbrauchsstichprobe (EVS—Income and Consumption Survey) 2008, forward projection developed in the context of the socio-economic model (Bieritz et al. 2017: 1).

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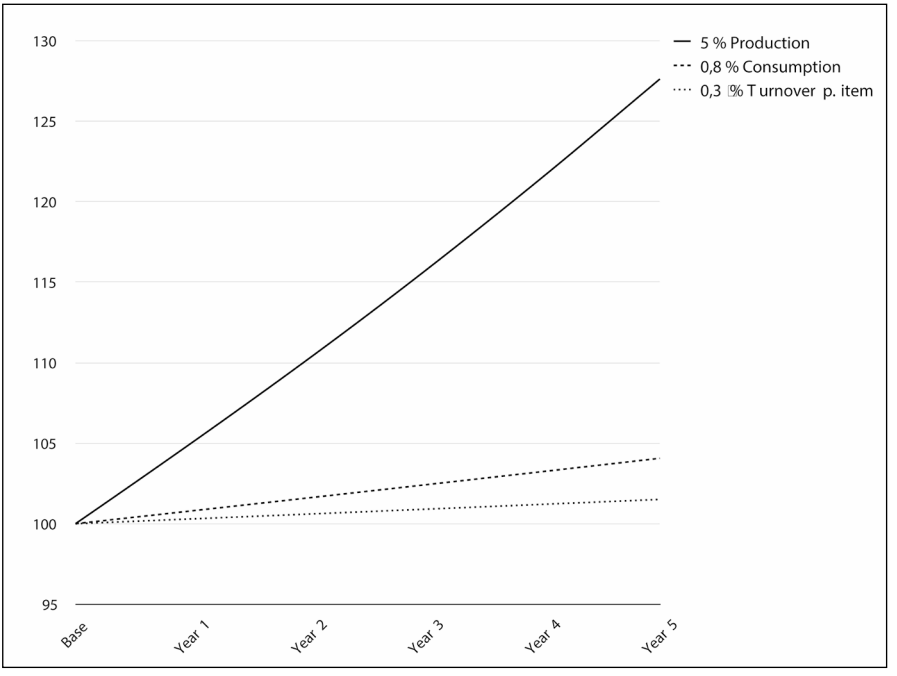
in 2014, the turnover per clothing item was, on average, €13.30; five years later it was €13.80, which corresponds to an annual increase of only 0.3 per cent (ibid.).

So, to summarise: global textile production grows by an average of 5 per cent annually. In Germany, one of the advanced capitalist economies, the sales measured both per capita and in euros are growing by just 0.8 per cent annually. At the same time, the share of private consumer spending for clothes has been declining by an average of 1 per cent annually, while spending for luxury textiles is stagnating in the single digits. And yet, each year the industry manages to increase turnover per capita and per clothing item by 0.9 per cent and 0.3 per cent respectively.

These figures once again perfectly illustrate the links between overproduction and insufficient consumption previously diagnosed by Marx: every year, production increases by 5 per cent, while consumption lags markedly behind—at 0.8 per cent annually—and turnover per sold product is even lower (not to mention that it says nothing about the actually realised profit), rising at an average of 0.3 per cent per annum. Just how quickly the gap between production and consumption may then widen can be fictionally, and impressively, illustrated based on a starting value of €100 for a five-year period (see Fig. 2).

Fig. 2: Increase in production, consumption and turnover (generic)



Data basis: Statistics on the retail trade in clothing and textiles in Germany (EHI 2020).

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In order for this to turn a profit, a whole system of correspondingly developed productive forces is needed. This includes the cheapening of the raw materials (using innovation- and investment-intensive, but cheaply manufacturable, synthetic fibres and dyeing machines, and condoning the possibility of hazardous or hormonal substances in the garment); the increase in the productivity of agricultural cultivation areas (such as through genetically modified cotton and the use of matching herbicides, causing a dramatic impact for farmers, the potential build-up of resistances, transgenic contamination etc.); the exploitation of global wage differentials, permitting the most appalling, unsafe and unhealthy working conditions along the supply chain; as well as the intentional and targeted prevention of any trade union-related activities or the foundation of any kind of interest-representing bodies, pertaining to the entire supply chain, for instance from textile manufacturing and dyeing via fabric cutting and finishing to packaging, shipping, transport and sales. All these grievances have long been made public by Naomi Klein (2010) and featured in countless media reports (which, unfortunately, continue to reveal new abuses and scandals). And indeed, resistance is forming, some of it very well organised, that is presenting new approaches to ethically responsible and sustainable value chains: Matthew Williams (2020), for example, explores the strategies developed by social movements formed by students and workers to combat sweatshops between 1997 and 2007 as well as the responses by companies. Another study (see Balsiger 2016) addresses the momentum the European network *Clean Clothes Campaign* (CCC) was able to generate in highly contested textile markets.

However, despite all the scandals, the "sweatshop regime", which is the result of a "complex regime of exploitation and oppression […] [that links] processes of surplus extraction to different realms of social reproduction of the labour force" (Mezzadri 2017: 185), has remained remarkably stable over time. As a result, the most diverse processes of surplus value generation, all woven into the same system, are globally interconnected. Since the onset of automation—the beginnings of which can be traced back to the English textile industry—the productive forces have been driven to utmost perfection within this regime, though this is not so much owing to digitalisation. The latter is needed particularly in order to tie the global network of distinct forms and places of surplus value generation closely together and simultaneously configure this overarching structure in such a dynamic, responsive, open and flexible way that new trends can immediately be seized upon, implemented and new suppliers can be included or excluded in accordance with demand, the overall economic situation or geopolitical risks, without destabilising the system as a whole. Hence, digitalisation also enables and ensures the interplay between global and thus highly unevenly developed productive forces.

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Another central precondition for the formation of such global regimes is political deregulation. In the textile and garment industry, this is evidenced by the expiration of the *Multifibre Arrangement* (MFA) in 2005. Up to then, the MFA sill guaranteed a degree of geographic inflexibility (i.e. restriction) of the markets (see Kumar 2020: 1). Ashok Kumar, who has conducted a political-economic study of the fashion and footwear industries, refers to *Monopsony Capitalism* and thus goes far beyond the consideration of the poor working conditions in sweatshops. While the term *monopsony*[9] is mainly used to describe labour markets—one (employer, as an individual) consumer, or demander, is confronted with many providers (of labour power)—Kumar (see ibid.: 17–51) focuses on the relationship between multinational fashion brands and retailers with smaller, globally dispersed yet locally bound suppliers. According to Kumar, the former ensure access to critical technologies and can thus dominate the latter and control production sites, production, investments, prices and employment along the value chain. Through their key position as central demanders in a monopsony, large retailers and brands restrict the smaller actors within the value chain and, more importantly, prevent their further development, i.e. that of the local productive forces. The smaller actors are unable to apply common business strategies—they are neither able to modernise their means of production nor can they buy up competitors. They are left exclusively with profit margins that are always subjected to market fluctuations (see ibid.: 31).

In the textile industry, the power relations have once again grown more rigid and differ considerably from those familiar in, say, contract manufacturing in the electronics industry or between the powerful corporate buyers in the automotive industry and their suppliers (from system suppliers to those suppliers who are lower ranked within the supply pyramid, referred to as *tier-n* suppliers). In these latter industries, supplier companies are by all means capable of building up technological expertise over time. They are thus able to develop their productive forces 'technology' and 'labour' and that way strengthen their position vis-à-vis *Original Equipment Manufacturers* (OEM) or their own higher-ranking suppliers. This often entails the opportunity for workers to improve their working conditions, too. In the textile industry, however, neither local employers nor their workers have achieved such an upgrade (see Kumar 2020: 31).

9 The term was first used 1933 by economist Joan Robinson (1969) in her book on *The Economics of Imperfect Competition and Employment*, in which she makes considerable reference to Karl Marx and also discusses many of John Maynard Keynes' ideas. Regardless of its literal meaning, the term is mostly also applied to models of buyers' market power that assume not only one, but a small number of demanders, or simply to situations in which businesses are faced with a rising number of labour forces (Boal/Ransom 1997: 86).

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This may in part be owing to the products' differing degrees of technological complexity. For example, a system supplier in the automotive industry has greater scope to develop their own expertise and patents. A process of upgrading in the supplier company can actually take place, possibly even causing dependencies on the part of the OEM in return. This also entails, *firstly*, higher skill requirements for workers, which takes effect in local labour markets. As a result, workers have more opportunities to assert their demands and, moreover, a chance to improve the situation of the labour forces. An aspect related to this is, *secondly*, the fact that the system supplier is in a far better position to tackle global competition (at least until the next industry-wide technological transformation) than the textile supplier. *Thirdly*, what distinguishes both most decisively is their position within the value chain. Unlike the automotive system supplier, the small local textile companies Kumar considers manufacture no complex product that might be integrated into complex products and production processes of OEM and therefore be essential for the generation of surplus value. Instead, textile companies produce finished products for wholesale and the market. As a result, businesses and their workforces are exposed to global competition in an entirely different way. In this context, Anna Tsing (2009) interprets present-day capitalism in terms of a *Supply-Chain Capitalism*, adopting a corresponding perspective from which to explain the diversity and constitutive difference in today's global capitalism. She thus argues firmly against theories of growing capitalist homogeneity and seeks, building on her concept of 'figuration', to show the multiple forms in which capital, labour and resources are mobilised along the supply chain, but also the diverse ways in which management, consumption and entrepreneurship are understood and applied. Above all, however, she shows how exactly this ties self-exploitation, on one side, and over-exploitation on the other together (see ibid.).

One aspect of Kumar's *Monopsony* thesis that is decisive for our line of inquiry here is his emphasis of separate spheres: "This tension is located in the global separation between the space of value creation at the point of production (via the labour process)—and its realization—at the point of consumption (via its sale)." (Kumar 2020: 31) At the same time, however, this global separation is only possible because of digitalisation and physical transport routes. It is their optimisation and further refinement, i.e. their acceleration, improved predictability and cost reduction, that constitute the prime objective of the major global actors. In my diagnosis of the phenomena Kumar describes, I would thus go one step further: the productive forces and their local development have not only become irrelevant to those global actors, but also something that is both worth avoiding and avoidable. One *wants to* avoid it because otherwise the existing power asymmetry may change. And one *can* avoid it because the developed forces of distribution and, along with them, digitalisation as the central means of distribution, allow potential developments of the productive forces to be eluded (this will be discussed in detail in Chapters

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6 and 8.2). It is therefore not only a matter of finding the next suitable place with even lower wages, but also the next place with even slimmer chances of a potential, locally consequential development of the productive forces. In fact, Marx already emphasises the role of the means of communication in this context:

> "Every development of new productive forces is at the same time a weapon against the workers. All improvements in the means of communication, for example, facilitate the competition of workers in different localities and turn local competition into national, etc." (Marx 1976b: 423)

Unlike the digital-based 'old' links between OEM and their suppliers, however, what is crucial today is the comprehensive digital coupling and integration of the whole system with the market and consumers. This not only has to occur in one direction, i.e. from production to the market and on to the equally digitally stimulated (that is, nudged and influenced) individual consumer needs, but also vice versa: from the digitally tracked new trends, clustered and extracted by algorithms, and potential novel consumption opportunities, back to the acquisition of raw materials, cut and dye modifications, and, finally, to the launch of the actual process of clothing production.[10]

The economic significance of the Marxian means of communication—which today would include digitalisation—is evident not only from the objective of individual companies to assert themselves in the global competition and, say, take advantage of wage differentials. The tight-knit, direct and quick connection between globally dispersed production sites (or, rather: places of surplus value generation) and sales opportunities (i.e. opportunities for surplus value realisation) expands in parallel with the growth of the scale of overproduction. We have seen above (Chapter 5.1) that this is inevitable and already led to frequent commercial crises in Karl Marx's times:

> "It is enough to mention the commercial crises that by their periodical return put on its trial, each time more threateningly, the existence of the entire bourgeois society. In these crises a great part not only of the existing products, but also of the previously created productive forces, are periodically destroyed. In these crises there

10 As described above, this also changes the (technology-based) stronger position of system suppliers in the automotive industry. Although the technological complexity of products and production processes does still constitute a 'locational advantage' within global value chains, the digitally enabled, enhanced integration and more direct linkage of development and production with the market and consumption are noticeable here, too, changing long-standing power relations along the entire value chains down to the very last car workshop and car dealer (see Maier 2019).

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> breaks out an epidemic that, in all earlier epochs, would have seemed an absurdity — the epidemic of over-production." (Marx/Engels 1976a: 489–490)

Particularly against the backdrop of the coronavirus pandemic (I actually began writing the original German version of this book more extensively during the first lockdown in the spring of 2020), one realises that given a capitalism which has been able to continue to develop in such a rapid and unimpeded manner ever since the days of Marx, the epidemic metaphor is no longer adequate, as it refers to the temporarily and geographically limited occurrence of a disease. Likewise, the term pandemic would be inaccurate, as it also denotes temporary spreads of diseases, albeit requiring transnational and intercontinental monitoring. Unlike in Marxian times, then, overproduction today is not some sporadically recurring and inevitable capitalist crisis phenomenon. For a long time, we have rather been dealing with a permanent global crisis of overproduction. To be clear, this means on a global scale, and not everywhere on the planet and at the same time. Overproduction continues to be faced with scarcity affecting the majority of the world's population. Furthermore, overproduction has long ceased to be merely a relative term, in the sense of 'more than can be bought and consumed under existing conditions'. It has become an absolute term, in the sense of 'more than one planet and its finite resources can take' (on the destructive consequences, see also Chapter 9).

From the perspective of capital, absolute overproduction further aggravates the conditions of relative overproduction: say, when commodity prices rise because supply is being reduced; or when states appear to heed their responsibility to restrict the market in the sense of Polanyi (Chapter 4.1) and resort to regulatory measures to mitigate the ecological disaster and its harbingers of the looming crisis; or when the concerns of consumers suddenly need to be accommodated through soothing greenwashing or effective sustainability measures, which, as a whole, certainly increase circulation costs, and often production costs as well. These higher costs, however, cannot always be directly passed on to customers under the conditions of global competition. As a result, such competition can intensify (say, if regulations differ between regions/countries), engendering varying shares of the generated surplus value per product. Even companies that are serious about pursuing ecological targets and operate in certain niches are affected because, given their higher production costs, they always remain dependent on the relations determined by the majority of less ecologically-oriented companies.

Crises of overproduction, which inevitably occur under capitalism, but which occurred only epidemically in Marx's time, have for a long time grown into a permanent pandemic—one for which there is no effective vaccine or cure within this mode of production, only a sporadic alleviation of symptoms. At the level of the individual company, however, the competition over both the temporal and geographic pole position in the markets is intensifying. Being the first to realise the surplus value on the mar-

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ket has become more important than ever. In order to achieve as much, digitalisation has become the means of choice, making it a crucial dimension—for individual businesses and for entire national economies. In the next step, this will be not only described at the empirical level of digital phenomena, but conceptualised in terms of the distributive forces, and thus as an increasingly important facet of the productive forces in (digital) capitalism.

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6. The Distributive Forces and (Digital) Capitalism: What is New?

Following Karl Polanyi's analysis of the transformation on the buying side of the production process, and Karl Marx's analysis of value generation in the production process and the related distributive forces (Chapter 4), we turned our attention to the always inevitably crisis-prone expansive dynamics of consumption and the market. Let us now take a closer look at the selling side, where crucial changes are also underway. The selling side is assuming a new economic significance, displaying its own transformative quality. While avoiding any underestimation of the explosive nature of the new form of buying and value generation enabled through digitalisation, I will therefore concentrate on the *new (both socially and economically) transformative quality of selling*,[1] for the rise in global productivity also increases the pressure to ensure value realisation as early as possible and, above all, before the competition. *I consider all those technological and organisational measures and activities linked to (the safeguarding of) the realisation of surplus value as distributive forces*.

That is to say, the distributive forces are geared towards value realisation—the successful sale—and the optimisation of the corresponding processes that are hoped to shorten the time between production and sales and minimise the risk to sales more generally. In this field, profound changes were underway long before the onset of digitalisation, including the expansion of consumer credit, franchise systems, leasing plans or system catering. The development of the distributive forces is linked to a host of market-related and political measures, both at the level of the individual company and beyond. We are familiar with many of these measures from our everyday lives, as we—as consumers—are increasingly and almost constantly the target of all these activities (sometimes quite noticeably and

1 In a world in which the driving belt of consumption is blurring the boundaries between economic and social spheres (see Bauman 2007; Hellmann, Kai-Uwe 2013) and in which, given the phenomenon of prosumption, the boundaries between production and consumption have grown equally hazy (see Blättel-Mink/Hellmann 2010; Hellmann/Schrage 2005), the question is no longer whether this transforming force is affecting the economy or society—the transformation deserves its name precisely because its effects are not limited to just one sphere.

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obviously so, yet mostly in an only intuitively perceived and concealed way). They include:

- measures towards the stimulation and maintenance of consumer motivation (planned obsolescence, marketing, advertising, nudging);
- measures towards the more accurate prediction of consumer needs/preferences and practices as well as changes thereof;
- measures towards the repeated obligation to purchase for use rather than for personal acquisition (Software as a Service, subscription models, streaming services);
- expansion of sales channels and opportunities for sales (in order to establish contact with consumers willing to buy more quickly, in greater numbers and on the greatest possible geographic scale);
- increase in efficiency and efficacy of individual sales processes;
- increase in the efficiency and efficacy of logistical processes on the selling side.

Much like the productive forces, the distributive forces are not limited to the business and market spheres, but contingent on certain social and national economic measures that entail specific consequences, such as:

- political measures for the promotion and maintenance of the capacity for consumption (despite stagnant real wages; e.g. via the subsidising of energy in order to reduce transport costs and, simultaneously, use of global wage differentials);
- political measures towards market expansion and safeguarding the preconditions for sales (free trade, non-regulation, the privatisation of public data);
- consumption as an increasingly relevant aspect of society and social practices;
- discursive equation of innovation with market success instead of social progress, and the positive reinterpretation of disruption;
- differentiation, specialisation, professionalisation and scientification of the professions and fields of knowledge geared towards value realisation;
- quantitative increase in the activities (e.g. search engine optimisation), professions (e.g. in marketing) and business models (e.g. services for the data-based tracking of the so-called customer experience across several websites) geared towards value realisation;
- increase in spending on science and research related to the distributive forces.

This initial cursory and invariably inexhaustive list shows that the distributive forces encompass *the totality of institutionalised processes of sales and sales promotion*, which are only conceivable in combination with a mode of production that

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is dependent on realising the produced surplus value on the market at all costs (see Chapter 5): *alongside the competition between manufacturing companies for the most cost-effective production technique and the constant need for the maintenance or, better yet, increase of value generation, an intensified battle for the pole position on sales markets has ensued*.

At the heart of all these efforts is the actual sale. At the level of the national economy, this act increasingly becomes an economic necessity for capitalism and, at the same time, the inescapable prime objective of all business actions. As is the case with production, however, the investments that enable sales are not free of charge, let alone free of human labour. As his economic gaze does not stop at production nor at the factory gate (i.e. *inside* the factory walls), Karl Marx also sees this. He condenses all these costs in the concept of the circulation costs (on this, see also Chapter 7.1):

> "All these costs are incurred not in producing the use value of commodities, but in realising their value. They are pure costs of circulation. They do not enter into the immediate process of production, but since they are part of the process of circulation they are also part of the total process of reproduction." (Marx 1998: 288)

So, once sales become ever more important for each (over-)producing company, the costs for businesses to boost sales, or consumption, rise. Here, too, processes and methods are permanently improved and overhauled. These distributive forces can be distinguished at three different levels: firstly, *advertising and marketing* (Chapter 6.1)—i.e. all efforts and expenditures aimed directly at value realisation in terms of consumption and the market; secondly, *transport and warehousing* (Chapter 6.2)—i.e. all efforts and expenditures aimed at ensuring the physical access to markets and value realisation; and, thirdly, *control and prediction* (Chapter 6.3)—i.e. all efforts and expenditures aimed at documenting the processes of value generation (production) and value realisation (distribution), rendering them predictable, depicting them in exact figures and representing them as controllable and increasingly predictable in all circulation movements. This third level thus also captures the other two, linking up all three. All levels are closely connected, often develop in relation to one another—in the sense of technical and organisational collaborations and a division of labour—and, at any rate, in direct mutual interdependence. Seeing as they are indispensable for an understanding of what is new about digital capitalism, I will address them in separate analyses in the following. To begin, I will illustrate each level with regard to changes and dynamics that have taken place over the past decades, the ways in which they have, so to speak, paved the way for the development of the distributive forces, and thus—if you will—created the (economically, particularly promising) points of contact for what we currently refer to as digital capitalism (Chapter 6.4).

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6.1 The distributive force 'advertising and marketing'

Advertising and marketing emerged long before the Internet and were already becoming increasingly important years before the World Wide Web. Likewise, data have always been used, as a glance at recent history reveals. However, the historiography of marketing is fairly young and there is persisting disagreement on many issues. For example, there is controversy concerning how influential new technologies are, when exactly marketing was invented and by whom, and when the history of marketing began (with some tracing its origins back as far as the Middle Ages) (Berghoff et al. 2012: 2–3). What is undisputed, then, is that marketing became visible and successful from the 1890s onward. At the time, there were already lectures available on the topic and, from 1902, the first advanced trainings in marketing were being offered (see ibid.: 3).

It is probably no coincidence that the specific evolution of capitalism entailed the emergence of advertising and marketing. In the early days, however, it actually denoted far more than just pitching a product. A historical study of the development of marketing between the 1920s and the 1970s notes even for the beginning of this period that the market was increasingly abandoning the idea "of educating people on how to make use of new products"; Instead, the task at hand was more and more "to touch the consumer emotionally" and "to reach consumers at the level of their unconscious wishes." (Logemann et al. 2019: 3). The common specialist term for this is *consumer engineering*. It appears hip and modern, but was in fact already coined by one of the pioneers of marketing, Earnest Elmo Calkins, as early as 1930—interestingly, and not unintentionally, during the Great Depression—and subsequently described and refined in a book by his agency's staff (Sheldon/Arens 1976). The stated goal—and, simultaneously, advice to businesses on how to safely navigate the Great Depression—was '[to] engineer a supply of consumers' (ibid.: 55). The authors already emphasise the importance of conducting systematic market research and applying scientific methods from the field of psychology, using the term 'humaneering' in this context (ibid.: 95–96). That is to say, the overabundance of goods is to be counteracted with a sufficient and, as far as possible, never-ending flow of willing consumers, which in turn has to be proactively created.

The concept of 'paying' with data has also been around for some time. Another historical investigation into marketing demonstrates that the dream of "tracking individual consumers and delivering perfectly tailored and timed promotional messages" (Lauer 2012: 145) existed long before Big Data or Machine Learning entered the stage. As early as the 1920s, this vision was encapsulated by the term 'customer control' (ibid.). Technologies geared towards this customer control were initially linked up rather coincidentally with the field of credit management, though this process was accelerated once the strategic use was recognised.

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Between 1880 and 1920, there was a sharp rise in the number of consumer loans in the United States. Access to such credits was increasingly tied to the disclosure and collection of numerous data about credit seekers that were then used for target marketing (see ibid.: 155–156). From the 1960s, marketing methods were able to harness information technology, while the 1970s, starting with the introduction of the barcode, marked the beginning of data mining (see Berghoff et al. 2012: 5).

Another historical study (Logemann 2019) focuses on the links between Europe and the US and the development of 'consumer engineering'. At the heart of this investigation are people who emigrated from Europe to the US during the Nazi era and used their academic expertise in the subjects of psychology or arts and design to contribute to the professionalisation of marketing, only to bring these techniques back to Europe upon returning there after the end of the war. The study does not stop with these exciting biographies, but uses them as a starting point to analyse the development of consumer capitalism in the United States in the middle of the last century. While most investigations concerning this period are limited to Fordist phenomena and mass production as well as the complementary Keynesian policies geared towards consumer-driven growth, the study contends, the marketing side remains largely unstudied: "The equally important marketing side of this phenomenon, however, remains less explored, aside from a substantial historiography on the development of advertising." (ibid.: 5) Yet the historian Jan Logemann traces the ways in which producers of consumer articles and retailers adjusted their strategies to this consumer capitalism and the role which market research, consumer psychology and commercial design played in the process.

This brief historical recap is intended to underscore three aspects: firstly, it is clear that the idea of mapping consumers and rendering their behaviour predictable and (better yet) manipulable and controllable is not simply the result of a coincidentally developed discipline or field of work that is somehow becoming increasingly professionalised. The significance and dynamics of marketing are rather closely tied to the development of capitalism and its structural framework conditions. Secondly, the historical analyses already indicate that the increasing importance of marketing on the distribution side is systematically linked to the realities on the production side (overproduction and crisis). And, thirdly, we have seen that 'consumer engineering' draws on the respectively available state of knowledge and technology, with data and the Immaterial always having assumed a central role—given that the task at hand, from the outset, has been the reductive quantification (and the prediction, as accurately as possible, of a purchase) of qualitative aspects (namely complex emotional and material reasons as well as biographical and lifeworldly conditions for the appropriation of use values). In his reflections titled "Capital goes to Market", David Harvey also addresses the considerable advertising effort undertaken to secure potential markets: "An immense

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amount of effort, including the formation of a vast advertising industry has been put into influencing and manipulating wants, needs and desires of human populations to ensure a potential market." (Harvey 2011b: 106) Some 70 per cent of the US economy is based on consumption, according to Harvey (ibid.: 107). Furthermore, Harvey considers the constant creation of new needs to not only represent a crucial precondition for continuously growing capital accumulation, but as absolutely essential for capitalism's survival (ibid.).

The fact that the willingness to invest in advertising has long remained remarkably high can be unequivocally and empirically verified: German businesses spent around €35 billion on advertising in 2019, which corresponds to just over one per cent of GDP. At first glance, this may appear negligibly small, but this figure stood at only 0.84 per cent in 2015. In other words, the GDP share of advertising rose by more than 20 per cent in just four years (see ZAW 2020), after it had declined by 23.5 per cent (from 0.85 per cent to 0.65 per cent) (ZAW 2018: 9) in the two preceding decades (1995 to 2014). Although this decline is not explained in any greater detail in a brief study by the Association of the German Advertising Industry (ZAW—*Zentralverband der Werbewirtschaft*), it is likely related to two events: the bursting of the dot-com bubble in 2000 and the financial crisis in 2008. The World Advertising Research Center (WARC) has noted a 12.7 per cent decline in global advertising spending for the period following the financial crisis, and, given the ongoing crisis caused by the pandemic, is predicting a renewed drop of 8.1 per cent (see WARC 2020).

With regard to Germany, the German Institute for Economic Research (DIW—*Deutsches Institut für Wirtschaftsforschung*) has investigated the micro- and macro-economic significance of advertising. According to its findings, a rise in advertising spending of one per cent of GDP elicits a growth impulse of about 0.02 per cent on average (see Horch et al. 2016: 61). Furthermore, the study's authors state, a positive trend between advertising and product quality (see ibid.: 8–17) and between advertising and innovation (see ibid.: 17–28) can be confirmed.[2] Whether or not one concludes that such a causality exists, the numbers certainly indicate that companies are willing to make substantial and rising investments in advertising—including in conventional ads. And this is the case even though the effects of advertising on a given national economy can hardly be measured. This discrepancy between high and rising investments and a negligible Return on Investment

2 When, for example, the brand names of TVs, winter tyres or digital cameras are more intensely advertised, the respective products score higher in independent product reviews (Horch et al. 2016: 17). However, the evaluations of these two statements are purely descriptive and can therefore be drawn on neither with regard to the reliability of a supposed link nor to the direction of any possible causality. An OLS regression, moreover, shows that those industries with the highest expenditure on brand advertising (such as the pharmaceutical, electronics and automotive sectors) also exhibit the highest rate of innovation.

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(RoI) can be justified at the individual company level with only two arguments: on the one hand, there is the (in some cases, certainly reasonable) hope that one's own advertising investments will be ultimately redeemed; on the other hand, there is the (simultaneous) pressure to act in order to realise on the market—at all costs—whatever has been overabundantly produced. So, we find a discrepancy and a pressure to act that are not decreasing in the digital variant of capitalism but doubling: while in the past businesses used advertising to *successfully compete for customers' attention*, today, in the context of digitalisation, the task at hand is to *succcessfully compete for access to the attention* of potential consumers. For example, the German 'Adtech' industry is complaining about the tendency of browsers such as Firefox or Chrome to no longer allow third-party cookies[3] and thus create so-called *walled gardens*, and about the login, i.e. black box strategies pursued by Facebook and Google (see Pilot 2020: 17–18). In order to counteract this 'data dominance', companies' own websites would have to register the relevant user numbers in order to compile their own datasets, reach more people and evaluate their data. The aim is, according to Pilot, to "to form a counterweight by becoming an identity service provider" (ibid.: 18; translation amended). In Germany, companies like

3 It may seem difficult to imagine these days, but the Internet, which is today the enabler of gigantic world-spanning business models, was initially conceived as a decidedly non-commercial device (on this, see Chapter 2.1 and Schiller 2014: 73–82). In technical terms, the 'cookie' represents the crucial step into the era of the commercialised Internet as we know it today. After it was quietly integrated into the Netscape browser in 1994, Tim Jackson (1996) was probably among the first to recognise the potential of the cookie and only two years later, he addressed the dramatic impact a corresponding type of marketing could have on individual privacy. In the original specification of state and session cookies (Kristol/Montulli 1997), third-party cookies, interestingly, were still excluded, meaning they would, from today's perspective, comply with the requirements of General Data Protection Regulations (GDPR), as Thomas Baekdal (2019) has noted in a blog article on the history of the cookie, from which some of the references cited here have been taken. If we take a look at the specification given at the time, third-party cookies, as Baekdal's post may be interpreted, are not addressed explicitly. What is specified, by contrast, is a whole range of guidelines concerning the conditions hosts must meet in order to be permitted to exchange cookies between one another—and these guidelines effectively rule out any third-party use:" 'Note that domain-match is not a commutative operation: a.b.c.com domain matches c.com, but not the reverse." (Kristol/Montulli 1997: 1) Given that browser cookies, just like so-called browser fingerprinting (the identification of a computer through a specific configuration of hardware and software, installed scripts, etc.) can be circumvented by way of browser settings and add-ons, Google started using a unique installation ID as a third tracking method from version 54 of its Chrome browser. As was discovered in the source code more recently (see Magic Lasso Adblock 2020), this personal ID (in the header under 'x-client-data') is sent to Google each time a Google entity is used somewhere online—including when other websites have integrated Google services (such as captchas, texts, scripts). Seeing as this is the case with just about every website, Google thus has access to unprecedented exclusive data on individual online user behaviour through a system that is hardly consistent with GDPR standards (ibid.).

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Allianz, Daimler, Springer, Deutsche Bank, the Federal Printing Office (*Bundesdruckerei*), Deutsche Telekom and Lufthansa (Verimi), or the RTL Germany Media Group, ProSiebenSat.1 Media and United Internet (netID) have formed such data alliances (see ibid.). Another example is the company Ad Alliance, a so-called cross platform that represents other major TV, print, online and mobile media partners, offering 'special cross-platform campaigns' and 'performance and influencer marketing' as well as data-based advertising. Taken together, the platforms marketed by Ad Alliance—as runs the self-promotion—reach some 99 per cent of the German population (see Ad Alliance 2020).

Advertising and marketing are thus no longer in the hands of local creative agencies and their small-scale business models, likeable web designers or nerdy, freelance search engine optimisers. Advertising and marketing have, above all and increasingly, become the business of major corporations and their business associations. They include, as the examples from Germany illustrate, not only the big names from Silicon Valley, but also the 'familiar faces'. Yet there are also new advertising platforms that are fairly unknown outside the industry, such as the French company Criteo. With a workforce of just 2,700 and a 2.9 per cent market share of what is called (behavioural) retargeting[4]—albeit relying, in technical terms, entirely on the phase-out model of third-party cookies—the company ranks fourth behind Facebook Web Custom Audiences, Google Dynamic Remarketing and Google Remarketing (see Datanyze 2020).

Advertising and marketing are increasingly important to manufacturing companies. This applies all the more to digital advertising: in 2018, global spending for ad software amounted to $16 billion (see Boehm et al. 2019: 4). What has proven to be a billion-dollar business for some companies can deal a real blow to others in terms of circulation costs. In order to avoid having to transfer these costs entirely to the price of the good that is to be sold (which would, in turn, diminish the chances of that sale), digital advertising must follow the same path as production before it (which the latter continues to pursue): automation, optimisation, rationalisation—the increase of the generated surplus value (per campaign or cost per mille). All of this is only possible if the productive forces are unleashed that are directed at this area of circulation—and which I refer to as distributive forces precisely for this reason. Once again, we are dealing with an economically substantiated dynamic resulting from the logic and development stage of capitalism, in which digitalisation is not the cause, but an accelerator at most, and above all a

4 Retargeting or remarketing are employed, for example, when people have looked at certain products in an online shop or even placed them in their shopping cart but not yet made a purchase. Through this form of tracking, a web user's attention is repeatedly directed to precisely these products, even when accessing entirely different websites.

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means of production (or, more precisely, a means of distribution) that has become more relevant.

In the process, the Digital acts as the very platform on which advertising and the correspondingly pursued purchase and sale take place; alongside computers, tablets and smart phones, this increasingly also includes smart language assistants such as Alexa from Amazon, Siri from Apple, Cortana from Microsoft, Bixby from Samsung and Google Assistant.

Yet the Digital also allows for the permanent optimisation and rationalisation of advertising and thus particularly for programmatic advertising, i.e. highly diverse forms of automated advertising. As a study by Deloitte shows, some 65 per cent of worldwide ad spending in 2019 was conducted in a 'programmatic' form. Furthermore, this study emphasises that such automated processes are increasingly replacing human expertise in the placing of ads (Boehm et al. 2019: 4). Here, too, human labour power is being displaced. However, that is not all that algorithms are used for. The advertisers themselves are coming under increasing pressure, too. Besides Amazon, Facebook and Google, who seek to sell their digital advertising expertise, there are hundreds of start-ups competing for the attention of manufacturing enterprises willing to spend on advertising. What used to be advertising sales for TV ads or daily newspapers can today be done by an algorithm. Buying and selling are automated; digital auctions are used to adjust advertising prices in a matter of seconds to reflect supply and demand at a given point in time. We will look at the related business models at a later point (Chapters 8.1 and 8.2).

6.2 The distributive force 'transport and warehousing'

In the Marxian sense, circulation costs are not only made up of spending on advertising and marketing, but also on warehousing, transport and packaging, shop fittings and sales floors, trade fair booths and distribution structures and so on and so forth. Usually, the costs of logistics denote, in the narrower sense, the spending on warehousing, transport, commissioning and handling. The latter's share of GDP amounts to less than 10 per cent in countries with sophisticated logistics capabilities: for example, in 2018, the United States recorded the lowest logistics costs as a share of GDP (8 per cent). At 8.8 per cent, Germany ranks ninth. By comparison, China is already trailing far behind at 14.5 per cent, but Indonesia has the highest share at 22 per cent (see DVZ 2019; databases used: Armstrong & Associates and World Economic Forum). If we consider data on the 50 listed countries in detail, we find that 27 of them (or 54 per cent) are ranked between the top value of 8 per cent and the 10 per cent that is still regarded as an indicator of reasonable logistical capability (among which, by the way, there are no South Ameri-

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can or African countries). In Karl Marx's eyes, there may well be a real generation of value during transport if the relocation of the product is required in order for the use value to be brought to bear and if this relocation involves the performance of human labour:

> "Quantities of products are not increased by transportation. Nor, with a few exceptions, is the possible alteration of their natural qualities, brought about by transportation, an intentional useful effect; it is rather an unavoidable evil. But the use value of things is realised only in their consumption, and their consumption may necessitate a change of location of these things, hence may require an additional process of production, in the transport industry. The productive capital invested in this industry imparts value to the transported products, partly by transferring value from the means of transportation, partly by adding value through the labour performed in transport. This last-named increment of value splits, as it does in all capitalist production, into a replacement of wages and into surplus value." (Marx 1997: 153–154)

In other words, there is a certain added value in its own right that arises during the transport to the place of consumption. Marx ultimately considers this process as production and an act of value generation. This step in the production process adds another value to the commodity's original value—and is, at the same time, indispensable for value realisation. Wherever surplus value is generated, it can be expected that efforts will be made to keep the costs of human labour as low as possible. One only needs to look to automated high-rack warehouses, perfected workflows in distribution centres operated by haulage companies or package delivery services, efforts to implement autonomous driving technology in commercial vehicles and vans or last-mile[5] delivery solutions using drones: all these activities follow the logic of cost reduction or, as Marx would have put it, surplus value increase. Yet technological developments are not the only factors affecting transport-related surplus value. Added to this are struggles over the applicability of distinct collective bargaining agreements at Amazon, for example, which is ultimately down to the classification of employees as retail versus logistics workers (and receiving wages that differ according to separate collective bargaining agreements, as is the case at Amazon in Germany), the lobbying efforts of transport companies when it comes to political decisions pertaining to the maximum

5 Following the 'break-bulk point', at which large homogenous supply volumes are split up into smaller ones, the so-called last mile, i.e. the last segment of the transport route to the 'point of sale', is considered to be particularly cost-intensive (see Brabänder 2020). Generally, the depiction of this context in Christian Brabänder's book on logistics controlling is certainly helpful to get an idea of the complexity of the structures in the business.

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legal number of driving hours per day, bans on night-time shipping, the permitted size of commercial vehicles or the subsidisation of jet fuel.

This diversity of measures may seem confusing as they concern an additive and not the actual product. Intuitively, one may assume that transport costs are for the most part smaller than the value of the product. Yet this has long changed given the global scale of capitalism. Let us take an example: a 20 foot (or 6.1 m) shipping container holds about 41,250 T-shirts[6]; the ocean freight charge from China to Germany varies between €550 and €1,000, depending on the website used to calculate shipping costs.[7] This translates into a maximum surcharge per T-shirt of €0.024 (although further warehousing and transport costs do accrue before and after ocean freight shipping). This sounds like a very small sum when assuming a sales price per T-shirt of €20–30. The whole equation is jumbled up, however, if the production costs even for a T-shirt produced in the US instead of China are only about $3 (or €2.60) (Brunner 2015: 291; based on the example of American Apparel). The scale of transport-related circulation costs that are generated on the world's oceans each day becomes clear when taking into account that there are more than 6,000 cargo ships currently in operation—with over 23 billion containers (see Alphaliner 2020).[8] Such a vast fleet of cargo ships and such low shipping costs can, of course, only be maintained if the endless flow of goods continues reliably. It is the only way to avoid empty or below-capacity trips. And again, we find the need for a constant growth of the volume of goods. The development of the distributive forces, in its own intrinsic economic logic, thus acts as a driver of growth and overproduction, which in turn further propels general, inevitable capitalist overproduction. This is another reason to analytically engage with the development of the distributive forces as a dynamic in its own right.

Besides maritime shipping, air freight also plays a major role on global transport routes. And, of course, the numbers in this field are just as shockingly impressive as ecologically disconcerting: in 2017, some 62 million tons of cargo at a value of $6 trillion (€5.01 trillion) were transported over a total distance of 255 billion kilometres by air. At the same time, air freight accounts for only 0.5 per cent of cargo shipping worldwide in terms of volume—but almost 35 per cent of

6 A standard ocean shipping container has a volume of 33 cubic metres. Assuming a T-shirt pack size of 20 x 20 x 2 centimetres, one cubic metre alone could be filled with as many as 25 (surface area) by 50 (height) T-shirts, i.e. a total of 1,250, which sums up to 41.250 T-shirts for one container.

7 Based on my own research conducted in September 2020, among others, on freightfinders.com or worldfreightrates.com. The prices indicated on the websites, which are obviously also intended as a teaser and a way of collecting contact data, can therefore not be compared to a real quotation, but still provide a rough idea of the price range.

8 By comparison, there are 426 ocean cruise ships—which have come under (certainly legitimate) criticism for their ecological footprint—in operation worldwide (Oppermann/Oppermann 2020; as of June 2020).

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transported values are shipped by air (see ATAG 2018: 8). The Air Transport Action Group (ATAG) is cautiously optimistic about the future, but somewhat sceptical as to whether the trend towards a doubling of air traffic (including passenger traffic) every 15 years will continue in the future (see ibid.: 76).

As we can see, the distribution-related industries engender their own overproduction, and, indeed, must do so, regardless of whether viewed from a Marxian analytical viewpoint or simply attributed to shareholder interests. Companies do not simply react to the actually accruing transport volumes of other companies (be this B2B, e.g. in the case of just-in-time deliveries or to a given point of sale, or B2C in the case of courier or express delivery services along the last mile to the end customer), but act, as any other company, on the production side: they overproduce, reduce costs, replace human labour wherever possible, they create incentives for buying, or rather, in this case, for transport and try to assert themselves vis-à-vis the competition. This means they also have a rebound effect inside the manufacturing industries: when transport costs decrease, the desire to produce and/or sell on other markets increases. Overproduction in this sector, of course, cannot be gauged by piece rates, but by unused freight volume. For example, in air freight, only 49 per cent—less than half—of the available ton-kilometres are used (see IATA 2019: 17).

On a regional, or non-global scale, too, freight volumes and the competition for freight goods are increasing. In Germany, for example, road-bound freight is by far the most used (comprising 71 per cent of transported goods), followed by rail cargo (19 per cent) and inland navigation (7 per cent) (see Allianz pro Schiene 2020). In total, Germany's goods transport amounted to around 707 billion ton-kilometres in 2018, the bulk of which was carried out by commercial vehicles on roads (510 billion ton-kilometres). In the same year, the logistics industry, with its 605,730 strong workforce, saw a turnover of €112 billion. Furthermore, the turnover and employment curves have been moving steadily upward since 2003 (with the exception of a dip during the financial crisis). According to the German National Association of Transport and Logistics (DSLV—Bundesverband Spedition und Logistik), the umbrella organisation of the seven German logistics associations, there was unusual growth in the size of the labour forces of almost 5 per cent between 2017 and 2018 (see DSLV 2019: 4–5). A more in-depth look at the numbers contained in the annual report of the DSLV reveals that transport is either unable to keep pace with the overproduction of goods, or falls prey to the miniaturisation of products, or—and this is the most likely explanation—the global division of labour leads to much of the generated transport revenue appearing on the books of other countries. While German exports grew by 3 per cent and imports by almost 6 per cent between 2017 and 2018, setting a new record value for foreign trade, the industry seems to have benefited only rather modestly: during that same period, overall

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goods traffic grew by 1.2 per cent, and the turnover of the transport and logistics industry by just under 4 per cent (see ibid.).

Wherever goods are being transported, warehousing capacity is needed, and storage spaces and warehousing have long become a business model in their own right. From the classic real estate business—i.e. the brokering, sale or letting of spaces—to full-service providers ranging from location scouting via ready-to-use high-rack warehouses equipped with sorting technology and loading docks, etc., to leasing and operator models. While the battle for ever decreasing space for industrial estates, warehouses and residential areas is intensifying in densely developed urban environments and any further sealing of the soil surface ought to be avoided for ecological reasons,[9] the need for warehousing space is growing unremittingly and has further increased due to the needs of e-commerce and platform-based delivery services. And it is certainly not enough to consider only Amazon, even though the company has recently leased millions of square metres of warehousing space in New York. However, the industry estimates a total increase in demand of 93 million square metres of warehouse capacity in the United States by 2025, plus another 9.5 million square metres solely for facilities with cooling systems (see GTAI 2020). By comparison, Germany's warehousing capacity amounted to 6.9 million square metres in 2019, up from only 1.9 million square metres in 2003 (see Statista/BNP Paribas Real Estate 2020).

This brief overview in numbers provides only a vague indication of the extent to which the distributive force transport and warehousing has developed and becomes the indispensable enabler of global value chains and networks and of the interlinkage of production sites and consumer locations. Furthermore, over past decades an increasing differentiation, specialisation and technological optimisation has taken place, relating to hardware (e.g. faster cargo ships, the standardisation of shipping containers or elaborate loading techniques), and, from the 1970s onward, also in terms of space or surface area. The basis for all these processes and their global pace was computerisation. The fact that this system was already in place is the only reason that the more recent digital business models—from e-commerce and the precarious, self-employed delivery driver to data-driven utilisation rate prediction and blockchain-controlled supply chains—are able to link up so smoothly with existing structures (or at least promise their venture capital investors to be able to do so; see also Chapter 8).

9 However, the sealing of the soil surface continues: in Germany, the total settlement and traffic area (STA) grew by 13.4 per cent between 2000 and 2018, amounting to some 5,880 square kilometres; as a category of land use, it ranks third after agricultural and forest areas, accounting for 14.3 per cent. However, the STA also includes recreational spaces and cemeteries—i.e. not only sealed surface areas—alongside residential, public, commercial and traffic areas.

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We will return to the more recent developments later. At this point, we can establish one important aspect worth remembering that is related to the distributive force transport and warehousing, too: what is a business model to some, constitutes—albeit essential—circulation costs to others. Marx distinguishes between two types of costs:

> "The express company owner, the railway director, and the shipowner, are not 'merchants'. The costs which we consider here are those of buying and selling. We have already remarked earlier that these resolve themselves into accounting, book-keeping, marketing, correspondence, etc. The constant capital required for this purpose consists of offices, paper, postage, etc. The other costs break up into variable capital advanced for the employment of mercantile wage workers. (Expressage, transport costs, advances for customs duties, etc., may partly be considered as being advanced by the merchant in purchasing commodities and thus enter the purchase price as far as he is concerned.)" (Marx 1998: 287–288)

Here, we already encounter an initial link to the distributive force control and prediction considered next (Chapter 6.3). Yet before we turn away from the express company owner and transport costs and move to the merchant's core toolkit—mathematics and accounting—a glance at the *hidden circulation costs* in the context of transport and warehousing seems worthwhile. After all, the global or the national economic perspective on transport and warehousing between businesses and the market are one thing, the circulation costs for an individual company are certainly another. The logistics companies necessarily require an IT-based representation of these highly complex processes—not only in order to control them and maintain their frictionless operation despite all kinds of disruptions that may occur (as a result of trade conflicts, weather conditions, strikes, technical problems or damaged goods), but also in order to optimise processes, minimise buffers and maximise capacity utilisation, while constantly being on the lookout for any potential for further optimisation and cost reduction. All these activities can also be found—albeit on a smaller scale—within companies that do not belong to the logistics industry, but whose two 'ends', namely procurement and distribution, are tied to the value chain nonetheless. They cannot help but physically move their internal logistics based on numbers. The question of where logistics ends and production starts, where the one stops and intra-logistics begins, is ultimately often a matter of arbitrary or evolved decisions determined by the job description or assigned department. The processes themselves, however—and that is the goal of any optimisation—are, effectively, closely and inextricably interwoven.

As a result, then, the analytical separation becomes more difficult. For example, expenditures for procurement (e.g. for the evaluation of suppliers) facilitates circulation, firstly, and, secondly, they are functionally necessary for a system

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of mass production with differentiated supply chains, organised as networks of just-in-time production, thus becoming indispensable for a frictionless value generation in production. Beyond this, there are numerous hidden circulation costs. Just trying to imagine the range of in-house and cross-company processes that ultimately represent costs of circulation rather than production is dizzying. Often enough, one cannot even be separated from the other, which, in the context of advancing digitalisation, applies especially with regard to the specific functional distinction.

If, for instance—and this example is a much-cited scenario in the Industry 4.0 discourse—production-related processes are optimised to the point at which it becomes possible to respond to market requirements in the most flexible way possible (batch size 1), as quickly as possible (on demand)[10] and as specifically tailored to customer preferences as possible (personalised), this then has an impact on the tasks and processes in production and is economically classified (both at the individual company and the national level) as production costs. Upon closer examination, however, a major part of this (except for, at least in part, the personalised use value) turns out to be circulation costs; this reorganisation on the inside primarily pursues one goal: to realise the value on the outside—i.e. the market—and to do so faster and more accurately than the competition. Besides digitalisation, there are also other strategies to deal with these kinds of hidden circulation costs emerging within or in combination with production, which are applied both at the national economy and company level.

At the *level of the national economy*, the hidden impact of circulation costs is, for the most part, completely underestimated. This is evidenced, for example, by economies that do not wish to simply emulate the production-based industrialisation of the advanced capitalist countries, but rather seek to skip this stage and invest in the development of IT-based service industries: a study that investigates India, the Philippines and Kenya finds that the economic impulses in these countries aim primarily at value generation rather than value realisation (Kleibert/Mann 2020). Conversely, it becomes clear that only combined circulation and production strategies offer any real long-term prospects. The reason is that those countries that have tended to pursue the economic path of providing routine tasks

10 I am intentionally trying to avoid the term 'real time', a technical term that is often so naïvely adopted by social science, yet which would not only be factually inaccurate in this context, but also is often misunderstood to be synonymous with 'extremely fast' (say, in the area of milli- or nanoseconds). According to the corresponding German technical standard (DIN 44300), however, it only means that a certain period is stipulated which, depending on the specific case of application and technical setting, can be very short, but may also take several hours, and for which a certain reaction, besides the time interval, is just as relevant as the extent of 'hardness' or 'softness' of the stipulation, that is to say, which tolerance of deviation is permitted without any disruption occurring (Filler 2019: 24–25).

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are prevented from any meaningful technological upgrading that would allow them to reduce production costs and develop independent strategies towards value realisation. Instead of this strategy, which Jana Kleibert and Laura Mann refer to as "indigenous coupling" (ibid.: 1065), the newly created job opportunities are immediately threatened once again by IT-guided measures towards efficiency increases such as Robotic Process Automation (RPA) or Business Process as a Software (BPaaS) (see ibid.).

At the *level of the individual company*, there seems to be an inclination to follow the strategy of hiding circulation costs, for example, by increasing the number of variants through a sophisticated modularised product design. Although this adds to the costs of development and production, these are still lower than in the case of a broad range of variants without modularisation. Given that this measure ensures that even the most unique designs can be realised if the customer so wishes, we are dealing with a share of circulation costs that can hardly be deducted from production costs in economic terms. This can have a significant impact on value realisation, if, for instance, a customer's desire for pale-yellow coating is combined with a preference for purple leather seats and unique preferences can be catered to, and—better yet—if competing companies are unable to produce this specific variant. The scaling of such variety made possible by modularisation can be immense. Based on the available derivates and equipment variations, a car manufacturer may well produce more than 1,000 different variants of a vehicle in just one year (see Tripp 2019, p. 38). Of course, production scheduling and intra-logistics can cope with such a material differentiation only if these variants (and their operational documentation and coordination) can also be registered and controlled via IT systems. At the same time, it seems likely that customers who have such an exotic request for pale yellow and purple will find it more difficult in future to acquire such special products: based on these data and aided by Machine Learning, the system will calculate that this request is so rare that keeping pale yellow lacquer and purple leather in stock represents avoidable operational costs (or costs that can be outsourced, in the sense of a business risk, to suppliers).

This is just one of many examples in which the need for surplus value realisation and for reducing circulation costs come into conflict with one another, which is not only interesting analytically, but something businesses have to deal with in specific ways. This is another reason why they require ever-more sophisticated digital solutions (which, again, produce additional costs) in order to balance the two extremes as far as possible based on scenario planning and model calculations. We have also seen just how closely the different distributive forces are actually interwoven in the real world and, in particular, how transport and warehousing as well as advertising and marketing are characterised by an increasingly tight-knit coupling (see Chapter 6.1). Their interplay must not only be physically orchestrated in real, tangible terms, but indeed proactively managed, and their

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smooth continuous operation has to be ensured to the greatest possible extent. Only this way can the cycle of commodity production and value generation on the one hand, and commodity consumption and value realisation on the other be guaranteed. And yet, this is the very precondition of economic circulation, which turns commodities into capital. The interplay of circulation and the coordination of the distributive forces we have considered here, necessitates a third level of distributive forces: control and prediction. Over the course of capitalism's development, this has also become a distributive force in its own right—or, in other words, a facet of the productive forces whose inherent logic and dynamic justify a separate analytical investigation. The origin of their circulation costs, which are becoming increasingly visible, lies in the obsession with representing all actual processes in numbers—be it with regard to real input/output relations between two economic sectors at the level of the national economy, or concerning the exact production numbers pertaining to 'plastic frame X' within a given company.

6.3 The distributive force 'control and prediction'

What is today captured by statistics used by national account systems (NAS), or in no less complex corporate controlling systems, has its roots in accounting and initially emerged not to control or even predict production and commodity flows, but to illustrate the results thereof. Historically, it was more a matter of catering to the economic interests of third parties (e.g. the tax requests of a monarch) or to detect such interests (e.g. the creative ideas of trade intermediaries who were stealing goods). Early forms of accounting relied on personal trust and could thus only work in small structures: simple bookkeeping "kept firms small. Basically, a tiny group you could trust." Larger structures and transactions, by contrast, "were open to large-scale fraud." (Walshaw 2019: 4) That is why double entry bookkeeping was invented: the earliest evidence of its use can be traced to a Florentine bank in the year 1211, although similar approaches had already existed before then in the Arabian world and India (see ibid.). Jane Gleeson-White also dates the beginning of double entry accounting to around the year 1300, when it was employed by the banks of late-medieval Florence (see 2013: 20), and contends that its precursors can be found as early as 7000 BC. She refers to accounting as our very first communication technology and essentially an anthropological constant: "Our urge to account—to measure and record our wealth—is one of the oldest human impulses." (ibid.: 11–12)[11]

11 However, double entry accounting is mostly attributed to the mathematician Luca Pacioli, who, alongside texts and books on other mathematical topics, wrote a treatment on accounting in

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Gleeson-White offers an impressive historical account of how the Venetian iteration of double entry accounting went 'viral' (see ibid.: 115–132), but explains that it widely asserted itself only with the onset of industrial capitalism, indeed leading to a dedicated profession in its own right (see ibid. pp. 132–160). The question of what came first, double entry accounting or capitalism, is impossible to answer (see ibid.: 161). Others see double entry bookkeeping as less ideologically suspicious and, in that sense, purely as a method that is used in other economic systems as well: according to Henning, double entry bookkeeping "primarily represents accounting for business enterprises. The method can be used irrespective of the given economic order (free-market capitalism or a planned economy, or hybrids thereof) […]." (Hennig 1962: 10; translation amended)

One of the professions implied here is, of course, business administration, which emerged much later, and which "has been systematically taught at universities only since the 1920s", having set out to "provide answers to three central economic questions of the time: how can monetary fluctuations be eliminated from accounting? What are the factors influencing production costs? How can we deal with the uncertainty of decisions related to sales strategy?" (Brockhoff 2002: 3; translation amended)[12]

To put it differently, and in Marxian terms, the task was to identify or devise measures to maximise surplus value in production and minimise the risk to value realisation on the market. In the almost century-old history of the discipline, its departments related to pursuing these two objectives have widely branched out and today also include the areas of corporate leadership, organisational studies, international management and corporate ethics alongside the more directly bookkeeping-related areas of financial management, accounting and controlling (see Gaugler/Köhler 2002).

In the English-speaking world, business schools have probably exerted a considerable influence on corporate practices far longer than they have in Germany: ever since the 1970s, they have promoted the doctrine of 'investor capitalism' and the image of a CEO whose interest is just about identical with that of shareholders

1494 (1997)—for more detail on this, see Gleeson-White (2013: 91–114) and Walshaw (2019: 27–29).

12 The approach in distribution economics of taking into account the "acquisition from the user" (Sundhoff 1990: 3)—i.e. marketing for the purpose of consumption—alongside manufacturer sales and trade turnover was pursued for a long time especially at Cologne Business School; according to Köhler, this approach did not prevail in the discipline due to the dominance of US concepts, while, moreover, the "(acquisitional and physical) distribution [is] mostly an integral component of the marketing mix" (Köhler 2002: 360). The fundamental, strategic considerations concerning sales targets and channels can still be found under the heading "Distribution Policy" in most marketing textbooks (see, for example, Fröhlich et al. 2018: 142–49; all translation amended in this footnote).

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(Khurana 2010: 3 and 364). Although the idea of social responsibility, as Khurana contends, was never fully abandoned (see ibid.: 296), the Ford Foundation[13] popularised, among other things, the idea that management entailed making purely rational decisions, and that the corresponding methods were entirely independent of the particularities of specific companies or even entire industries (see ibid.: 295). The idea of business schools seeing themselves as institutions providing general education, even going so far as to suggest a social sciences focus, as was long true for the London School of Economics (see Dahrendorf 1995), seems to be largely a thing of the past. Rather interestingly, a strand of critical accounting research that is based to a large extent on Foucault has developed in British business schools of all places. The focus here is on methods that translate into 'governing by numbers' and calculatory practices—or what is often referred to as *calculative* by researchers—i.e. practices in which numbers take precedence and appear as the sole guideline for action (see Miller 2001; Vollmer 2003) and which are partly interpreted as a one-directional and very smooth process. Besides this criticism, voiced by accounting researchers, of the role of accounting within business enterprises, there has also been increasingly vocal criticism of the business schools' training programmes: at times, this has taken a more academically persuasive tone (see Miles 2019), and at others been more polemicist and political (see Locke/Spender 2011; Parker 2018)—but always with arguments that are certainly convincing, albeit so far without any noticeable effects on the criticised institutions or their curricula. Gleeson-White (2020), by contrast, in her current, forward-looking book, *Six Capitals Updated Edition: Capitalism, climate change and the accounting revolution that can save the planet*, pins all her hopes precisely on this profession when it comes to the fight against the climate crisis. According to her, it was accounting that enabled countries' gross national products to be calculated with no consideration for factors such as environmental degradation and ecological damage. But it is also the accountants who are able to include externalities that have been left unconsidered as costs in the equation.

Accounting and its related professions[14]—and not just the pure method, but an ideological perspective on the economy, economic objectives and the tech-

13 The Ford Foundation, which currently (and by its own admission) is dedicated primarily to the fight against poverty and social inequality, is by far one of the most financially powerful foundations in the US. As a study originally published in the 1950s shows, there has been 'an incredible amount of confusion' regarding its intentions, ranging from it being surprisingly classified as 'dangerous communists' to the story about it being a front for US espionage operations in the countries of the former Eastern Bloc (see MacDonald 2017: 5–6).

14 Please forgive me for this reductionist contradistinction. The accountancy profession, of course, recruits its members not only from among business administration graduates or from business schools, but also, particularly in Germany, from vocational training institutions/schemes. Correspondingly, the Federal Institute for Vocational Training (BIBB) lists around 30 skilled com-

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niques to pursue them—are themselves an expression of the circulation costs that Karl Marx already concerned himself with. This brings us to another, important dimension of the development of the distributive forces:

> "Bookkeeping, as the control and ideal synthesis of the process [i.e. the process of commodity production], becomes the more necessary the more the process assumes a social scale and loses its purely individual character. It is therefore more necessary in capitalist production than in the scattered production of handicraft and peasant economy, more necessary in collective production than in capitalist production. But the costs of bookkeeping drop as production becomes concentrated and bookkeeping becomes social." (Marx 1997: 138–139; comment in square brackets added by author)

Thanks to digitalisation, the opposite appears to be the case nowadays: while production sites, even those within a single corporation, are usually dispersed around the globe, accounting was initially standardised, to then be centralised and ultimately outsourced. One essential and IT-based factor in standardisation processes are *Enterprise Resource Planning* (ERP) systems, the most well-known and widely used being SAP. This software combines the most diverse modules (e.g. for Supply Chain Management (SCM) or Customer Relationship Management (CRM), Human Resources (HR), Controlling, administrative accounting and warehouse management) and simultaneously provides industry-specific solutions (not only for businesses, but also and increasingly for public administrative bodies, universities, etc.). Individual and additional units and departments can also be integrated using software supplied by other producers via interfaces.

ERP systems are usually structured as a top-down hierarchy of different planning levels (see Osterhage 2014: 16–19): from the constant "annual target to current performance comparison" via general and detailed planning to the coordination

mercial professions in its job search engine (2020). Alongside more general professions, such as industrial management assistant or office manager, there are numerous classic specialisations, such as wholesale and foreign trade, hospitality, banking, logistics, tourism and retail, as well as more recent specialisms such as IT system management, digitalisation management or e-commerce. In addition, the job search also lists more than 30 advanced commercial training qualifications (business administration or management in a wide range of areas). In other contexts it would constitute a grave mistake to leave this unconsidered—but here I will limit myself to business administration because, firstly, it poses a threat to vocational training via the integrated degree programme (Duales Studium) at BA level (Euler/Severing 2017) and, secondly, because it is increasingly influencing the curricula of vocational training courses: economic control along with business and HR management take centre stage in daily practice, managerial control and governance are regarded as core skills to be acquired in commercial training, and administrative terminology related to accounting is not only jargon, but also structures commercial thinking (see Brötz/Kaiser 2015).

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and control of everyday routine tasks and processes. Planning may occur based on deterministic or probabilistic methods, while also often being coupled, at the level of detailed planning and control, with project management systems (e.g. in development) or with systems for Operating Data Logging (ODL) and PLC Data Logging or with Production Planning and Control (PPC) systems. Communication systems such as Slack, which resemble social media platforms, are integrated into ERP systems in order to be used, for example, for warning signals and messages sent by that ERP system (see ibid.). The idea is to horizontally integrate all of a business's functional operational segments along the value chain and vertically integrate all the planning and control mechanisms (Hecht 2014: 10).

In many companies, the terms ERP and SAP have been used almost synonymously for decades—SAP is (and remains) by far the most successful provider of ERP systems.[15] The best-known software version, SAP R/3, which was released at the beginning of the 1990s, is still used by many companies today. Currently, SAP is marketing its solution for SMEs called *Business One* and the cloud-based version S/4 HANA. Founded in the early 1970s and ranked as the third-biggest software company worldwide (and the largest in Germany),[16] SAP's stated goal is to integrate all of a company's operationally relevant processes into a single system and organise and represent them according to the 'one best way' principle. Due to their restrictive top-down architecture, ERP systems have an immense impact on organisation and everyday work life and are very difficult to evade or work around (see Hohlmann 2007; Pfeiffer 2004: 201–215). After all, organisation is usually adapted to these normative specifications (and not the other way around, i.e. software is *not* adapted to existing processes), which takes place during the so-called customising process (i.e. the process of implementation). Correspondingly, not

15 Given its market share, I am referring only to the ERP systems of the company SAP. There are, of course, countless other providers of similar systems, ultimately based on a similar logic and, above all, a comparable performance promise. For example, Microsoft (2020) is advertising its Dynamics 365 Supply Chain Management by emphasising its resilience through agile value chains ("Build resilience with an agile supply chain"), including, among others, accelerated market introduction, more planning flexibility, more accurate demand prediction, real-time planning of supply and production, and optimisation and automation along the entire supply chain logistics. Likewise, the firm Oracle (2020) is advertising its cloud-based ERP JD Edwards based on innovation, growth and reliability. Somewhat more modest and factual are the ads by the company Sage (2020), another major provider: "Anything your company needs in the management of accounting and finances, operational processes, staff, salary accounting and payments." (ibid.; translation amended)

16 SAP states that it is currently serving 444,000 business customers worldwide, increasing the distributed dividends by more than threefold from €594 million to €1.8 billion between 2008 and 2019 (see Klein 2020). The company's global market share in ERP systems stands at about 23 per cent (Statista 2019). We will take a closer and more detailed look at Microsoft and SAP's business figures in Chapter 8.1.

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only organisational processes and workers and their tasks are adjusted to accommodate the system's requirements, but it also becomes difficult, or even impossible, to act 'against' the system when it comes to decision-making. Ultimately, even the "management subject" that has been "technicised" by ERP systems is proving "increasingly inflexible and technocratic" (Conrad 2017: 190; translation amended). This might be one of the reasons why many companies do indeed regard their ERP system as a 'central information hub' but have their reservations about turning this system into the crucial technological "backbone of the software landscape" (Sontow et al. 2020: 15; translation amended).

The extent to which ERP systems affect the actions and tasks of workers and management is not simply determined by technology. It is less a question of the impact of digitally predefined processes and actions so much as the strategies that are digitally conveyed as a result. For these strategies serve the integration of the economic logic (regardless of whether we refer to it as operational or as the capitalist logic of valorisation) into all organisational processes via numbers, thus being made the 'guiding star' of all action and decision-making—at times also leading to obstinate, obstructive or subversive behaviour. We can ascertain three such strategies empirically in fields as distinct as high-skill and project-based development work organisation (see Pfeiffer et al. 2019, 2016b) and low- to semi-skilled production and assembly work (Pfeiffer 2016a, see 2018a, 2018b): first, the strategies of the *performance and permanence* of the number (operational numbers are ubiquitous, always visible and unavoidable, the comparison between targets specified from above and the team-based actual performance is transparent at all times); secondly, there is an additional *compulsion to a (sensuous) appropriation* of the numbers via active elements such as data administration or the detailed verification and certification of individual production steps and, thirdly, *a self-controlled (self-)rationalisation* via particular management techniques such as *Objective Key Results* (OKR). It is not the commanding boss or the superior with a control fetish who enforce ever more efficient conduct, but workers themselves (both personally and within their teams). Yet (as empirically reconstructed in the cited studies), my aim here is not to depict the effects on work life in the sense of asking, say, at what point the system requests which input? In what instances does the system's representation contradict the processes in reality and demand a balancing act from workers? What is far more decisive for our objective here is how strongly the economic logic of circulation and the corresponding distributive force ERP system feed back into all processes and actors in a manufacturing enterprise. That is to say, feed back not only to affect the accountant whose daily business it is anyway, but also to the team leader on the assembly shop floor who signs off the end of a certain step in the assembly process; not only to the social media marketing specialist of a company, but also to the project manager in development who is bracing themselves for a presentation to management that will hopefully let her

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off the hook regarding the discrepancy between the target costs and actual costs of her project; not only to the head of logistics, but also to the quality manager in finishing, who is forced to reluctantly resort to random sampling inspections because the truck is waiting outside the factory gate and the deadline for just-in-time production has already passed (which is displayed in large LED letters on screens hanging from warehouse and workshop ceilings).

The distributive force control and prediction, moreover, continues to be geared towards cost reduction. However, the mere 'avoidance of waste', as was a common theme in the so-called lean discussion, is no longer sufficient; the new target orientation is zero, or the "Big Zero" (see Timmermans et al. 2019). This refers to a management strategy in which all of a company's costs are endlessly reviewed and checked for their potential to be reduced to zero. This approach also includes, e.g. value targeting ("quantifying the cost and revenue optimization potential of going zero-based"; ibid.: 63) and the idea of "near-real-time profitability reporting" (see ibid.: 113–124) which, needless to say, is only possible as a result of increasing digitalisation and the use of Artificial Intelligence. This underscores the efficacy of ERP systems as a distributive force, indispensable for circulation and in part linked to shockingly high circulation costs. The providers of this distributive force constantly have to come up with something new, or rather, with new and expanded service promises. For even ERP systems walk into the trap of overproduction—or, to use a more business-like term: market saturation. Considering the ICT indicators surveyed by Germany's Federal Statistical Office, there is indeed a clear downward trend: only 56 per cent of German businesses indicated in 2015 that they were still using ERP software, and by 2019 this number had declined to only 29 per cent (see top chart in Fig. 3). Likewise, the collection and analysis of customer data using CRM software also declined between 2015 and 2019, albeit while slightly peaking in 2017. Whether or not this constitutes a lasting trend remains to be seen.

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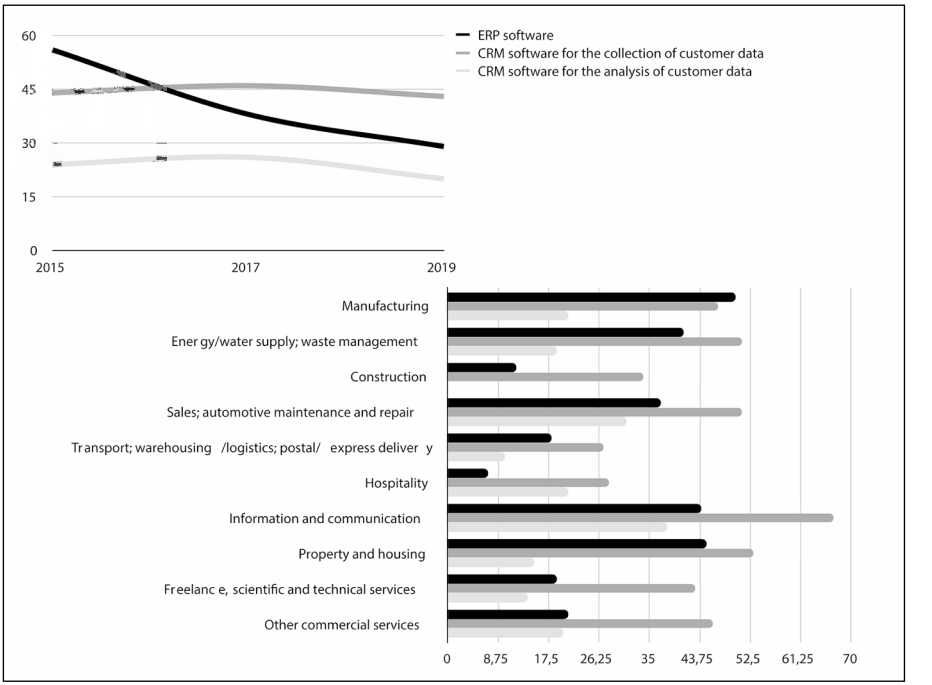
Fig. 3: Use of ERP and CRM by economic sector[17]



Data basis: Figures from the German Federal Statistical Office (Destatis 2020).

A comparison of the percentage use by economic sector in 2019 (WZ2008; as far as available for economic sector (ES) and use of ICT) indicates that CRM systems have consistently been used more often than ERP systems (except for in the manufacturing sector), albeit rather for the collection than the analysis of customer data (see Fig. 3). Here, control seems to take precedence over prediction for most companies.

The receding use of ERP systems can partially be explained by the fact that the use of cloud services is also included for the years 2016 and 2018. However, the use of such services in finance and accounting increased only moderately from 26 to 28 per cent (CRM: 28 to 19 per cent) (see top chart in Fig. 4). Just how strongly the use of digital means of distribution is oriented towards the market becomes impressively apparent in the comparison of Big Data analyses: while the use of

17 Figures taken from the German Federal Statistical Office (Destatis 2020): excerpt and own representation. Economic sectors (ES) according to WZ2008, use indicated as a percentage. The Federal Statistical Office does not provide any data for the ES 'provision of financial and insurance services' for 2019, while indicating only CRM-collected data for the ES 'repair of data processing and telecommunication devices'; these two industries are therefore not included in the chart.

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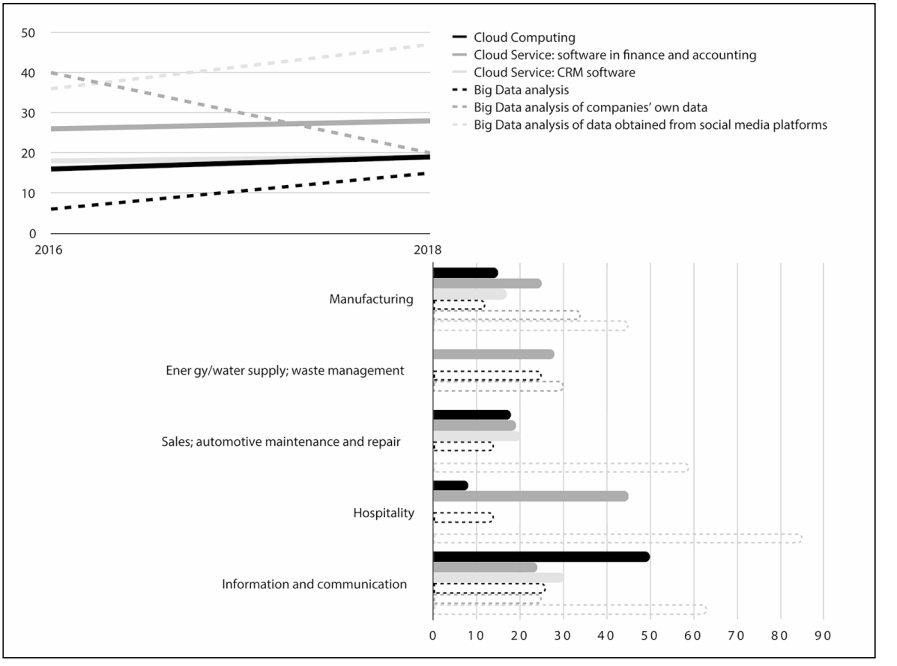
(independently collected) company-owned data dramatically halved (dropping from 40 to 20 per cent), the analysis of social media data grew from 36 to 47 per cent over the two-year period considered.

The set of economic sectors for which reliable data are available illustrates two aspects (see bottom chart in Fig. 4): except for the IT industry itself, fewer companies entrust external cloud servers with their ERP data, but rather use the cloud for other purposes. Besides this, all the sectors considered are (in part, clearly) more interested in analysing social media data with the aid of Big Data than their company-owned data. It appears that manufacturing enterprises in particular regard their internal data as something that should not be handed to a third party. Besides, the willingness to invest is much higher when it comes to those means of distribution geared directly towards the prediction of surplus value realisation.

Fig. 4: The use of Cloud and Big Data by economic sector[18]



Data basis: Figures from the German Federal Statistical Office (Destatis 2020).

18 Figures taken from the German Federal Statistical Office (Destatis 2020), own representation. Data concerning the items Cloud and Big Data are available only for the years 2016 and 2018; likewise, data by economic sector are not or only very partially available for 2018 (such as in the case of financial and insurance services); the values represented in the bottom chart therefore cover only those economic sectors for which data pertaining to Cloud and Big Data were available.

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So, while market expansion has currently come to a standstill for ERP systems, SAP is delighted to have increased the "share of more predictable revenue […] by five percentage points year-over-year to 73% in the second quarter." (SAP 2020: 2) despite the Covid-19 crisis. It would be difficult to express the *objective of all efforts towards the development of the distributive forces* any more clearly: generating *reliably predictable revenue*. So, what SAP condenses into a formula both to define its own business model and, more importantly, to send a message to its shareholders, is ultimately the same thing they promise their customers through their products: *to generate more revenue while reducing circulation costs, all at the lowest possible risk*.

Whether or not the software delivers on its promises is irrelevant.[19] After all, every business enterprise, every board member and every manager knows that revenue will never be high enough, and there will always remain an element of risk: maximum revenue (i.e. the sale of *all* overproduced goods) in combination with minimal market risks and minimal costs is impossible. It may occur temporarily, but certainly cannot be sustained in the long run. Nevertheless—or, perhaps precisely as a result thereof—any conceivable IT-based tool (regardless of its license fees or costs of implementation) that promises to bring this ultimately unattainable goal just a little bit closer (or at least allow a company to make relevant strides more quickly than the competition) will be pursued.

Ultimately—as is obvious in logical terms—the competing market participants taken as a whole are unable—or are hardly or only temporarily able, and only in isolated cases—to minimise the fundamental underlying problem if they all introduce the (more or less) same ERP system at the (more or less) same cost and at the (more or less) same point in time. Indeed, although this ought to be clear to every person in a decision-making position, there is no escaping this logic at the level of the individual company, even if one wanted to. Whoever fails to introduce the most recent generation of ERP systems, or does so at a later point than the competition, is almost doomed to fall by the wayside.

19 Despite considerable investment-related circulation costs, this is particularly severe when the introduction of such systems fails. Usually, only the most spectacular such cases become publicly known. For example, in 2018, only a few months after the introduction of HANA, Haribo suffered a dramatic drop in sales: seeing as the new inventory control system and logistics were not yet properly working, the correct order volumes could not be delivered, as a result of which supermarket shelves often remained empty for days on end (see Kroker 2018). And this is not an isolated case. The German weekly *Wirtschaftswoche* reports of six additional 'mega flops of major SAP projects' (2019); what is noticeable is that this list consists exclusively of retailers or service providers (Otto, Deutsche Bank, Deutsche Post, Lidl, Edeka and DocMorris), but contains not a single manufacturing enterprise. In all of these cases, six-digit figures were invested (around €350 million) in long-term projects lasting between four and seven years, at times with hundreds of staff and consultants involved. These examples impressively show the volume of investment costs businesses are willing to raise when it comes to advancing their digital distributive forces.

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To the ERP provider, ERP users are, in turn, no more than customers, serving the goal of maximum surplus value realisation. This is evidenced by the antitrust complaint against SAP which the Federal Association of IT Users *VOICE* has been pursuing since 2018 (see Voice 2020). The issue at the centre of these legal proceedings is the question of how to accommodate intellectual property rights and licensing in cases of indirect use (such as when a link is created with other systems by supplier or customer companies); so far, SAP is refusing to take the interests of the users' association into consideration (see ibid.).

What is more, a veritable host of consulting firms has emerged in the close vicinity of SAP, providing assistance services to user companies in the complex process of implementation and customisation. For even *Business One*—the 'all in one' ERP system for small and microenterprises—entails no less than 17 implementation steps, as one of these consulting firms explains (Versino 2020), ranging from demand analysis, key user trainings and the development of two prototypes to end user trainings, final data transfer (from previous systems) and, finally, support during launch (i.e. when the system is actually activated). The consulting agency compares the costs incurred based on the example of a company with five users: on-premise solutions (i.e. relying on the company's own servers) cost around €16,470 annually (not including overheads related to the maintenance of these in-house servers), whereas the SAP cloud service Cloudiax, a Software as a Service (SaaS) solution, commands a price of only €9,130 per year. In other words, storing one's data on an independently controlled device comes at a cost. Another interesting aspect is how obviously SAP is now exaggerating the costs of the formerly celebrated business model of licensing in favour of its own cloud-based solutions. Besides the fact that a 17-step implementation process at a company with only five users would most likely already constitute a rather staggering investment, the running costs for microenterprises are considerable in both models. After all, we are talking about annually incurred costs, and not about a machine that has been tax-efficiently written off after x number of years and henceforth famously appears in the company books as only €1. Rather, it is a model geared towards permanence, effectively guaranteeing the dependence of the user (when would this user find the time or want to and/or be able to afford another 17 implementation steps when moving to another provider?) and, therefore, permanently repeated surplus value realisation on the part of the provider. This variant of the development of the distributive forces is only possible, and is indeed becoming increasingly important, because of today's specific manifestations of digitalisation, as will be explained later on (see Chapter 8.2).

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6.4 How the distributive forces combine with digitalisation

Advertising and marketing, transport and warehousing as well as control and prediction: we are familiar with all of this both *empirically and from our own everyday lived experience*. As employees in a company, or as consumers or buyers, we are all affected, implicated, involved and part of these distributive forces, not only as 'victims', but as active participants and shapers at the microlevel. We sense and experience the distributive forces at the micro-economic and micro-sociological levels as such dominant factors that we hardly even notice them. Incidentally, these processes already drove forward the technical development of the Digital long before today's digitalisation.

If there is a place at which all this palpably converges, then, at least until fairly recently, it was the department store or, with a similar impact, pedestrian shopping zones with their retail stores, and, later, large shopping malls. The department store embodied the initial impetus for a new culture in the middle of the 19th century,[20] and today it is the location most threatened by current developments.[21] All the above is already discernible in these "early forms and institutions of modern mass consumer culture […] [and] incorporations of modern civilisation": overproduction and advertising as well as the need to achieve sales, "the accumulation

20 Arcades, which allowed for all-weather shopping, had emerged before that, including Paris's *Galeries de Bois* in 1786 or London's Burlington Arcade in 1818 (Holleran 2011: 19).

21 At least for Europe, this statement is still valid. However, there is much reason to believe that the few retail shops in the pedestrianised centres of small and medium-sized towns—which have survived the opening of local department stores and major brand outlets in shopping streets, inner-city shopping malls or superstores in local industrial parks on city outskirts—may well be unable this time to fend off the eCommerce boom, which constitutes merely the most recent attack on their existence. Providing little comfort is the fact that efforts to create platforms for locally based retailers have turned out to depend on rather challenging preconditions (see Küffmann 2020). In the United States—if we ignore the long-established department store icons in New York City, which still noticeably follow the European model—the shopping malls and the corresponding, always identical, chain stores they house have been struggling for survival for a long time or have already lost this fight. This development has been debated for a few years now under the catchphrase of retail apocalypse. (see, for example—albeit differing with regard to the assessment of the dynamic's severity: Helm et al. 2018; Mende 2019) The shopping mall in particular, a social space so relevant to life in rural America and for the youth (Gestring/Neumann 2007), has even engendered an architectural history and style in its own right (see Lepik/Bader 2016). The crisis of the mall, however, is not only the result of online shopping, but set in during the financial crisis of 2008 (Allen 2019). Ever since, malls have been reinventing themselves or are being repurposed (from call centres to local production clusters to school buildings; see ibid.: 10–12). The dominant image associated with the US mall landscape, however, is already that of abandoned buildings being reclaimed by nature; at the same time, new types of shopping malls are being built, say, in Asia, designed to inspire consumption through theatrically presented spaces and architecture as a spatial experience (see Tabacki 2020).

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of purchasable goods, the radical reduction of prices, the cheapness and the presence of labelling, extras and teasers, new products and new forms of presentation, free entry for all […]." (Briesen 2001: 24; translation amended)

Just as the department store ousted small specialist shops (and the supermarket subsequently pushed out small corner or village shops), it is now itself faced with an existential threat, namely the "digital department store" (see Lehmacher 2017; translation amended). And just as there is a discussion about the power of the new and the threat to the old, there was also a social discourse at the time the department store emerged, in which it was referred to as that "loathsome form of enterprise" (Briesen 2001: 12) which was widely adopted in literature and—beginning with Émile Zola's *Au Bonheur des Dames*—led to a "torrent of publications" between 1890 and 1914 and was taken up again from the 1950s onward (ibid.: 14); a discourse which Detlef Briesen interprets, at least in the case of Germany, not only as cultural and philosophical (see ibid.: 83–100), but also as interest driven (see ibid.: 151–177) and elitist (see ibid.: 231–246).

In this sense, Werner Sombart's brief analysis of the department store as a "creation of the era of high capitalism" (Sombart 1928: 77; translation amended)[22] appears very relevant today: in his portrayal, the department store is characterised by a drive for profit, the optimisation of sales techniques and a quest for efficiency and rationalisation (see ibid.: 77–79); it is geared towards "the greatest possible increase in sales […]; [the department store] is expansive, dynamic. Anything that facilitates this expansion of sales is embraced." (ibid.: 81; translation amended) Taken from this perspective, Amazon would be nothing but the logical and digital 'extension' of the erstwhile department store (on this, see also Chapter 8.3). Despite all his criticism, however, Sombart also describes positive effects for customers that we find in an updated form at Amazon: for example, an increase in transparency regarding goods logistics, or online retailers' company-operated delivery services (see ibid.: 80–85).

What has changed as a result of digitalisation, with its multi-billion dollar actors, then, are the ties to a physical place (and the inevitably finite storage capacity for goods that this entails) and the attachment to limited time frames (owing to industrial relations and specific office hours in accordance with traditional cultural norms): the city centre department store has given way to a global, digital version (see Lehmacher 2017); instead of the *bel étage* for womenswear, our own living rooms have now become marketplaces (see ibid.: 1–99). All of this is made pos-

22 Werner Sombart (like Max Weber or Karl Marx before him) suggested certain links between Jewry and capitalism, which obviously are very problematic from today's perspective (see Barkai 1994)(see Barkai 1994) and which can be considered to form the basis of his analysis of the department store, although in this instance he focuses entirely on the specific form of the department store and its economic functions.

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sible by the "miracle weapon called logistics" (ibid.: 169–180). And as online consumption moves from anonymous online interfaces (see Scheurer 2019: 9–12) to *curated shopping*—a kind of moderated retailer–customer relationship (see ibid.: 2, 17–18 and 38–70)—one feels strangely reminded of Werner Sombart's observation that the customer friendliness in sales first disappeared during the introduction of the department store and was later rediscovered as a sales tool. While frequent customers once used to be greeted like acquaintances when entering a shop, Sombart explains, this habit was initially lost in the era of the department store, but: "More recently, we have been able to witness efforts to turn the act of selling into a personal experience again, specifically in the United States: it is the depersonalisation of the seller–buyer relationship that was fostered, especially by department stores." (Sombart 1928: 79; translation amended)

What feels so different and new in our daily lifeworld, and is expressed empirically (among other things) at the level of consumption and in the changes to the department store, is obviously made possible—so our immediate experience tells us—by the more recent phenomena of digitalisation. That is one reason why it may feel tempting to locate the origin and cause of what is new in the immaterial, supposedly non-physical realm. We have already seen that digitalisation itself exhibits many physical characteristics, manifestations and preconditions (see Chapter 2.3). I shall refrain from repeating these arguments here. What is important is that all attempts at explanation based on the famous 'one and zero'—into which supposedly everything dissolves—i.e. those that place the virtual and non-material centre stage, are implausible given the thoroughly physical nature of the Digital.

Overproduction, expansion and consumption as well as the corresponding need to permanently accelerate the circulation of goods and money while reducing the costs of the whole undertaking cannot, as a whole, be attributed to the Digital alone: it is apparent that we are dealing with economic mechanisms which—albeit often overlooked and analytically neglected—possess *an immense physical dimension*.

It is hard to conceive of anything more physical than enormous ocean freight ships and their cargo; who could think of anything more physical than a mountain of garments produced for online retail and which, if sales fail to materialise or items are sent back, are burnt (because it is more cost-efficient than repackaging or selling them at a lower price); there is hardly anything more physical than deep-sea cables or the thousands of small satellites that are being installed in order to mitigate the next crisis through even faster means of communication or to even turn it into a great business opportunity, at least for a small circle of private economic actors; there is little that is as physical as the rapidly progressing extraction of rare earths and ores to produce the physical elements essential to our digitalised gadgets (batteries, storage space, processors, displays, sensors); hardly any-

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thing is more physical than the hard labour involved in lithium or cobalt mining, in the sweatshops around the world, as performed by outsourced content moderators for large social media corporations or in the jobs in packaging, distribution, warehousing and delivery for online retailers and the platform economy. Besides, even the companies we associate with physical products are increasingly developing software of their own.[23]

We often tend to turn a blind eye to many of these physical aspects of digitalisation and fail to recognise them in everyday life. One reason is that much of it is outsourced, neatly separated from the shiny image of the tech giants; outsourced to those socio-economic groups whom we ourselves, reflecting on digital capitalism as we do, also only encounter at our own front door when receiving the next food or package delivery (but not in our own neighbourhood, on holiday or in our own social circles); outsourced to people in other countries and on other continents. Considering the economy on a global scale (and to consider it any other way would make little sense these days), the phlegmatic vehemence with which the end of production capitalism or industrial capitalism is being proclaimed is indeed quite mind-boggling. Never before in the history of mankind have there been as many goods produced. Never before in the history of mankind has there been such rapid and comprehensive industrialisation. And never before in human history have there been as many early-capitalist forms of employment.

So, we may at this point summarise this as 'business as usual'. Thanks to digitalisation, acceleration and globalisation are becoming more pronounced than in the past. But at least the economic principles have generally remained unchanged. Digitalisation simply ties in extremely well with the mechanisms and requirements of the existing economic system that we call capitalism, a system which, as such, is highly susceptible to crisis. And it is not the Digital's fluidity or immateriality that facilitates this compatibility. Nor is it the unmatched genius or unscrupulousness of individual tech entrepreneurs in Silicon Valley. The reason is that capitalism, which has *not* ceased to produce but is, on the contrary, indeed hyper-*over*producing,[24] hopes to perpetuate the needed circulation spiral this

23 For example, the arms and aircraft manufacturer Lockheed simultaneously features as an IT provider in the fields of mail sorting, social security or for the US Census Bureau: "Lockheed writes more computer code than Microsoft." (The New York Times 2004; quoted in Klein 2010: XV)

24 Admittedly, capitalism itself does not 'hope' for anything. Apologies for this reductionist, yet somewhat more readable wording. Rather, those who hope are its relevant actors (whether they regard themselves as such or not): corporate management (concerned mainly with growing shareholder value), strategists of major banks (who worry about growing bubbles), political actors (concerned with the growth of the national economy)—none of them will worry much about capitalism as a whole, but increasingly so about its susceptibility to crisis; and they will all bet and pin their hopes on a scenario in which the next major crisis is still far away (or at least not

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way; because in this system each and every company hopes that digitalisation can help them attain surplus value realisation more quickly, at a lower risk and based on increasingly accurate predictive calculations. Some forms of digitalisation are indeed quite good at just that; others are not. At times the right horse is backed, at others an investment ends in failure.

Yet all this is occurring against the backdrop of the distributive forces having become more *economically* important than in the past. The significance of distribution has increased, and digitalisation—with its specific materiality—is simply particularly well suited for this scenario.

So, let us summarise the deliberations presented in the preceding sections (Chapters 6.1 to 6.3): at the macro-economic level, the distributive forces represent an integral part of the development of the productive forces. In this sense, they are certainly not a new phenomenon, but are nonetheless becoming more dominant, more dynamic, more efficacious and more intrinsically important for the system than in earlier stages of capitalism. And that is why digitalisation is so compatible with, and so eagerly embraced by, present-day capitalism and its actors. *On the whole, this constitutes the reason why the notion of a digital capitalism is certainly plausible when considering the (doubtlessly highly empirically relevant) phenomena.*

Current digitalisation acts as a driver of the development of these distributive forces, taking them to unprecedented heights (linked to equally unprecedented systemic risks). The implicit promise here, which is not new either, is that the logic of market expansion can be endlessly continued based on the means of communication, while crises of overproduction can, at the same time, be mitigated or even overcome. And yet, as in the past, the *means of communication* (even sophisticated digital forms) *will be unable to prevent these crises*. The reason for this can be found in the distributive forces: having only just become a significant element of the productive forces in their own right, they are forced to follow the same logic of market expansion and overproduction, being not only driven by the discrepancy between surplus value production (or, in the case of transport and warehousing, the surplus value option) and surplus value realisation, but threatened by severe immanent crisis as a result. *This is the reason for referring to the current stage of capitalism as distributive-force capitalism when seeking to analytically reveal the cause and significance of what is really new about capitalism in the digital era.*

In principle, however, nothing has changed. Commodities—i.e. products that have been produced exclusively for the market—already existed in the production of Trojan amphorae and of precious fabrics during the Renaissance. Similarly, humans have constantly expanded markets ever since they first engaged in barter-

as imminent as the next board meeting or general meeting of shareholders). From all these specific concerns emerges a collective, quasi-structural and repeated 'hope' that it may just work out fine for a little bit longer. Hence the phrase about capitalism's hope.

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ing and exchange. *However, market and expansion constitute the all-determining mode of production only under capitalism, and only since the onset of capitalism has permanent and increasing overproduction become an inevitable reality*. Consumption has been far more than an existential expression of life (as in the consumption of vital food) for a seemingly endless period of time. Consumption is a cultural technique and means of social distinction. *However, only under advanced capitalism and its permanent and increasing overproduction does consumption become that pivotal bottleneck of surplus value realisation and therefore an essential element of society and social behaviour.*

Due to overproduction, market expansion and consumer culture, the efforts (and costs) required for linking up production with consumption (which, moreover, demands constant modification) increase in advanced capitalism: *in order to deal with circulation and costs*, that is to say, to maintain the former while keeping the latter as low as possible, entirely new forms and realms of productive forces take shape. I have already outlined the three that are most important (see Chapters 6.1 to 6.3). Given their increased significance and related (factual and economic) intrinsic logics, I refer to them as 'distributive forces', seeking to define them more precisely in analytical terms. What is new is not the underlying motivation of their respective application (see Chapter 5), nor is it their intrinsic systemic significance for retail, sales and profit. What is by all means new under advanced global capitalism, then, is their heightened relative significance among the productive forces:

- *Advertising and marketing* were not invented during capitalism. Even in the barter economy, a sporadic surplus of, say, wild boar meat will have led each hunter to pitch their own as the best and freshest meat. Or take, for instance, the excavated mural paintings in Pompeii which revealed not only beautiful pictures and graffiti, but also announcements and praise for goods and services. The court and church painters of the Renaissance will have developed some form of marketing strategies in order to receive an order from another royal court or bishop. Ever since the invention of print, public space has been used as an advertising board—this happened long before the invention of the advertising column or, subsequently, the fluorescent tube. *However, only in advanced capitalism do advertising and marketing become the crucial precondition for selling the ever rising glut of overproduced commodities, while re-stimulating consumption time and again through ever-more targeted and sophisticated techniques in an attempt to enable maximum value realisation.*
- *Transport and logistics* must have existed before agricultural society. Whenever humans were forced to hoard provisions—due to changing seasons, unpredictable weather conditions, the rationing of meat, and the fact that the current year's plentiful yield of wild berries might be followed by a poor harvest the next—methods and ways of transport and storage were invented, refined

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and perfected, from the leather pouch containing dried meat, as 'Ötzi the Iceman' was found to have carried with him, to the ships used by the Vikings in their raids and the trading roads of imperial Rome. Warehousing and transport are always objectively necessary. This requirement drives innovation and generates entire lines of business and professions. *However, only in advanced capitalism do transport and logistics become a crucial precondition for moving, quite literally, overproduction and market expansion and to be able to reliably and evermore rapidly connect the places of surplus value genesis (based on a global division of labour) with the globally dispersed places of surplus value realisation.*

- Likewise, *control and prediction* represent age-old cultural techniques that may not have been invented in Ancient Egypt but were perfected by the Egyptians with the help of mathematics during the construction of pyramids: it was the only way to plan and coordinate the armies of workers and scholars, their alimentation and provisions and the constant flow of materials, such as building blocks and timber. Humans began making predictions and forecasts regarding floods or harvests early on, be it based on observations in the natural world and inherited knowledge regarding the respective micro-climate, or through the calculation of the trajectories of celestial bodies. And, of course, even in the Hanseatic merchant kontors or the trading bases of the Fugger merchants, counting and calculating formed the basis for optimising flows of goods or calculating price options. *However, only in advanced capitalism do control and prediction become the crucial precondition for rendering the ensemble of overproduction and market expansion, advertising and marketing, and transport and warehousing calculable and thus predictable in all their complex overlappings and interactions.*

The three distributive forces described here, which currently have a considerable impact on circulation and the related costs, have long been digitalised, as demonstrated by the examples given. Likewise, the ERP systems covered towards the end of the last section constitute a digital attempt to pool and connect all real processes and their respective operational logics from distinct departments within a single business enterprise, to subsequently enable such links between companies along (and across) value chains and, finally, to couple all this as closely as possible to the market and consumers. What we find in all this are fluent transitions between 'old' and 'new' forms of digitalisation, which have, of course, for a long time referred to much more than just accounting 4.0—instead encompassing the digital facilitation of surplus value realisation in all its different stages, interdependencies and nexuses. Before we take a closer look at the more recent empirical phenomena of digitalisation from the perspective of the distributive forces (Chapter 8), we will first briefly address some theoretical issues once more. A few clarifying remarks regarding the distributive forces seem appropriate to allow for an understanding of the centrality of this analytical approach to digital capitalism.

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7. The Distributive Forces and (Digital) Capitalism: Some Clarifications

We have now fully set out the theoretical essence of the term 'distributive forces.' In a first step, we tackled another blind spot in the debate about (digital) capitalism (see Chapter 5): namely, that central mechanisms of capitalism have led to a situation in which the optimisation of the productive forces geared towards value-generation has long ceased to be sufficient to preserve this mode of production. The permanent expansion of the market and of consumption has become and is becoming increasingly vital. This is not only crucial for a business's self-assertion in the face of the competition, but also decisive for how successfully it will manage, and emerge from, crisis. Means of communication and digitalisation play an important part in this.

In a second step, we investigated the link between the *distributive forces and (digital) capitalism* (see Chapter 6) and theoretically and analytically substantiated and empirically illustrated what is new about each of the three central distributive forces (advertising and marketing, transport and logistics, and control and prediction). Before we use this freshly polished analytical lens to consider current empirical phenomena of digital capitalism (Chapter 8), a few points need clarifying.

To start off, and for the sake of completeness, what follows—and this is directed in particular to those more familiar with Marx—are some conceptual clarifications and distinctions that have not yet been addressed (Chapter 7.1). Next—although already hinted at in various instances—we will seek to understand in more detail what the implications are in terms of transformation and development: are the productive forces becoming obsolete and being replaced by the distributive forces both conceptually and in reality—or, as Silicon Valley jargon would have it, *disrupted*? This question will be answered in theoretical terms—proceeding through the phenomena of the digital distributive forces, which can be roughly periodised from the 1980s until today (Chapter 7.2). Finally, we will bring together the development of the productive forces and of the distributive forces, conceiving these as both belonging to a single process, and discuss the research questions that emerge as a result (Chapter 7.3).

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Those who have read enough about theory at this point are free to continue directly with Chapter 8, which is more strongly focused on empirical aspects. The essential conceptual and theoretical groundwork for an understanding of (digital) capitalism was in fact laid out in the two chapters on the distributive forces (Chapters 5 and 6). Others with more time (and who could say they do?), who enjoy delving into painstaking analysis (who on earth would?) and who show an interest in the resulting forward-looking and theoretically deduced research questions (there go the last remaining readers)—are encouraged to continue reading the below.

7.1 Distinction: relations of distribution versus circulation

Whatever one may think of Karl Marx and his analyses—even from a critical perspective—one thing does seem indisputable: the impressive depth, breath and predictive capacity of his theories. He was capable of great complexity and abstraction in his thinking, allowing him the utmost precision in the elaboration and use of his concepts. Those who seek to use his remarkable theoretical toolkit for their own interpretations should thus at least attempt to use it creatively but not haphazardly, not submissively but respectfully.

In this sense, in my analysis presented here, I consider essential two conceptual clarifications, or distinctions, concerning my neologism 'distributive forces'. The first pertains to the 'relations of distribution', as the root word alone would suggest, and the second to 'circulation', the actual substance of which makes it compelling for our context. For this purpose, we will once again delve into the theoretical deliberations of Karl Marx. To all those who want to spare themselves this effort (spoiler alert!): both concepts are important, and both are closely linked to the distributive forces. And the engagement with both has reinforced my decision to use the analytical term 'distributive forces' and to maintain my assertion that this represents a fruitful approach for understanding digital capitalism.

We have already dealt extensively with the dynamic that inevitably leads to overproduction and market expansion in capitalism (see Chapter 5.1) and, proceeding from Marx, argued that the creation of value is determined by the social productive power and the realisation of value by society's consuming power (see Chapter 5.2). Those familiar with Marx may have noticed that there is one Marxian term that has not yet been used (although we have certainly already dealt with its substance): the *relations* of distribution.

They have an influence on the (greater or smaller) extent to which the masses are granted consumption (see Marx 1998: 243). When Marx speaks of distribution in this context, he is referring primarily to the relations of distribution of the realised surplus value (i.e. between profit and wages, or capital and labour). The

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term *distributive forces* that I have introduced here, by contrast, seeks to capture the quantitative growth and the qualitative increase in significance of the *efforts (including spending) towards the realisation of surplus value*, which develop an even stronger society-transforming character in the course of current digitalisation.

Of course, Marx often speaks of productive forces and relations of production (as presented above: see Chapter 4), yet hardly of the *relations* of distribution. And he has good reason not to do so: for him, "the so-called relations of distribution are themselves relations of production" (Marx 1986: 90), i.e. both are ultimately the same, distinguished only by the chosen vantage point, because "the relations of distribution are themselves produced by the relations of production" (Marx 1987: 142), and this applies "not only with regard to the object […], but also with regard to the form" (Marx 1986: 32–33). Marx places some emphasis on this aspect, at times in disputes with other economists, such as that with John Stuart Mill (see Marx 1988: 150), or when he speaks of the "nonsense […] to regard bourgeois relations of production and of distribution as different in kind." (Marx 1988: 159)

Despite Marx's repeatedly reiterated equation of the two relations, Volume Three of *Capital* contains a chapter, albeit a fragmented and short one, whose very title refers to the relations of distribution. Here, Marx discusses the question of how the realised surplus value is distributed among the distinct sources of income—"wages, profit and ground rent"—of "the three big classes", namely "[t]he owners merely of labour-power, owners of capital and landowners". Furthermore, he notes (and thus essentially anticipates the idea that underlies later attempts at stratification models) that "[m]iddle and intermediate strata even here obliterate lines of demarcation everywhere" (Marx 1998: 870). The total volume of goods produced—i.e. "[t]he new value added by the annual newly added labour […] is thus split into three parts, which assume three different forms of revenue […] These, then, are relations, or forms of distribution, for they express the relations under which the newly produced total value is distributed among the owners of the various production agents." (ibid.: 863) This basically sums up Marx's deliberations on the matter. Shortly after this section—as Friedrich Engels, the editor of the volume, remarks—the manuscript "breaks off" (ibid.: 871).[1]

The distribution of resources—but also of opportunities, participation, decision-making power, or risks—represents a more general problem which each and every human group or society and economic model must solve in one way

1 According to Friedrich Engels, "the seventh part", which contains this chapter on the relations of distribution, was "available complete, but only as a first draft, whose endlessly involved periods had first to be dissected to be made printable. There exists only the beginning of the final chapter." (Engels 1998: 10) In sum, as Engels informs the reader at some length in his introduction to the third volume of Capital, he had to invest a lot of work to create a coherent whole from Marx's unfinished manuscripts (ibid.: 5–23).

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or another. Hence, the relations of distribution do not pertain only to the division or allocation of resources between capital and labour in capitalism or to those between the now-proverbial *1 per cent* and 99 per cent.[2] From a national economic perspective, the distribution ratios between different sectors, industries or regional clusters are also interesting, while social structural analysis allows us to examine the distribution ratios between distinct social groups with certain socio-economic characters (such as gender, ethnicity, level of education etc.).

Even looking at pre-capitalist times, the question of which groups in society or which individuals within a group are entitled to what kind of rights and duties—and allowed access to which resources on the basis of which criteria and selection and allocation processes—is often, on closer examination, the very aspect that culturally distinguishes one community, or an epoch, from another. Capitalism and modernity have—at least in terms of discourse—proclaimed the market and performance as central distribution mechanisms. Neither is neutral or free of path dependencies, let alone fair and just. Not even the proponents of the free market and performance ideology dispute this. And we could certainly say a lot more on this issue, but it is not our subject here. Without taking into account the relations of production and distribution,[3] it is difficult to envisage the distributive forces as part of the productive forces. And yet, this context is not the core aspect of our analysis but serves merely as a framework and illustration of preconditions.

Seeing as the unequally distributed power of consumption represents a particularly relevant aspect for our analysis, we should mention an empirical indicator that illustrates what Marx means when referring to the relations of distribution: the ratio between the income of unskilled workers and that of CEOs, and the question of whether this is regarded as fair or not.[4]

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2 The trademark slogan 'we are the 99 %' accompanied the activities of the Occupy movement. Historical anthropologist and activist David Graeber, who passed away in 2020, is regarded as the co-inventor of this slogan, but describes how the idea was born out of a collective process (see Cain 2020). The slogan went viral in August 2011 via a Tumblr blog post that called on readers to show the 1 per cent something of the 99 per cent's lives, by writing something about their own circumstances on a sign or piece of paper and uploading a selfie of them holding it: "Let the 1 percent know by taking part in the 99 Percent Project. Make a sign. Write your circumstance at the top, no longer than a single sentence. […] Then, take a picture of yourself holding the sign and submit it to us" (Grim/no name 2011). A well-known left-wing US journal later revealed who had initiated the blog post based on the slogan: two young activists from New York City (Weinstein 2011).

3 The relations of production in turn comprise numerous relations that can manifest themselves in varying forms in distinct capitalist societies too: this includes, for example, the relations of ownership and domination, but also the relations of circulation and consumption (of capital and commodities).

4 For some time now, consumption expenditure has been considered a more precise indicator than income for measuring social inequality (see, on the current state of the debate, Hörstermann 2016: 183–184). This applies in particular when certain goods that are a precondition for any so-

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In a study based on data from 40 countries collected in the context of the *International Social Survey Programme* (ISSP 2012), respondents were asked to estimate how much CEOs and (unskilled) assembly line workers each earned, and to then indicate how much they thought that each should earn. Findings suggest that there is, by and large, an almost identical cross-cultural and cross-national understanding of what is fair, or 'ideal', namely an income ratio of 4.6 (CEO) to 1 (unskilled worker) (Kiatpongsan/Norton 2014: 588–591). The respondents' estimate of that ratio was almost double, at 10 to 1. The ideal and the estimated ratio are so far below the actual figures that the authors of the study had a hard time illustrating it in the same chart: in Germany, for example, the ideal of 6.3 to 1 is met with a real ratio of 147 to 1; in the US, the ideal is similar, at 6.7 to 1, whereas the actual ratio of 354 to 1 reveals an even greater discrepancy (see ibid.).

Only when translating these ratios into actual amounts, as another study has recently done using data from 2012 (Gavett 2014), do we get an idea of the respective potential power of consumption at the individual level: the average annual remuneration of CEOs in Germany is $5.9 million, and that of average workers is $40,223. If the real world were to correspond to the respondents' ideal, the annual income of workers would instead have to be $946,045 (for the US: $12.26 million for CEOs per year versus $34,645 for workers in reality, and ideally $1.8 million).[5]

cial participation—such as food, clothing, but also computers/Internet or health—are no longer sufficiently available, at least temporarily, in circumstances of extreme poverty (Kus et al. 2017: 578–580). Jean Baudrillard (on his critical theory of consumption, see Chapter 5.2) already established this as early as the 1970s, albeit without specifying on which data he was drawing: "The difference in expenditure between workers and senior managers on essential goods is 100:135, but it is 100:245 on household equipment, 100:305 on transport and 100:390 on leisure. One should not see these figures as showing a quantitative graduation within a homogeneous space of consumption, but see, through them, the social discrimination attaching to the quality of goods sought after." (Baudrillard 1998: 58). So, the ratio between workers' and managers' spending levels varied between 1.35 and 3.90. Based on data from the Einkommens- und Verbrauchsstichproben (EVS) ('Income and Consumption Survey', published by Germany's Federal Statistical Office) for the year 2008, Irene Becker calculates the ratio of average spending on consumption in the case of material wealth divided by average spending in the case of material poverty, i.e. both extremes of the wealth spectrum. The ratio ranges from almost level (1.39 for food), to a markedly more pronounced one when it comes to equipment (5.98), transportation (5.68) and recreation (4.77) (Becker 2017: 17–18).

5 Of course, this study partially presents somewhat bold calculations that could be challenged on various details (gross or net? Are bonus payments included on one side, and pension entitlements on the other? Would this not have to be grouped according to industries?). However, some of the differences are so drastic that such details will have little material bearing on the relations of distribution (of which, we ought to keep in mind, we can only depict a certain aspect here, based on only one of several conceivable indicators). Incidentally, we could also imagine this in reverse, continuing to pay the unskilled worker in Germany only those $40,223, but still attain the desired ideal through a reduction on the CEO side: $253,405 annual income is what would be left. The

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There are voices within international law studies departments who emphasise that socio-economic equality is not a human right; for example, Samual Moyn notes that even the maximum conceivable unequal distribution, in which a single individual owns everything in the sense of an "absolute overlord",[6] need not necessarily imply a violation of legally guaranteed human rights, but that "[e]ven perfectly realized human rights are compatible with radical inequality" (see Moyn 2015). Jason Hickel argues against this view and highlights that Article 25 of the *Universal Declaration of Human Rights* in particular guarantees the equality of living standards, health and well-being, and that one could therefore say: "[…] Article 25 technically requires redistributing a portion of national or global income." (Hickel 2020: 416). The author insists that the issue of redistribution cannot be ignored, particularly against the backdrop of an 'ecological overshoot'.

If Marx were to participate in this discussion, he would not be ever so concerned with a somewhat modified or supposedly more just distribution within capitalism, but rather would offer a more fundamental critique. That is, he would emphasise the contradiction between the creation of value made possible by the social forces of production and the largely private appropriation of this value. In that vein, Marx and Engels polemicised extensively against notions of being able to change the system via tax policies: relations of distribution, "which rest directly upon bourgeois production, the relations between wages and profit, profit and interest, rent and profit, may at most be modified in inessentials by taxation, but the latter can never threaten their foundations. All investigations and discussions about taxation presuppose the everlasting continuance of these bourgeois rela-

freed-up sum of around $5.7 million could be used, say, to fund education, health or the ecological transition towards a zero-carbon economy (from which all would benefit: the unskilled, however, would do so to a far greater extent than the CEO with a now-moderate income).

6 This would correspond to a Gini coefficient of 1. The scale of the Gini coefficient (or index) ranges from 0 to 1 and is one of the commonly used statistical measurements for inequality (in terms of income or wealth distribution). Both in the past and today, Germany's Gini index has been relatively high, at 0.78. In the dataset used (the German Socio-Economic Panel, or SOEP), however, the crucial group of millionaires, or HNWI ('high net worth individuals'), were underrepresented; the German Institute for Economic Research (DIW) has closed this gap through a special survey (SOEP-P) and an addendum to the dataset in the form of a list of the 700 wealthiest people in Germany, based on *Manager Magazin* (see Schröder et al. 2020). This calculates a Gini index of 0.83 after adding the two supplementary datasets to the equation. Prior to that, it had been assumed that the richest one per cent of the population owned around 23 per cent of total wealth, but the revised calculation produced an even higher figure of 35 per cent; given the more accurate database, the figure for total wealth owned by the richest ten per cent changed from 59 to 67 per cent and that for the richest 0.1 per cent was even corrected from 7 to 20 per cent (ibid.: 319). According to these figures, wealth is distributed significantly more unequally in Germany than income or consumption capacity (ibid.: 320).

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tions." (Marx/Engels 1978: 331)[7] One cannot help but feel strangely reminded of today's debates by this remark, and even more so when Marx and Engels continue: "Taxation may benefit some classes and oppress others harshly, as we observe, for example, under the rule of the financial aristocracy. It is ruinous only for those intermediate sections of society between the bourgeoisie and the proletariat, whose position does not allow them to shift the burden of taxation to another class." (ibid)

This shows that Marx refers to matters of distribution and allocation of resources when using the term relations of distribution, which he considers to be a mere phenomenon and reflection of the relations of production. The terms 'relations of distribution' and 'distributive forces' must therefore be clearly distinguished from one another. Firstly, despite—or precisely because—of the former's terminological proximity to the term 'distributive forces' elaborated here, and, secondly, because the relations of distribution (i.e. ultimately, the relations of production) represent an underlying cause of the very imbalance between consuming power and (over-)produced values. And, not least, because the distributive forces have in turn assumed an independent and more important position among the productive forces (see Chapter 5.1). In other words, this proximity is not only terminological, but concerns the substance of the matter, too.

One legitimate objection which Marx readers could be expected to raise with regard to the term 'distributive forces' would be: essentially, it is all just circulation. This is correct (and it is no coincidence that I address circulation costs in the context of the development of the three distributive forces in Chapter 6.1). And yet, this fails to capture what the term 'distributive forces' seeks to bring to light analytically. To understand the difference (and, simultaneously, the close relationship), we may once again draw on Marx. He distinguishes between two forms of circulation costs: firstly, those accruing from "circulation as an economic act—as a relation of production" (Marx 1986: 447) and, secondly, those which are 'directly a moment of production', including, say, means of transport and communication. In his investigation, he is mainly concerned with the former. For him, the analytical appeal emerges from considering circulation as a 'a process of transformation, a qualitative process of value, as it appears in the different forms of money, pro-

7 Decades earlier, Friedrich Engels also directed his more combative tones against the left-wing poetry and prose of this day—the verses and lyrics of which, he lamented, were not aimed at changing the relations of production, but only at mitigating poverty: "The most common kind of socialist self-complacent reflection is to say that all would be well if only it were not for the poor on the other side. This argument may be developed with any conceivable subject-matter. At the heart of this argument lies the philanthropic petty-bourgeois hypocrisy which is perfectly happy with the *positive* aspects of existing society and laments only that the *negative* aspect of poverty exists alongside them, inseparably bound up with present society, and only wishes that this society may continue to exist *without the conditions of its existence*." (Engels 1976: 246)

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duction process, product, reconversion into money and surplus capital' (ibid). At the same time, the costs of circulation could indeed be zero, too (see ibid.). In my analysis of the distributive forces, I am mainly concerned with a dimension that is linked to both forms of circulation costs, but which only becomes discernible in advanced capitalism—yet which Marx nonetheless already identifies:

> "However, in so far as circulation itself involves costs, requires surplus labour, it appears as itself included in the process of production. In this respect circulation appears as a moment of the direct production process. In the case of production directed towards immediate use, and exchanging only the surplus, the costs of circulation are incurred only in relation to that surplus, not to the main product. The more production comes to be based on exchange value, and thus on exchange, the more important for production do the physical conditions of exchange become—the means of communication and transport." (Marx 1986: 448)

In the earlier stages of capitalism, the circulation costs that Marx mentions would have to be added—i.e. spending on the transport and communication that are physically required to get the goods to the market so as to realise the produced value. Today, however, we have long since entered a stage of capitalism in which production is not only still and primarily geared towards exchange value, but in which the logic of circulation has a very physical rebound effect on production. On the one hand, all production processes are permanently optimised in pursuit of the greatest possible generation of surplus value. On the other hand, more and more activities are taking place within and between business enterprises that are primarily or exclusively related to circulation:

- *Circulation within a business enterprise.* Part of the efforts towards market realisation must already be prepared, organised and integrated in the manufacturing enterprise's production-related processes. The smooth transfer of the produced good to its point of sale on a market is becoming increasingly complex and costly. Just like the production processes themselves, it is becoming the object of ever-more perfect optimisation and, increasingly, the decisive factor for restructuring production processes.
- *Circulation as a business enterprise.* Efforts towards market realisation are increasingly rendered by other companies rather than by manufacturing enterprises themselves. These companies specialising in circulation generate a surplus value of their own which they seek to increase through the permanent optimisation of their processes, while also having to realise them on the market. This in turn incurs circulation requirements and costs that are accompanied by the familiar economic logics of overproduction and market expansion.

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Of course, the aim of all these activities and processes is successful commercial circulation as well. At the same time, more and more real physical efforts based on human labour are required to attain just that. Therefore, they are doubtless part of the productive forces. Yet, they are no longer only secondary or auxiliary productive forces, but rather assume a status in their own right.

This increase in significance can be ascertained in both quantitative terms (costs, workforce, businesses) and qualitative ones (values, work, strategies) and leads to independent technical and organisational optimisation and a specific differentiation and division of labour. After all, in economic terms, this real, physical, labour-based aspect of circulation operates the same way as actual production: new value is created only when living human labour is involved. The use value of a market introduction, however, essentially emerges from economic necessity:

> "Circulation can create value only in so far as it requires additional employment—of alien labour — additional to that directly consumed in the production process. This is then the same as if more necessary labour were directly required in the production process. Only the real costs of circulation increase the value of the product, but they reduce surplus value. […] In so far as circulation costs in general, i.e. the production costs of circulation, concern the exclusively economic moments, circulation in the strict sense (bringing the product to the market gives it new use value), they have to be regarded as deductions from surplus value, i.e. as an increase of necessary labour relative to surplus labour." (Marx 1986: 471–472)

Because circulation *within* an enterprise and circulation *as* an enterprise are closely interrelated, capitalism can no longer be understood today only considering the productive forces linked to production. Rather, this understanding increasingly requires a grasp of this other side (of the same coin) that I term the distributive forces.

These latter represent the real expression of increased circulation activities, but cannot be equated with circulation as an economic process. *That is the analytical reasoning underlying this choice of terminology.* In business economics, and therefore in daily business practice, the term 'distribution' is commonly (and, in my view, quite accurately) used to denote all processes that "take place between producers and retailers all the way to the end customer (or directly between producers and end consumers)." (Kenning 2020, translation amended). *And that is the pragmatic reasoning underlying this choice of terminology.*

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7.2 Transformation or casting off the skin: the disruption of the productive forces?

As we have seen, many analyses of the current, allegedly more digital capitalism (see Chapter 2) focus on the question of whether we are dealing with something fundamentally new and whether the proclamation of a novel kind of *-capitalism is justified. Proceeding from the diagnoses concerning early and industrial capitalism (Chapter 4) that underlie this book, we could raise the question of whether we are witnessing a second *Great Transformation* in the sense of Karl Polanyi and/or a leap in the productive forces as described by Karl Marx.[8]

From my deliberations thus far on the new prominence of the distributive forces—as well as from the fact that I am referring to them by a special term complete with its own dimensions (see Chapters 5 and 6)—one might conclude that, through this diagnosis of distributive-force capitalism, I am also striving to proclaim an entirely new form or variety of capitalism. It may thus appear that I am one of those authors competing for interpretive sovereignty through their analyses (though in most cases this is not even their intention, but mostly a mere ascription found in reviews and engendered by their publisher's marketing efforts). But this is far from the case. My concern is *not a new capitalism*, but rather certain dynamics that have become more significant *within* capitalism. The starting question was not: what does digitalisation turn capitalism into? But rather: which mechanisms of capitalism are becoming more pronounced, which of them are changing and shifting—and what role does digitalisation have in all this? That is to say, I am interested in what is actually transformative, i.e. causing transformation. So, to paraphrase Polanyi, I would not proclaim a second, but a *Greater Transformation*. To put it with Marx, then, I see no disruption of productive power, or of the productive forces, but transformative changes among the productive forces which justify considering the distributive forces as an analytically separate category. And yes, I do indeed believe that digitalisation plays a vital role in this. In my view, however, this latter is not some exogeneous driver of novel economic dynamics. It is, simply, very convenient to use as a distributive force and therefore employed particularly in the context of those economic dynamics that are

8 In texts that reference Marx, the term 'transformation' is rarely ever used, as compared to 'transformation problem'. However, the term then appears with strongly differing connotations in various disciplines: in the sociology of work, it mainly addresses the problem (of the entrepreneur) of having to ensure that the purchased labour power actually performs specific labour (see Minssen 2012)—be it via control and incentive, subjectivation or, as would be common today, through indirect control, nudging and gamification. Economics distinguishes between the concept of quantitative and that of qualitative transformation (with the former pertaining only to price relations, and the latter referring to the substantial difference between the value and the price of a commodity) (Fine/Harris 1979: 21–33).

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dominant in an aged, compulsorily overproducing and crisis-ridden capitalism. So, my main concern here is not a replacement, phasing out or supersession of capitalism, but a change within it. This means not decay and a fresh start, nor a complete metamorphosis, but a merely outward—albeit comprehensive—change in its shape, based on its underlying substance.

In nature, metamorphoses are only known to occur in insects, who undergo a change in form during their development. The butterfly, for example, experiences a 'complete metamorphosis', as zoology refers to it: what emerges—from egg to larva to pupa to the adult animal—is a new, essentially different animal that largely digests its prestages during the transformation process (see Eggert et al. 2010: 414–416). It is therefore no surprise that the colloquial metaphor, 'from a caterpillar into a butterfly', has been applied time and again to describe the emergence of capitalism:

For instance, Edward Baines Jr. (1835), whose history of cotton manufacture was already used as a reference by Karl Marx—in the *Outlines of the Critique of Political Economy* (Marx 1987: 205)—and Friedrich Engels—in his empirical study of the *Condition of the Working Class in England* (Engels 1975: 429)—compares the processing of products through technology, namely by means of mechanics and steam, to the caterpillar-butterfly metamorphosis: "By this means, manufactures of every kind have undergone a transformation scarcely less important than that which takes place in the caterpillar, when it is changed from a creeping into a winged insect" (quoted in Wengenroth 2015: 71). Polanyi also describes the transformation of the previous economic form into capitalism to be as complete as the metamorphosis of a caterpillar into a butterfly: "The transformation to this system from the earlier economy is so complete that it resembles more the metamorphosis of the caterpillar than any alteration that can be expressed in terms of continuous growth and development." (2001: 63) And, finally, Karl Marx uses the metamorphosis metaphor in the context of the *circulation of capital* and the time this takes: "[…] the nature of capital presupposes that it passes through the various phases of circulation, not indeed as in the imagination, where one concept can turn into another with the speed of thought, IN NO TIME, but rather as real situations which are separated from one another in time. It must spend some time as a chrysalis before it can take wing as a butterfly." (Marx 1986: 472; capitalisation in the original) This realisation appears particularly compatible with our consideration of digitalisation in terms of a distributive force, seeing as it is increasingly being used to shorten time and to constantly approach, as far as possible, the state of 'no time' (or 'real-time', according to the wording which is commonly but mostly incorrectly used today).

Although Baines focuses primarily on technology, he also considers the period in which industrial capitalism emerged. When Karl Polanyi addresses the emergence of capitalism, his concern is similarly fundamental as that of Marx when

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dealing with the change from money into commodity (purchase on the commodity or labour market), from commodity into surplus value (during the production process) and from commodity (including added value) into more money. The crucial point is the emergence of something fundamentally new. The butterfly metaphor is thus plausible in each of these cases. But it would be inaccurate to apply it to today. Capitalism is not being replaced. So far, it is not digesting itself (at least not ostensibly so), but everything else. Even if the talk of neo-feudalism[9] appears to suggest just that: it is still capitalism. Digitalisation does not change this. And yet, there are sufficient novel aspects to necessitate analytical precision and distinction, as I propose here by using the term 'distributive forces'. Here, again, zoology offers a suitable metaphor: instead of the caterpillar's complete metamorphosis into a butterfly, this would rather correspond to the incomplete metamorphosis (hemimetaboly) of the locust, which develops from the nymph to adult animal by repeatedly casting off its skin, throughout the stages of which it hardly changes its actual physical shape (except for its size and the development of reproductive organs and wings).

9 The term 'feudalism' is currently enjoying a resurgent popularity, with the large tech and platform corporations from Silicon Valley being critically considered as actors in this context. In Unicorn Feudalism (Gavet 2020: 35–42), for example, the structures within these companies and their value chains are compared to the seven strata of the feudal social pyramid (from the king at the top to the peasants, serfs and soldiers at the bottom): at the top of the tech corporations' hierarchical pyramid, according to Gavet, are the Founder CEOs, while the bottom level is occupied by independent contractors, users, and second- and third-tier service providers (see ibid.: 38). Geographer Joel Kotkin (2020) considers the middle classes to be threatened by a neofeudalism, which though it may be marketed much better than its historic predecessor, will lead us into the 'high-tech middle age' (see ibid.: 27). At the same time, this appears not to be all that new, particularly when he notes that today's tech corporations have a similarly oligopolistic power as the moguls of industrial capitalism John Rockefeller, Andrew Carnegie or Cornelius Vanderbilt (see ibid.: 31). In fact, we can today find many other diagnoses of society which make such a comparison with feudalism: a theoretician of punk and anarchism proclaims the advent of Techno-Capitalist-Feudalism (Bellemare 2020), whereas a sociologist and an astrophysicist (Moreno/Jimenez 2018) predict a future of Robotized democracies (further underlined by the fact that the English version of the original Spanish book was entirely translated by web-based translation engine DeepL; only ten per cent of the text containing 'obvious nonsensical sentences' was edited by the authors; see ibid., copyright note without pagination), which, so the authors claim, in the US is drifting into a neo feudalism, while Europe and its unconditional basic income (UBI) may still be able to rescue democracy. Even before that, two Australian researchers—focusing on social inequality and power asymmetries with regard to intellectual property in the field of medicine and the pharmaceutical industry—speak of Information Feudalism (Drahos/Braithwaite 2002). Nor do America's Fifteen Steps to Corporate Feudalism as described by former political consultant Dennis Marker (2012) refer to Silicon Valley actors specifically—this reads much more like a neoliberal agenda (from media manipulation via the weakening of trade unions to the privatisation of public tasks).

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As with every comparison, this one does not hold together entirely. On the one hand, it is more accurate than the caterpillar-butterfly metaphor, for here we are no longer talking about something entirely distinct developing into capitalism. Instead, it is capitalism itself that is developing. It is, so to speak, becoming an adult and developing wings. To keep with this image, these wings would represent our distributive forces. They already existed as a physical disposition, and now they are attaining full maturity—and digitalisation and the actors of the digital economy are surely helpful in this (which explains their economic success). Nor are we dealing with the replacement of the productive forces by the distributive forces. The distributive forces, of course, do remain part of the more general concept of the productive forces. The capitalist logic remains untouched. And yet, there are changes taking place at the phenomenal level, which entail considerable consequences. And this is where the applicability of this metaphor ends. For neither the complete metamorphosis of the individual butterfly nor the incomplete one of the individual locust have any severe or even catastrophic impact on their respective habitat (even if it is granted that locust swarms certainly can do so). We can describe this process of the constantly increasing significance of the distributive forces over time in several rough stages (or: sheddings of the skin):

Initially, from the era of industrialisation onward, capitalism developed its driving force out of the optimisation of the productive forces. Each business enterprise attained (or not) the crucial technological advance and/or devised organisational processes to improve their productive forces. Some of them assumed a monopoly position during the early days of capitalism. Over time, it was those national economies benefiting the most that offered a corresponding institutional setting for developing and optimising the productive forces, first at the individual company level and, eventually, on a comprehensive economic and social scale. This included, for example, an adequate education system; an enabling infrastructure, publicly paid for from the outset, at least in part, and partly initially run by private, monopolist-like actors, but regulated by law; measures towards institutionalised and regulated procedures in cases of conflicts between capital and labour (industrial relations). The underlying motive for all this was value generation and an increase in the share of surplus value. The need to find, or somehow generate markets matching the produced goods (by increasing purchasing power, reducing production costs or engaging in war) was already and increasingly important. But it was not as crucial for surviving in the competition as the innovation capacity in the context of value generation and the productive forces that focus on just this. As a result of the differentiation of the productive forces, the global division of labour also expanded, leading to more and more efforts and costs necessitated by transport between and warehousing at the manufacturing units of the value chains and ever-more marketing locations.

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Besides this, measures related to value realisation also emerged early on. By and by, the productive forces aimed at real distribution and commercial circulation were becoming more professionalised and differentiated. One aspect adding to value generation and corresponding efforts towards optimisation was the circumstance that value realisation on the market itself increasingly required human labour.

Advertising, marketing and accounting became professions in their own right, while new functions and operational tasks arose that were primarily geared towards value realisation. Peter Drucker's diagnosis of the knowledge society[10] or Daniel Bell's rather similar one of a post-industrial service society (see 1999) could also be read in the following sense: that there are more and more efforts, business models and activities aimed at safeguarding, as far as possible, value realisation—which is why the significance of management knowledge (Drucker) or service work (Bell) is increasing.

Activities related to securing market access, tariffs, trade agreements and politically initiated trade-boosting measures were increasing. Value realisation was increasingly becoming the new target dimension of political action. This was

10 As early as the 1960s Peter F. Drucker addresses knowledge, as a core economic competence, and the concept of knowledge work (see 1969). From this same perspective, during the 1980s he developed the idea of 'knowledge-based innovation' as the source of an 'entrepreneurial society', which he already then linked to information technologies (see 2015: 316) and would later be among the first to consider in relation to the Internet and eCommerce (see 1999). Knowledge society, he would go on to explain, is the most competitive society of all time and would lead to new class conflicts: "A society in which knowledge workers dominate is under threat from a new class conflict: between the large minority of knowledge workers and the majority of people, who will make their living traditionally, either by manual work, whether skilled or unskilled, or by work in services, whether skilled or unskilled" (1994: 64). Considering that Drucker regards Marx, alongside Hegel, as a "terrible simplifier" (1993: 60), he spends a surprising amount of time engaging with Marx's terminology as he defends his own idea of the knowledge society. However, Drucker concedes, it would have been too early at the time to go ahead and publish a book titled The Knowledge (ibid.: 71) in allusion to Marx's Das Kapital. In the same article, he pointedly summarises his core thesis concerning the 'knowledge society': knowledge that used to be applied in the technological realm and for the purpose of productivity increases has for decades been applied to management, indeed ever since Frederick W. Taylor (ibid.: 60). Knowledge enabled first the Industrial Revolution and then the productivity revolution (the latter of which Drucker dates between 1880 and World War II, expressed among other things by the emergence of the middle classes; ibid.: 53). Ever since, he notes having observed: "Knowledge is applied to knowledge itself", setting in motion a management revolution (ibid., emphasis in the original). Yet, the actual cause of this renewed revolution (why does it become necessary to apply knowledge 'to knowledge itself'?), remains largely in the dark, or rather appears at times to be both the consequence and the precondition of digital technology. Drucker doubtless describes these phenomena accurately (except, perhaps, for his misapprehension of the class concept), but their root cause is not satisfactorily developed analytically.

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present from early on, and could even assume imperialist forms (access to new markets through violent means) or find expression in free trade agreements. Even VAT[11] had long been configured by many countries in such a way that this tax only became applicable in the very last step of value realisation on the market (i.e. in the private purchasing act), frequently contributing the largest share of tax revenues, even greater than income tax.

All this persisted and evolved, was reinforced together with the respective intrinsic logics, branched out and became more and more contradictory. Yet this does not imply the emergence of a new stage, simply because digitalisation now enters into the equation of value generation and value realisation. We may only speak of a new stage if the distributive forces are no longer a mere auxiliary and catalyst of the productive realm, but themselves become strategically vital.

- "Strategically vital" is to say, *firstly*, if the ability to permanently optimise the productive forces geared towards value generation represents the entry ticket for businesses and national economies to even be able to keep up with the global competition.
- If, *secondly*, the capacity for the broadest possible and constantly optimised use and refinement of the productive forces geared towards value realisation (i.e.: the distributive forces) becomes the decisive precondition for global success as a business enterprise or national economy.
- *Thirdly*, if more and more (not only) manufacturing enterprises approach the processes of value generation (from inventions and innovations to the technical and organisational specifications of work processes, from strategy to operational implementation) mainly from the perspective of value realisation and organise them accordingly.
- If, *fourthly*, more and more enterprises emerge whose own value generation is built on the sale of means of distribution and distributive-force optimisations to other businesses as a product or service.
- And, *fifthly*, if all this has an impact not only on company structures, but also on industrial and professional structures more generally, as well as in the

11 Germany today has (and this was not always the case) what is called a 'net all-phase sales tax with input tax deduction' (Allphasen-Netto-Umsatzsteuer mit Vorsteuerabzug): unlike in the case of the 'gross receipts tax' (Allphasen-Brutto-Umsatzsteuer), the pre-tax deduction exempts the product, throughout its entire production process across all stages of the value chain, from sales tax, which accrues exclusively as VAT in the (private) act of purchase (see Naujoks 2014). In other words: what is subject to tax is value realisation, not value generation—yet not for those who profit from successful value realisation, but for those who make it possible. In 2019, VAT represented the largest item among the combined Federal and Länder taxes (Gemeinschaftssteuern) in Germany, accounting for a greater share than income tax (see BMF 2020: 57).

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corresponding vocational training systems, while also being reflected in consumption practices and the social significance of consumption.

We may note: over the course of capitalism's development, businesses and national economies have had an edge over the competition whenever they have had a special aptitude in connection to the most dominant aspect of the given stage. In this, the qualification of labour forces and infrastructure always constitute the essential link between individual enterprises and politics. The less need that companies have (or think they have) for either, the more vocal their calls for less government intrusion. However, the relevant innovations, both then and now, were and are at the level of infrastructure: the railway and the Internet are more important strategically and for the national economy than the steam engine or the computer. The latter become freely available (albeit not cost-free) means of production (indeed, ones that would have been utterly inconceivable in early industrial capitalism), whereas infrastructure was and remains key (see Chapters 2.1 and 2.3).

By now, it ought to be clear: the subject matter we are dealing with here is generally *not the replacement* of 'old' by 'new' capitalism. Productive-force capitalism never dies, but simply moves on geographically (often undergoing technical and organisational regresses in the process). The productive forces and the means of production are no longer the exclusive determining factors of economic success (neither at the level of the individual company nor at that of the national economy), and yet, they remain the material base of the current and any subsequent stage of 'distributive-force capitalism'. So, the shedding of the skin is not as complete as the caterpillar's transformation into a butterfly, but rather, incomplete and gradual as in the case of the locust. Each new shedding, each new stage—with its own technical and organisational methods—also always pervades its respective preceding stage. This applies to the industrialisation of agriculture as much as to the digitalisation of production through Industry 4.0. In the process, there may actually be setbacks in productivity during these pre-stages. What remains crucial is whether the integration of the new elements into the logic of valorisation is successful. In this sense, there generally applies, here, too, what is referred to in the context of institutional change as *layering* (see Dolata 2011): that is, a radical change that takes the form of a gradual transformation—in which new elements come to the fore, become increasingly significant, while established structures and institutions are not fundamentally called into question but altered through amendments and extensions adding to and combining with the new elements (see ibid.: 14). The analogy has its limitations, however: while new institutional arrangements may at one point fully replace other and older arrangements, the distributive forces—notwithstanding their increased and further increasing significance—will always depend on their base, the productive forces. It would be impossible for the one to replace the other.

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Those who accuse Marx of a deterministic and mechanical notion of change or social dynamics may have read a great deal *about* him, but most likely very little *by* him. What makes his analyses so compelling—and so inspiring to this day—is precisely the fact that he does *not* reduce the complexity of society and history to simplistic causalities or, so to speak, to a hard-wired sequence of steps. However, matters do not dissolve into randomness or redundancy for Marx, either. To begin with, he conceives of society as proceeding from the social acts of individuals: "What is society, irrespective of its form? The product of man's interaction upon man." (Marx 1982: 96) That is to say, Marx takes as a starting point social actions at the micro-level, i.e. the very origin of the social, and considers the structures in which actions take place—actions which are anything but random:

> "Is man free to choose this or that form of society? By no means. If you assume a given state of development of man's productive faculties [*Produktivkräfte*], you will have a corresponding form of commerce and consumption. If you assume given stages of development in production, commerce or consumption, you will have a corresponding form of social constitution, a corresponding organisation, whether of the family, of the estates or of the classes—in a word, a corresponding civil society. If you assume this or that civil society, you will have this or that political system, which is but the official expression of civil society." (Marx 1982: 96)

If we forget that Marx's starting point is social (inter)action, we could indeed read this as a kind of deterministic sequence of stages. But that is not his intention. When he answers in the negative to his opening question of whether people are free to choose a form of society, this does not mean that social forms are not determined by people, but that they cannot be created independently of the specific conditions given. In modernity, historical development is considered in a somewhat similar way. Ultimately, we could interpret the entire current discourse on digitalisation as follows: conditions are changing as a result of digitalisation, and it is therefore plausible to contemplate new forms of society. Yet Marx is far more dynamic in his thinking than that, and would never settle for assuming that 'Industry 4.0' alone is creating a new form of society. This is illustrated by his typically sardonic and critical remarks with regard to the book *The Philosophy of Poverty* by Pierre-Joseph Proudhon,[12] which had just been published at the time. In a letter to the publisher Pavel Annenkov, Marx emphasises that not only do "men manufacture worsted, linens and silks", but "according to their faculties, men also produce the *social relations* in which they produce worsted and linens" and "those

12 Translator's note: The title of the book has also been translated as *The Philosophy of Misery* [orig: Misère de la philosophie], yet it is often rendered as above because of Marx's now more famous reply The Poverty of Philosophy.

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who produce social relations in conformity with their material productivity [*Produktivkräfte*] also produce the *ideas*, *categories*, i.e. the ideal abstract expressions of those same social relations" (Marx 1982: 102).[13]

While the constant revolutionising of the productive forces ever since the Great Transformation has demanded that societies prove a lasting capacity for adjustment (and for coping with the collateral damage of the commercial revolution), the distributive forces turn the Great Transformation into a *Greater* one (not because the latter is quantitative 'greater' in scope than the former, but because it is linking up and combining with the still ongoing Great Transformation and driving it forward). Over the course of globalisation and informatisation, the development of the distributive forces began to assume initial, tentatively society-transforming forms during the early 1980s, even though they still appeared largely limited to the economic sphere. Particularly important in the early stages of this process were measures

- towards organising the logistical distribution of material goods at such a low cost that low wages in other countries would keep end prices low, in turn enabling stagnating real wages in other regions (without the declining purchasing power there increasingly endangering surplus value realisation);
- towards organising the logistical distribution of material goods at such a low cost and high speed that customisable and configurable (albeit not yet fully personalised) individual purchases would be made possible and surplus value realisation would no longer, or at least to an (increasingly) lesser extent, rely on institutionalised and multi-layered supply chains.

In the 1990s, these processes were then further perfected, and informatisation increasingly stepped out of the high-tech niche and onto the labour market as well as entering production and logistics processes. This was the decade in which the Internet was opened up for commercial use, although it took until the turn of the millennium to develop a broader and more efficacious dynamic, after which its use became more widespread in the New Economy of the early 2000s—already at

13 In his riposte to Proudhon, *The Poverty of Philosophy*, this passage appears in almost identical form (albeit with a slightly varying English translation): "[M]en make cloth, linen or silk materials in definite relations of production [and] that these definite social relations are just as much produced by men as linen, flax, etc. Social relations are closely bound up with productive forces. In acquiring new productive forces men change their mode of production; and in changing their mode of production, in changing the way of earning their living, they change all their social relations." (Marx 1976a: 165) but without the sardonic asides about Ricardo which the letter contains, such as when Marx awards "whatever credit is due for understanding such a trifle!" (Marx 1982: 102)

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that time linked to discursive hype. The dominant phenomena of this stage in the development of the distributive forces included, for example:

- securing a lasting and repeated value-realising distribution of (abstract-)material goods via technological path dependencies or long-term license models;
- the establishment of the first digital distribution platforms (especially Amazon), connecting sellers and buyers from all over the world independent of place or time;
- the systematic reduction of the costs of value realisation tied to offline resources (shop spaces, sales staff etc.) through online commerce;
- the database-based use of consumers' previous buying behaviour for targeted (personal) advertising.

During the 2000s, the opportunities offered by technology were increasingly seized and applied systematically in the service of value realisation, and the transformative force of the development of the distributive forces became more visible and efficacious outside the actual market (i.e. throughout society). This included, in particular:

- the conversion of forms of value realisation based on the sale of ownership to ones based on long-term use without ownership (streaming services, Software as a Service etc.);[14]
- the development of online platforms as distribution infrastructure, which not only infinitely increase the opportunity structures for global businesses but simultaneously secure value realisation in the long term for just a few central actors via their proprietary technology and/or their monopoly-like prevalence, driven by venture capital.
- the social media-based stimulation of consumer needs and manipulation of buying behaviour (via influencing, viral marketing etc.);
- the securing of sales in advance via Open Innovation or Crowdfunding.

Since 2015, autonomous technologies (Artificial Intelligence and Machine Learning) have been reinforcing these trends, complemented by calls from the industry—directed at the general public—to acquire digitalisation-adequate equipment

14 Such business models, which favour long-term paid use over the one-time sale (or rather, purchase), are often discussed only with regard to purely digital artefacts (e-books, software apps, music and video streaming or online gaming etc). But these models can increasingly be transferred to material artefacts via the Internet of Things (IoT), too—from managed services in plant construction to the software-based reduction of end devices' charge cycles or the prevention of repairs by non-authorised actors.

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and—directed at politics—to provide the necessary infrastructure (broadband, 5G) and abolish laws and regulations that impede the further development of the distributive forces. Particularly relevant in this context are:

- the Machine Learning-based use of data pertaining to (individual and collective) buying behaviour in order to predict as accurately as possible which product or service should be offered to whom at what time;
- the conversion of individual behaviour-related data into commodities and providers' targeted, algorithm-based advertising and personalised appeal to customers (e.g. Psychographics);
- the alteration of the act of value realisation itself by stylising it as an event or through its imperceptible, 'smooth' integration into everyday behaviour (the now-abandoned Dash buttons, language assistants such as Alexa);
- the pursuit of digital control of all processes related to value creation and value realisation via blockchain technology;
- The use of AI for situational and individually targeted dynamic pricing.

Despite this development towards more and more varied distributive forces, the productive forces also exist in a new digital form. The strategy of continuing to harness technological development for the optimisation of production—that is, in the effort to produce more and more products at an ever-faster pace and at ever-lower costs, while generating a maximum surplus value—may be as old as capitalism itself, but it is far from outdated. The protagonists of the distributive forces and the experts of surplus value realisation have perfected old concepts for maximising surplus value. Correspondingly, a venture capital manager (turned critic) notes that the corporations in Silicon Valley know not only how to achieve "a Lot More Revenue with a Lot Fewer People"—from the systematic self-employment of the Uber driver to the Foxconn worker making a mere $1.42 an hour (Gavet 2020: 39–42), a strategy that constitutes the core feature in the tech giants' disruption of other business sector: "But to compete, tech early on identified the cost of labor as among the biggest inefficiencies of its targets." (ibid.: 35)—yet they also, as we will see further on, use digitalisation to rid themselves of the burden of owning actual means of production. What used to be regarded as the capitalist's indispensable asset in the past is today avoided as far as possible by parts of the platform economy (see also Chapter 8.1). This already shows us that, as worthwhile as it may be analytically to separate the distributive from the productive forces, in theoretical terms they must be conceived as one, and empirically they are only ever found in close inter-relation. This has implications for a definition, while also informing the development of research questions.

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7.3 The development of productive and distributive forces—conceived as one

Business and scholars often equate the terms 'productive forces (or power)' and 'development of the productive forces' (see Chapter 4.3) with technological possibilities. They are thus used synonymously with the somewhat outdated term 'techno-scientific progress'. Those who do not speak of technical or technological progress, but rather of productive power or the productive forces, or the development of the productive forces, usually also want to signal above all that their analysis is more profound, more critical and Marxist (even though this promise is not always fulfilled). In Marx, however, this term is never reduced to technology—as the *Critical-Historical Dictionary of Marxism* concisely informs us. According to the definition we find in its pages, productive power [*Produktivkraft*] comprises three levels:

> "1. The productivity (of social labour); 2. The productive capacities of a social formation […] which include the totality of the labour forces and the means of production of a given country or epoch; 3. The system that connects the labour forces and the means of production and in which the relation between human beings and objects and natural forces is expressed." The term, Lefebvre continues, thus refers to "(producing) human beings, the objects (most of which humans have produced and use for production) and the relations between humans and those objects that are reflected in technological knowledge or in knowledge per se, i.e. in science and technology." (Lefebvre 1987: 1065; translation amended)

At first, this entry in the dictionary is quite generally phrased; it applies to antiquity as much as to early industrial capitalism, and would do justice to so-called actually existing socialism as to the global digital capitalism of our day. But to understand the latter, or render analytically visible what distinguishes it from its predecessor, we still need to dig a bit deeper.

To this end, let us imagine an economic order in which only that is produced for which an actual need is articulated. The vision of on-demand production in the context of Industry 4.0 could in fact make this possible, in an ecologically reasonable way. The car, the outdoor jacket—whatever the product, it would only be produced when someone really professed a need for it specifically and in a personalised way, according to their consumer preferences, i.e. when a Jane Public or Joe Citizen entered the corresponding specifications in the web-based configurator or interactive online order form. In such a scenario, not only would the production of these two items then be set in motion, but there would also be a certain degree of transport to be organised: firstly, between different companies and production locations (because the metal sheet must get from the steel plant to the car plant,

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and because a certain garment has been ordered together with a certain zipper matching its colour) and, secondly, from the end producer to the proud buyer of a car or the enthusiast for the outdoors.

In a global economy with differentiated value chains, the management of such interlocking operations may nevertheless be highly complex and elaborate (and expensive). The more regional and small-scale the organisation of this economy, the more effort it would require. Furthermore, our imagined economic order would (hopefully), in order to save resources, constantly weigh the customisable diversity of variants against the limitation of selection options, and the sophisticated just-in-time supply of raw materials or components against warehousing. And all this would have to work with often contradictory indicators of complex eco-balances and, hopefully, be linked to the ambition to allow for a good work-life balance for all those working in this process. All this would be highly complex and inconceivable without a sophisticated state of digitalisation allowing for an adequate management of all these target dimensions.

But let us turn our mind to a more elementary, less complex level. In the context of production—in addition to it, and in very general terms—the distributive forces would encompass *all social, technical, operational and institutional processes, arrangements and measures through which (dispersed) production and consumption can be linked—temporally, functionally and geographically—in as resource-efficient and needs-based a way as possible*.

Leaving aside the fact that we would probably all struggle to articulate our own desires and real needs without the 'help' of advertising, there would be no need for any distributive activities other than these real tasks surrounding the actual production process. Of course, as the complexity of our economic order increased, the distributive tasks would also engender new activities and professions as well as the corresponding business enterprises specialising in partial sub-processes. And this would entail the corresponding training institutions or certification providers. According to the specific task, work object or work context, distinct practices and social relations would develop. Yet none of that would require any further or different analysis—despite digitalisation. The old dictionary entry from the 1980s, just like the Marx quotes dating back over a century before it, would represent adequate analytical tools as well.

Both the author of the dictionary entry and Karl Marx himself would rightfully object: wait a second! If you are talking about the productive forces, you also have to consider the concomitant relations of production, and when taking both into account you end up with the mode of production. Which bring us to our imagined economic order and capitalism. Of course, the sentence in italics above applies to capitalism as well. And yet, something is added that distinguishes capitalism from other economic systems: namely, production primarily occurs for the mar-

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ket. This applies to early and late industrial capitalism as much as to present day capitalism, or, as it is so readily referred to these days, digital capitalism.

Let us return once again to the example of customised, on-demand production in an imagined economic order and apply it to capitalism. This is technologically feasible and indeed already exists, albeit only in certain niches. Above all, however, there are many car manufacturers and even more producers of garments and textiles. And they all produce as much as possible—not only more of the same, but in an ever-renewed diversity. This is the only way to make full use of the machines' capacity—the only way for investments and innovations to pay off faster.

Yet, because so many companies, as a whole, produce too much and too much of the same, one thing becomes increasingly difficult: the entire undertaking rests on those willing to consume and pay. This adds completely different levels of distributive efforts to the equation. Efforts (and costs) that are needed to this extent only under capitalism. These efforts and activities—geared towards all-determining distribution—are informed by the principles and requirements of this economic order: namely, the commodity must be sold, and its value (the composition of which is so particular, see Chapter 3.1) must be realised on the market. Otherwise, the ultimate goal of the undertaking—turning a profit—has been missed. We are all familiar with the facets of this distribution so typical of capitalism. Much of it pervades and determines our lives: advertising and market research, target group marketing or viral influencing, additional (intermediary) warehousing and (re-)routes into other markets (or from and to cheaper production locations) or even the disposal of goods in the absence of sales etc. (see Chapter 5). All this is distribution, too, but all of it can be explained primarily by the fact that production is not guided by (real and specifically articulated) needs, but also and primarily (at least in quantitative terms) by a targeted and anticipated maximum profit. And it is these distribution-related efforts that would not exist to this extent in our imagined non-capitalist economic formation (which, admittedly, does take a degree of imagination, given the obvious lack of real or potentially viable alternatives).

In present-day advanced capitalism, more and more such distribution-related activities are occurring, all in pursuit of one central aim: market success. In the context of production—in addition to it, and in very general terms—this would mean: *the distributive forces comprise all social, technical, operational and institutional processes, arrangements and measures intended to secure, as far as possible, risk-free maximum value realisation on the market.*

If we were to define distributive power (or the distributive forces) from this perspective, in analogy to the dictionary entry quoted above, this might read as follows (all changes and amendments compared to the original quote are in *italics*):

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> "1. The *distributivity* (of social labour); 2. The *distributive* capacities of a social formation […] which include the totality of the labour forces and occupations) and the means of *distribution* of a given country or epoch; 3. The system that connects the labour forces and the means of *distribution* (*and the latter, in turn, with the labour of consumers*) and in which the relation between human beings and *the distributed and consumed* objects and natural forces is expressed'. The term, Lefebvre continues, thus refers to '(*distributing*) human beings, the *procedures (with or through which they distribute or motivate other people to consume)* and the relations between humans and those *processes of distribution/consumption and the distributed/consumed objects* that are reflected in technological knowledge or in knowledge per se, i.e. in science and technology *as well as in consumption practices*." (Lefebvre 1987: 1065; translation amended)

This could almost be broken down into a kind of research programme, as it would appear fairly easy to deduce operationalisable questions and link them to existing indicators, or indicators to be devised, and/or data to be collected.

For example, one economically intriguing question with regard to *distributivity* would be how much value (in relation to expenditure) is actually realised. And, more specifically, we could ask how many goods/services are 'transported' to the place/time of their consumption. Another interesting aspect would be the ratio between produced but un-realised values, or that between the consumption enabled by distribution and independently existing yet unsatisfied needs.

Likewise, we can conceive of verifiable target figures pertaining to the dimension of *the distributive capacities* of a social formation or national economy: how high is the proportion of labour forces and qualifications working in and geared towards distribution, and how high is that of activities related to distribution within other jobs and professions? What are the relative magnitudes of the means of distribution used for distribution and the means of production used in production? Or, similarly, the relative quantity or range of the means of distribution employed for distribution and successfully distributed goods? Eventually, the ratio between produced versus successfully distributed value could become the more general study focus.

At the third level, our investigative gaze ought to focus on the relation between the labour forces and the means of distribution used. For this purpose, comparisons between labour forces in commercial distribution, in real distribution and in production would be helpful, say, with a view to differences and similarities regarding income, skill levels and qualification, labour capacity, labour quality and so forth, though such a comparison would also have to take into account opinions and mindset. Also relevant would be the relationship between consumers and the means and objects of distribution as well as their practices and motives of consumption. And in those cases, in which individuals perform both roles simultane-

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ously, the personal inner tensions and conflicts between their role as a consumer and as a distributor would merit interest. Here, intersecting with the subsequent level of analysis, the influence of the development of the distributive forces on the productive forces and the interplay of both would need consideration.

Regarding the institutional and structural level, further research questions would arise pertaining to the *relation between distribution capital and production capital*: for example, with a view to economic relations such as competition, capitalisation and market(-shaping) power, and industrial relations. Added to this are questions of social embedding such as political participation, the influence of lobbying, forms of legitimation and social status.

In analogy to the above, these questions could be expanded to include the relation between national economies that are more successful at distribution versus the ones that are more successful at production. The levels of the individual enterprise and of the national economy could then converge in research on forms of distributive and productive forces along global value chains.

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8. The Distributive Forces in Digital Capitalism: Some Empirical Illustrations

There are three levels particularly relevant for an understanding of digital capitalism: the company level (GAFAM and the platform economy), the digital technologies and their potential, and work itself. In this chapter, I consider these three levels—as a test case, so to speak—through the distributive-force lens. My aim is not to replace the corresponding approaches and interpretations that exist already but, at most, to complement them. Above all, I do not here seek to present a profound empirical study of the processes and objects concerned. Instead, I will test the adequacy of the distributive-force lens: does this analytical approach really help us in gaining a new understanding of empirical phenomena and thus of what is new about digital capitalism? Or is this nothing but a purely theoretical analytical concept? These questions cannot be comprehensively answered here—let alone with regard to each and every empirical detail—nor is this my intention. I will illustrate, rather, what and how much the distributive-force perspective can teach us about what is new and unprecedented in digital capitalism.

To start off (Chapter 8.1), I compare the key performance indicators (KPI) of the GAFAM corporations, seeing as they are regarded as the most important protagonists in almost every analysis of digital capitalism. This conventional economic inspection, however, neither suffices to explain the differences in the figures between the companies considered nor does it contribute anything substantial to an understanding of digital capitalism. Correspondingly, the analysis then shifts to a political-economic perspective as developed in this book. Based on the theoretical reflections regarding the blind spots of value realisation (Chapter 5), the second section (Chapter 8.2) is about 'brushing across' the KPI and pinpointing the catalysts for the promised market expansion: the corresponding empirical answers include venture capital, or risk capital, as well as patterns and strategies of ubiquitous consumption. This gives us the opportunity, in a third step, to demonstrate, based on the three theoretically expounded distributive forces (see Chapter 6), that the digital business models of GAFAM and platform providers (as well as a highly diverse range of digital technologies, albeit ones closely bound up with production in the form of Industry 4.0) are unmistakeably aimed at value realisation, not value generation, and combine a wide variety of distributive forces. In this

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context, we will take a closer look at Amazon (Chapter 8.3)—which constitutes, from the perspective of the distributive-force approach, a case apart and a new form of commercial (or merchant) capital distinctive of digital capitalism.

8.1 GAFAM and the platform economy

Gadgets like smartphones or tablets aside, platforms—in all their different forms and variations—are without question the most visible and common everyday phenomenon of current digitalisation. As discussed earlier (see Chapter 2.4), it may therefore make perfect sense to speak of platform capitalism, if we are analysing these platforms in particular. What is less justifiable, however, is to transfer this term, with claims to comprehensive validity, to social and economic development as a whole. For, as significant as platforms may be, they cannot be equated with digital capitalism. Nor are they all the same, even though the respective digital infrastructure is always platform-like (but isn't everything on the Internet?), and they can pursue very different business models. Besides, platforms cannot simply be equated with the companies often referred to by the acronym GAFAM. Not all companies that are part of the digital economy and whose shares are top-rated—at least from an analytical vantage point—have attained this status primarily or exclusively through platform activities. This forces us to differentiate.

Digital capitalism is often referred to synonymously with (or in contradistinction to) the no less ostentatious term 'platform capitalism'. But what actually counts as a platform? And why? To Shoshana Zuboff (2019), platforms represent the base of *Surveillance Capitalism*. Ulrich Dolata sees two functions converging in Internet corporations: not only the structuring and curating of social relations and social behaviour, but also the organisation and regulation of markets by private economic actors: he writes that "[…] their operators act as behavior-shaping mediators and curators of private and public life in the Internet. Privatization, curation, and commodification are what comprise the actual novelty of the commercial platforms on the Internet and what set them apart from their predecessors." (Dolata 2019: 187)

One helpful dimension for differentiating platforms is the *use of labour power*: Martin Kenney and John Zysman (2018b: 7–8), for example, distinguish platforms by the type of employment (from permanent contracts to no contracts, passing via project-based contracts), the form of compensation (from salaries and share options to the free use of a service), working conditions (from excellent to highly precarious) and the labour process (from creative work to routine tasks, from project-based work to indirect labour via use). This analytical lens allows us to ascertain whether, where and by whom any value is *generated* on or via these platforms.

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When it comes to the mechanisms of value realisation, the distinction in terms of *range of services on offer* as introduced by Dolata (2019) appears useful. He distinguishes between search platforms (Google), networking and messaging platforms (Facebook, Instagram, Twitter etc.), media platforms (e.g. YouTube, Netflix or Spotify), commercial (retail) platforms (Amazon, Alibaba or Zalando), ridesharing platforms (e.g. Uber), travel and accommodation (e.g. Airbnb or booking.com) or dating platforms (Parship etc.) as well as cloud platforms (e.g. Amazon, Web Services) and, finally, platforms for crowdsourcing and crowdfunding such as Mechanical Turk or Kickstarter (see ibid.: 183).

Both proposed typologies are productive and extremely helpful for the empirical research on platforms and their different forms. That said, they do somewhat neglect the demand side: who has the need, and why, to work on or for one platform or another (labour force / user perspective)? Who is willing, and why, to pay large sums of money to platforms for their services (management perspective)? This is all the more surprising given that Ulrich Dolata (2019) does in fact point out that the aggressive expansion of platforms entails fragile business models and fierce competition and—further—that creativity regarding business models is limited to ones that we have known since the Internet was first commercialised but which are now reaching their limits: advertising, subscription models and agency fees or commissions (see ibid.: 187–188).

While engaging with the issue of platforms, I will continue to pursue this question of value realisation a bit further and relate it to the distributive forces. To this end, we shall first inspect the platforms in more detail and then turn to their central lifeline—venture capital investment. I will limit myself to the five GAFAM corporations (Google, Amazon, Facebook, Apple, Microsoft) and focus on the management perspective.

I thereby intentionally exclude those business enterprises which are, in the sense of Dolata (2019), pure matching platforms. That is not to say that, for example, Airbnb or Uber represent somehow less interesting cases from the distributive-force perspective—on the contrary: precisely because they have completely withdrawn from what Karl Marx refers to as the 'ownership of the means of production' and what used to be the most characteristic feature of a capitalist or a capitalist enterprise, there would certainly be much to discuss in this regard. Nor will I consider crowdsourcing and crowdfunding platforms here. Unlike Dolata, who refers to both Mechanical Turk (a crowdwork platform operated by Amazon that specialises in micro-tasks) and Kickstarter as crowdfunding platforms, I consider it imperative, from a distributive-force perspective, to distinguish between these two types:

Crowdsourcing platforms are geared towards one particular commodity: labour power. Essentially, they promise client companies nothing less than the end of the transformation problem (i.e. the efforts towards ensuring the use of the

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purchased labour power). Historically, these platforms have, so to speak, 'freed' labour for a third time. Karl Marx had referred to wage labour as 'free in a double sense': workers are free to sell their labour power (in contrast to slaves or serfs), but also free of owning any means of production (and thus dependent on selling their own labour power). In crowdwork, you no longer sell the commodity labour power, and you are now also freed from a work contract and workplace control. And free indeed to bring your own means of production (computer, software, Internet access)—and this, again in a double sense, simultaneously represents the precondition for participating in the new liberation. From this angle, crowdwork and ridesharing platforms—which Dolata regards as different types—would appear ultimately rather similar. Besides, crowdworkers express very much the same notions of fairness as normal wage earners do (see Pfeiffer/Kawalec 2020).

Crowdfunding platforms, by contrast, are a typical example of the many grassroots approaches that have emerged time and again over the history of the Internet, only to end up as a business model with new and entirely different objectives. Originally, crowdfunding platforms were meant to help people with good ideas but no capital or ownership of means of production to become entrepreneurs. This was supposed to free them from having to collect the start-up capital from profit-oriented venture capital investors or security-oriented banks and allow them to collect the necessary funds from a large number of micro-investors or via pre-orders instead. Those applying for funding on the major platforms of this type (Indiegogo and Kickstarter) these days often include already established companies that are simply testing the market suitability of one of their product variants (the more funding, the more subsequent market success can be expected) and are thereby able to reduce to zero the risk of failed value realisation, at least for the first production cycle.

These questions are all quite fascinating and, when considered from the distributive-force perspective, certainly do allow for new insights regarding these two variants of platforms. Nevertheless, here I will limit myself to GAFAM, heeding the advice from Kenney and Zysman (2018b) to clearly distinguish between platform companies and the platform itself. For example, Google represents a search platform, fully in Dolata's sense, and yet Google LLC, or Alphabet Inc. (really, it would have to be AAFAM, not GAFAM), as a corporation, also owns the media platform YouTube. Besides, I am not seeking to elaborate a detailed typology of platform models but rather to develop new and other levels for an understanding of digital capitalism by adopting the distributive-force perspective elaborated in these pages. To this end, it is more conducive to compare different companies that are paradigmatic of digital capitalism than different platform types.

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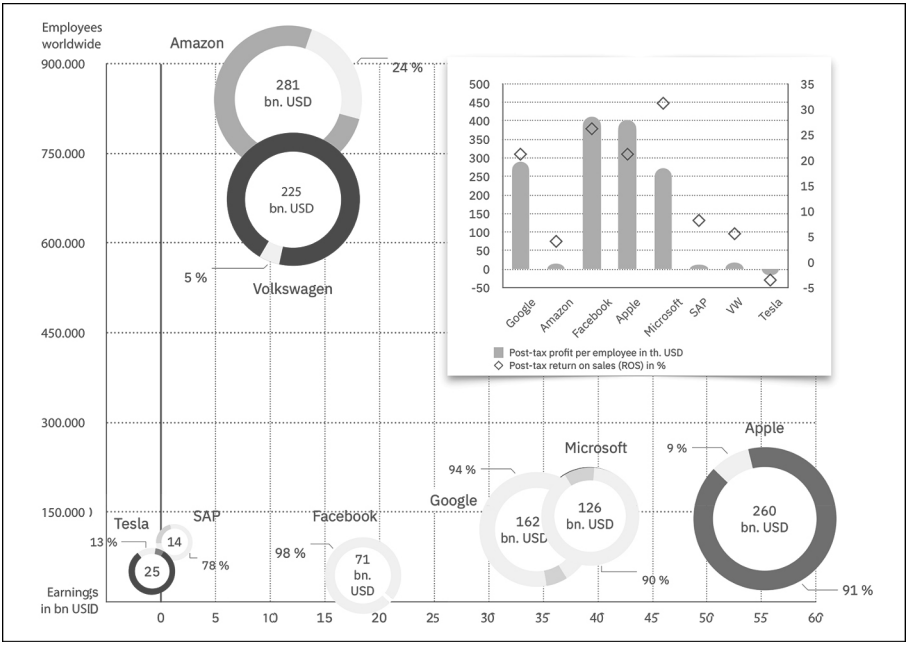
Fig. 5: Key performance indicators (KPI) of GAFAM and other companies



Data basis: Annual reports of Alphabet (2020), Amazon (2020), Apple (2019), Facebook (2020a), Microsoft (2019), SAP (2020), Tesla (2020), Volkswagen (Volkswagen AG 2020).

To start off, let us consider these companies with a view to their KPI. The *large chart* in Fig. 5 visualises data based on the 2015 annual business reports of the GAFAM companies, (Alphabet 2020; Amazon 2020; Apple 2019; Facebook 2020a; Microsoft 2019),[1] complemented by figures for SAP, Tesla and Volkswagen.[2] The

1 The data used here are based on the total data available at the end of the calendar year 2019; minor inconsistencies with other accounts may owe to the fact that financial years in some cases differ from the calendar year; Apple's fiscal year, for example, ends at the end of September, and Microsoft's at the end of June. My own representations and ratio calculations are based on the companies' annual reports cited in the text (as of December 2019), in part complemented by data taken from Ulrich Dolata (2019: 185) and data pertaining to the data-driven shares of revenue as according to LSPdigital (Katschker 2020).

2 This is based on the numbers, indicated in euros, contained in the annual reports for 2019 (SAP 2020; Volkswagen AG 2020)—converted to US dollars using the online currency calculator on finanzen.net and the given exchange rate on 31 December 2019—as well as data from the annual report issued by Tesla for the same fiscal year (2020). Needless to say, figures from annual business reports provide only a rough overview: not only are they optimised in terms of tax efficiency and with a view to stock market regulations and shareholder interests, but the multiform net-

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diameter of the rings in the chart signals the companies' revenue in billions of US dollars; their stated net earnings (in billions of US dollars) are indicated by their position on the x-axis and their number of employees worldwide by the y-axis. Furthermore, the small circular charts inside the rings, based on estimates by data analytics company LSPdigital (Katschker 2020) as well as my own, indicate the share of data-driven revenue.[3] The *small chart* in the top right shows the calculated ratios of per capita earnings per employee and the return on sales (post-tax profit share of total revenue). Or, in other words, what is depicted here as a ratio is the extent of successful value realisation on the market. All subsequently represented economic data intentionally pertain to the business year 2019 so as to avoid any distortions owing to the coronavirus crisis.[4]

Intuitively, most people would probably expect Google (or Alphabet 2020) to come out in the lead from a comparison of the different companies considered here. After all, some 118,899 employees generate 94 of the company's data-driven revenue. A total of $134.8 billion, or 83.9 per cent of the company's total revenue, is declared as advertising revenues (see Alphabet 2020). At $161.9 billion in annual revenue,

work structures of subsidiary companies and outsourcing used for services essential to the business model likewise allow us only a partial insight into their actual operations. However, since all the companies considered are likely to pursue similar strategies, we can be optimistic about discerning certain tendencies nonetheless—which is all we seek to achieve at this point.

3 Based on SAP's business report (2020: 13), the company's data-driven revenues amount to 78 per cent of total revenue (or €12.7 billion in 'product sales' of the €16.2 billion total revenue). The figure for Volkswagen is only a rough estimate; it is likely that financial services (15 per cent of total revenue) and the vehicle segment (85 per cent of total revenue) also entail, at least in part, data-driven revenues, but these are not broken down explicitly in the report and they are probably so strongly integrated in real terms that these activities would hardly function as a business model in its own right. Here we rely on a rough estimate of a share of around five per cent of total revenue.

4 This entails additional income particularly for Amazon, allowing Jeff Bezos what must be an historically unprecedented leap in wealth: even though he was already the richest person on the planet, he actually increased his net wealth by $13 billion in just one day in July of 2020—the greatest one-day increase in an individual's wealth ever recorded since the inception of the Bloomberg billionaire index (see Pitcher 2020). All of this occurred, of course, against the backdrop of a US economy that has been declining ever since the global economic crisis. Jeff Bezos's personal wealth is greater than the value of companies such as Exxon Mobil, Nike or McDonald's (see ibid.). Besides Bezos, there are also other US billionaires who have greatly benefited from the Covid-19 pandemic (see Collins et al. 2020: 10–15). Moreover, quarterly reports for autumn 2020—the first to actually reflect the impact of the first wave of coronavirus infections—confirm that revenues and stock ratings were strongly influenced by the pandemic (or, at least indicate that this is the common interpretation among businesses and analysts). According to a compilation produced by Business Insider (Holmes 2020), the numbers for GAFA companies were mostly on the increase, even exceeding expectations: Google/Alphabet recorded a rise of about 14 per cent compared to the previous year; for Amazon, the increase was 37 per cent, for Facebook 22 per cent (despite slightly declining user numbers), and for Apple around 19 per cent.

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however, Google ranks behind Amazon and Apple, and, at $34.3 billion in net earnings, behind Apple and Microsoft. Google also lags far behind Apple with regard to profit per employee, at $288,817, while the two are just about head-to-head concerning (post-tax) return on sales (ROS), at 21.2 per cent. Google's business model as an advertising platform is mainly geared towards the Business to Business (B2B) segment, with users both being the target group and generating the content.

Amazon (2020), by comparison, is almost off the scale to the top left: it has by far the highest revenue ($280.5 billion) and number of employees (840,000), yet its profit per employee ($13,798) and ROS (4.1 per cent) are the lowest. It is probably widely understood that this is not because the wages Amazon pays are ruinously high. What is more relevant, it appears, is that the company only generates 24 per cent of its revenue from purely data-based activities. Figures pertaining to specific revenue shares for the company's various business fields (see ibid.: 38) are only sparsely disclosed. Amazon generally divides its business activities into *Product Sales* (revenue share: 57 per cent) and *Service Sales* (43 per cent); moreover, according to the business report, the cloud service AWS generates $35 billion, or 12.5 per cent of annual revenue (see ibid.: 68). Likewise, the question of whether B2C and/or B2B is (more) dominant is also somewhat more complex. We will shortly return to Amazon in more detail (Chapter 8.2), but enough pure numbers for now.

Facebook (2020a) generates almost all (98 per cent) of its revenue from data-based activities. At $70.7 billion total revenue, it is the smallest among the GAFAM corporations. Facebook shows its strength elsewhere: each of the 44,942 employees generates some $411,419 per capita profit—the highest figure among the five Silicon Valley tech giants.[5] Similarly, despite being the smallest of these corporations, Facebook ranks second for ROS (26.2 per cent). As is the case with Google, its service is mainly oriented towards B2C, whereas the turnover in advertising revenues is clearly a B2B market.

Apple (2019)—with the highest net earnings ($53 billion) and second-highest revenue ($260.2 billion)—is the only one of the five GAFAM corporations to report that hardware accounts for a substantial share of its sales (91 per cent).[6] Thanks to outsourcing and contract manufacturing, however, very few of the 137,000

5 The business consulting firm Deloitte (2015) seeks to illustrate, based on the example of Facebook, that it is insufficient to consider platforms merely with respect to their own revenues and own staff numbers. This "narrow impact", Deloitte explains, is usually markedly smaller than the "broad economic impact" which platforms help create for other businesses. According to this rather generous calculation, Facebook provided more than $51 billion in total revenues for third-party companies and secured or created 783,000 jobs in the 28 member countries of the EU in 2014 (ibid.: 3). Apart from platform and connectivity effects, the impact was the most pronounced in the area of marketing, accounting for $27.7 billion and 338,000 jobs (ibid.: 7).

6 Likewise, Amazon (e.g. Echo, Kindle), Google (Google Home, Google Phone, Google Nest, Pixel Slate etc.) and Microsoft (Surface laptop, Xbox) also generate revenues through their own hard-

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employees actually work in the production of this hardware. Despite the still strongly material base of its business model, Apple reports the second highest profit per employee ($403,358) and ranks third for ROS (21 per cent).

This leaves *Microsoft* (2019): although the company may enjoy the least 'hip' image among the Big Five and ranks next to last for revenue ($125.8 billion), above only Facebook, a different picture emerges when we consider how much of this revenue is held onto: a total of 144,000 employees generate net earnings of $39.2 billion. Microsoft thus ranks third for profit per employee, at $272,500, and leaves the rest of the GAFAM companies far behind with regard to ROS, at 31.2 per cent. The strategy of creating technological dependencies over decades, coupled with licence fees, seems to have paid off. Around 90 per cent of revenue accrues from purely data-driven business activities, while a large proportion of the business model is likely oriented towards B2B markets.[7]

In the chart, we can also see the figures for SAP, the only globally important software company from Germany, and for Volkswagen and Tesla, as examples of traditional and disruptive material production, respectively. The different dimensions of these companies aside, the following observations are intriguing:

SAP (2020) shows the lowest revenue of all the enterprises considered here, at $14.5 billion, while its number of employees (100,330) is more than double that of the smallest of the GAFAM corporations (Facebook). With net earnings per employee of $11,861, the software company belongs to the second tier, ranked even behind Amazon. Given that its target group (B2B) and a central element of its business model (business software and licences) resemble those of Microsoft, the difference in ROS is particularly striking here: at 8.2 per cent, SAP manages to hold onto less than a third of Microsoft's 31.2 per cent.[8] Microsoft, however, does have a second target group (B2C).

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ware, but it accounts for a negligible share of total sales and is thus mostly not even separately declared in the reports.

7 Microsoft (2019) divides its segments into Productivity and Business Processes (33 per cent), Intelligent Cloud (31 per cent; including, among other things, GitHub) and More Personal Computing (36 per cent; including, for example, Windows licences, devices such as the Surface tablet, or computer equipment) as well as Gaming (Xbox hardware, games etc.; see 4–5). Incidentally, the purely hardware-related sales cannot be accurately ascertained based on the annual business report. Although the report indicates that some $6.1 billion (and thus 4.8 per cent of total revenues) (see ibid.: 89) are generated via 'devices', the item 'gaming' also entails unspecified revenues related to the Xbox as a device, while the item 'Server Products und Cloud Services' also contains an unknown share of total revenue for server hardware. In both cases, the share is likely to be below five per cent; we thus assume another aggregate 5 per cent, which increases hardware's share of total revenue to about 10 per cent.

8 As mentioned before, what is compared here are net earnings, which may explain part of the difference; on this issue, see also the more elaborate reflections (Chapter 2.4) based on a study of the tax-avoidance schemes pursued by Google and other business enterprises (see Tørsløv et al.

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Moreover, looking at the relative figures (net earnings per employee and ROS), it is interesting that Amazon, Volkswagen ($18,623; 5.6 per cent) and Tesla ($-17,932; -3.5 per cent) are grouped together the closest and rank markedly below GAFAM. All three are oriented mainly towards B2C markets and are active in the production or the warehousing and transport of physical objects.

As the differing KPI of the largely data-driven companies already indicate, however, it is not simply a matter of material on one side, and data on the other, so to speak. In the following step, we will consider these corporations more analytically from the distributive-force perspective. Before we do so, however, a brief digression is needed, as many aspects related to the platform economy cannot be fully understood without taking into consideration two central preconditions for the market expansion it aims for.

8.2 Catalysts for value realisation

"The enormous expansive force of modern industry, compared with which that of gases is mere child's play, appears to us now as a *necessity* for expansion, both qualitative and quantitative, that laughs at all resistance. Such resistance is offered by consumption, by sales, by the markets for the products of modern industry." (Engels 1987: 262) We have already dealt with this rather fundamental problem that time after time causes crises (see Chapter 5). On average, the volume of goods produced is always greater than that which can be consumed. That is what necessitates permanent market expansion, which ultimately founders on engendering the equally necessary expansion of consumption. Friedrich Engels' gas metaphor directs our attention to two *catalysts for value realisation* that have taken on a new quality under current capitalism and cannot be separated from the business models and technologies of digitalisation: *infinite investment* and *ubiquitous consumption*. In combination, they promise unbridled market expansion, the overcoming of the consumption cap and thus—if perhaps not the end of the system's susceptibility to crisis—at least a minimised risk. But whether (and when, and for whom) this promise can be fulfilled is another question.

Elsewhere (see Chapter 2.4)—namely in our discussion of Betancourt—I emphasised that venture capital investments are not comparable to investments in stocks. It is not only earnings that are being promised, but market expansion and a permanently exclusive market (overlapping but not identical with the plat-

2018). And this is not just the result of tax loopholes, but also of the respective national legislation, which in the US particularly benefits the super-rich: tax liabilities of American billionaires, measured in per cent of their total wealth, declined by 79 per cent between 1980 and 2018 (Collins et al. 2020: 9).

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form economy). In that same chapter, I argued that over-rated stocks and the sheer masses of venture capital feed on two sources:

Firstly, inconceivable amounts of idle capital, literally 'left over', are needed—that is, after the (mostly extremely optimised and thus very low) tax has been paid, all reasonable classic investments in one's own company have been made and one's private luxury consumption needs have been satisfied.[9] Ultimately, it all stems from a cycle of value generation and achieved value realisation that has been ongoing for a very long time, in combination with the appropriation and constant accumulation of surplus value in the hands of only a small number of people.

Secondly—as it were, the flipside of this successful cycle—value realisation must have become more important than value generation. This considerably increases the willingness to invest whenever the investment's main promises pertain to the three motives of the distributive forces: when there is a prospect of successful and lasting market expansion (see Chapter 5.1); when the objective is a novel or particularly promising form of stimulating consumers' willingness to consume, combined with—as far as possible—permanent incitement of use-value appropriation (see Chapter 5.2); and when the investment promises further scaling of the first two motives in the long term and thus offers a chance of outwitting the system's natural tendency toward crisis, at least in the individual investment environment (and even if only for one's remaining life span; see Chapter 5.3).

We have already argued (see Chapter 3.1), proceeding from Mazzucato (2015), that risk investment has little to do with actual risk (and why this is so). We have seen (see Chapter 4.2) how venture capital has long been flanked by discourses of legitimation surrounding disruption and deregulation (Barbrook/Cameron 1996; Murnane 2018), while its weight is increasingly reflected in institutionalised relations between tech companies and venture capital firms (Rothstein 2020). There is no need to repeat all this here. Yet, ever since the bursting of the so-called dotcom bubble in the context of the New Economy (how antiquated that term sounds today!), we all realise that excess capital in large quantities on one side and seemingly guaranteed value realisation on the other must ultimately lead to investment bubbles (the risks of which, in the case of the bubble bursting, are usually then borne largely by those who have neither contributed to the emergence of these bubbles nor benefited from them).

In public and political perception, start-ups and the concomitant investment are largely still associated with the idea of ground-breaking technological inno-

9 Even voices from within economics lament the 'almost religious fervour' with which businesses still pursue the goal of a more efficient use of capital, which has by now become a veritable "capitalist's dilemma" (Christensen/Bever 2014); according to the authors, most investors and executives continue to "think of capital as their scarcest resource" (ibid.: 5)—but the opposite is true: "We are awash in capital" (ibid.: 6).

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vations, although this is in fact rarely the case. Many start-ups launch business models that are already being pursued by others, with only minor nuances distinguishing them from their competitors. And, indeed, often there is nothing technologically new about them either: yes, they all rely on the Internet; yes, they all concern data-based business models and, yes, they are increasingly also about the use of Artificial Intelligence (or so goes the claim).

Joseph A. Schumpeter's notion that only what is realised on the market constitutes innovation (and technologically novel inventions remain irrelevant in the absence of such market success), assigns the entrepreneur precisely this role: not to be inventive themselves, but to be "exploiting an invention" (2003: 133) owing to others and creating markets for (or through) them.[10] But the difference, firstly, between the narrative and the economic reality and, secondly, between the distinct corporations considered here, lies in how loud, exaggerated or realistic the promises of market expansion are. For there is nothing that indicates any more clearly just how high the expectation of a promised market expansion is than the unbelievable sums of venture capital that flow into digital business models, particularly in the United States. Venture capital is often regarded as the "Holy Grail of Scale" (Gavet 2020: 67), while the major investment firms are correspondingly referred to as "Monsters of Scale" (ibid.: 7).

In 2019 alone, firms in the US digital economy raised almost $51 billion in venture capital (NVCA 2020: 20). Although this capital came from 272 funds and 7,960 active investors, a strong concentration can nevertheless be identified here, too: some 28 per cent of total invested capital in 2019 came from the eight largest investment funds (see ibid.: 13). A complex network analysis (see Ferrary/Granovetter 2009) provides evidence that Silicon Valley's venture capital firms also assume other functions besides funding start-ups. For example, they select the most promising projects and thereby signal to other investors where the best investment opportunities are. According to Maëlle Gavet, who has herself worked

10 Investments into the inventions side of things also seem to be going out of fashion. One study, however, points out what we may call 'the tendency of the rate of ideas to fall': empirically speaking, there is a quite clearly discernible trend towards increasing research efforts, on the one hand, and declining research productivity, on the other (see Bloom et al. 2017). This is illustrated by the example of Moore's Law: today, the number of labour forces required in research to achieve the famous doubling of the component density of computer chips every two years is more than 18 times what it was during the early 1970s. The study concludes that it is becoming increasingly difficult to come up with the right ideas and, more importantly, achieve the exponential growth these ideas are supposed to advance. Others claim that "[c]apitalists seem uninterested in capitalism"—at least in the sense of "supporting the development of market-creating innovations." (Christensen/Bever 2014: 8), emphasising that the operational focus in well established companies has far too long been placed exclusively on performance and efficiency increases, and far too little on market-creating innovations (ibid.: 6–7).

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in the venture capital scene for many years, business culture is imbued with the hunt for "hyper growth", by which she refers to a growth rate of 40 per cent on average for at least one year (see 2020: 70). But it is the industry's "dirty secret", the author explains, that business valuation is usually arbitrary and has more to do with price dynamics than with real value (see ibid.: 71). Evgeny Morozov (2017) highlights an aspect that, in his view, most investors are not even aware of: namely, that the ultimate aim of many start-ups' business model is to eventually be bought out by one of the large tech corporations. In this case, they are not about profitability, but about configuring their business model in a way that makes it compatible with the expansion strategies of Google or Facebook.

In the context of the dot-com bubble, the German sociologist Stefan Kühl developed his concept of Exit Capitalism (Kühl 2005, 2003). Here, he contends that business enterprises have always pursued strategies of tapping other funding sources—such as public subsidies or the capital market—in the absence of operating profit. The aim is merely to maintain solvency (see 2005: 168). According to Kühl, profit thus represents a myth of organisational sociology. One provocative assertion of his analysis—namely that of "Profit as Myth" (ibid.: 147)—could suggest that his argument denies the significance of value realisation and profit. But far from it: Kühl regards the risk-capital firms merely as other actors that enter the game, who are bent on market expansion and profit. After all, start-ups seeking investors are often forced to follow a 'growth model' as soon as they receive their first funding. A start-up "reporting profits, according the logic of the venture capitalist, can be a negative sign" (ibid.: 76). So, profit is anything but obsolete, and nor is market expansion: investment in companies that can potentially achieve large-scale success on certain commodity markets does, by all means, remain a strategic goal. Should this turn out favourable, the start-up and its investors can draw profit from the market activities and continue this market expansion and value realisation for a longer period of time; if not, this is not a problem, at least not for the initial investors, as their profit is secured by a strategically selected exit date.

In this case, the objective is not the start-up's market success: the start-up itself becomes the product. Stefan Kühl's argument could also be reversed: because market success and market expansion have become unreliable options, all other sources are developed (yet the striving for solvency, which Kühl sees as the underlying motivation, cannot alone account for the complexity of the venture capital game). At the end of his analysis of actors, dynamics and processes—which largely remains valid today—Kühl emphasises that the term "exit capitalism" applies only to this kind of investments and is no "megatrend" to describe "the entire economy or even society as a whole" (ibid.: 55). This is accurate: while venture capital investors and their strategies do influence the world of start-ups, the crucial underlying dimensions can be found elsewhere:

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Firstly, (individual or institutional) investors are able to deploy millions and even billions, which they (or their ancestors) were able to successfully extract from the endless cycle of value generation and value realisation. The explosion of the total amount of money and purely speculative earnings aside: at some point, someone produced values that were then realised on markets, which makes such investments possible in the first place. Given that the financial economy and the real economy are increasingly drifting apart, the proportion of such values may become smaller, and the points of contact less direct and less visible—while the bubble grows and grows. Still, the original establishment of the entire speculation game and its persistence in the long run was and is only possible because somewhere, someone was and is generating and realising values.

Secondly, because such staggering investment sums are being channelled into start-ups, some of these start-ups are able to orchestrate market expansion (without even turning a profit), effectively restricting the market expansion (or at least market consolidation) of the dominant corporations.[11] This severely impedes the value generation and value realisation of the affected companies (which is, of course, the stated goal of frequently invoked 'disruption') and further increases the susceptibility to crisis of the system as a whole—even, or rather, particularly if these start-ups ultimately go bankrupt and the investment was worthwhile only for a small number of investors with a successful exit strategy.

Thirdly, ever since Stefan Kühl's analyses, one thing has become increasingly clear: the venture-capital game has long become a business model that itself increasingly requires more and more distributive forces.

As a glance at the dynamics of risk capital has shown, even when vast quantities of capital are 'left over', it appears to take rather convincing arguments—or rather, promises—to attract backing for one horse rather than another (or: to pick out the one supposed unicorn among the many horses). This requires, on the one hand, the distributive force *control and prediction* for managing the permanent analysis of all newly emerging start-ups, the assessment of investment risks, and the calculation of the perfect exit point—seeing as all of this, of course, must be surveyed, calculated and forecast. On the other hand, *advertising and marketing* are also essential, because the start-up (or, in other words: the 'product' called a

11 Those benefiting the most from the venture capital-driven exit and market-expansion strategies are businesses specialising in the distributive force advertising and marketing: according to an analysis conducted by the market research firm Nielsen on behalf of the journal Capital, the battle between the delivery services Lieferando, Lieferheld and Pizza.de over the German market between 2010 and 2019 alone cost more than €780 million in advertising (see Wirminghaus 2020), with some €175 million just for 2018. It was no coincidence, then, that in 2019, Deliveroo withdrew from the German market and Delivery Hero sold its brands Lieferheld, Pizza.de and Foodora to the Takeaway Group, which in turn integrated them into their subsidiary Lieferando; as a result, Lieferando now essentially rules the market without competition.

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business enterprise) must be sold to investors, as the hosts of start-up companies compete not only for these streams of capital, but also for attention, and because the start-up and the investor will only form a partnership if the right promises are made by one side and the other side sufficiently believes in them. Both require very particular and sophisticated distributive forces, including specifically skilled labour forces. That is why Silicon Valley has long developed an entire eco-system of consulting, data-analytics and marketing firms. Needless to say, there are already apps that are challenging the institutional risk investors and seek to make an exit possible through a simple click, without charging expensive fees. For example, the platform *Microacquire* (2020) promises start-ups (interestingly, only those with an SaaS business model—i.e. those with already built-in ubiquitous consumption) an exit within 30 days and to connect them with individual potential investors. More than 15 KPI on the start-ups that are up for sale are offered as a basis for an investment decision, including, in particular, Customer Acquisition Cost, Customer Life Time Value and the number of customers. The promise of market expansion literally becomes the object of marketing itself.

However, the seemingly infinite investment of risk capital can only act as a catalyst for market expansion in the long run if the immanent hitherto-existing barrier to this expansion is (or, at least, is promised to be) dealt with at the same time. After all, as we have already discussed earlier (see Chapter 5): market expansion is systematically linked to risk, and ultimately inevitably represents a crisis-prone process in the long term: according to Engels, "[i]n every crisis, society is suffocated beneath the weight of its own productive forces and products, which it cannot use, and stands helpless face to face with the absurd contradiction that the producers have nothing to consume, because consumers are wanting." (Engels 1987: 269) Surely, today's risk investors must have noticed by now what Friedrich Engels already so accurately described during the last third of the 19th century. And they have. The clue is in the name: the aim of any risk investment is to minimise, through particularly prudent and ingenious analytical strategies, the risk, at least for one's own capital, that exists for any capital and thereby generate exceptionally high profit. After all, one's own successful containment of risk necessarily increases the risk of other, less successful start-ups and investors. Raising large amounts of risk capital from investors therefore always also requires convincing promises regarding consumption. Today, there are even more (digitally based) mechanisms that come into play than we have so far considered at the level of the distributive force *advertising and marketing* (see Chapter 5.2).

This brings us to the second catalyst for market expansion: ubiquitous consumption. Ubiquitous is to be understood here in its conventional sense, i.e. as synonymous with pervasive, omnipresent or inevitable. Pervasive and omnipresent signal the theological origin of the word ubiquity. That would appear quite appropriate, as we are dealing with forms of consumption whose protagonists like

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to refer to themselves as 'evangelists' and whose products and communities display many of the features of a cult or a sect. Besides that, the act of consumption as an expression of the conscious decision of rational beings falls by the wayside. It is increasingly repeated automatically, ever less as a conscious act, always only a click or voice command away. 'Inevitable' also seems appropriate, seeing as we are dealing with forms of consumption that essentially, through deceptive methods, compel us to consume, or even addict us to consumption. Yet, just as with the gas in the Engels quote, this may also mean: not noticeably so. In biology, animal or plant species that are not tied to any specific habitat are referred to as ubiquists—likewise a fitting term in the context of forms of consumption that have not only long-since shifted from the physical shop to the virtual online version, but that accompany us through our everyday lives on our wrists or seek to fulfil our every wish in our smart home. And, finally, it ties in with the old idea of Ubiquitous Computing (for the first publication on this concept, see Weiser 1991), as these forms of consumption would be difficult to conceive today had it not been for this already articulated idea of an alternative digitalisation.

Market expansion as such represents but a promise to other companies (to investors and to production capital as Amazon's customers). This B2B perspective, however, is inevitably linked to the B2C level. For the 'C' in B2C has only one function: to consume, i.e. consummate the act of value realisation—the purchase. There is no question that the distributive forces *advertising and marketing* and *control and prediction* largely aim at just that: to stimulate the will to consume, predict this will as specifically as possible, most accurately attend to it and, if possible, do so more quickly and better than the competition. The motives are old ones, but the means have been refined and perfected throughout the development of the distributive forces. Amazon succeeds in increasingly coupling this with the third distributive force *transport and warehousing*—and thereby further shortening the time between the consumption need articulated through the online purchase and its subsequent satisfaction, including through material products. This allows it to ensure value realisation even more reliably (seeing as the promptness of being-able-to-have is stylised as a value in itself by its own advertising and marketing).

One novelty, however, which appears under capitalism only as a result of digitalisation, is the coupling of purchase and consumption. While, in the past, a purchase was commonly made in a shop, in separate instances at certain times, with the actual consumption (i.e. the active appropriation of the purchased use value) being deferred or delayed, occurring in various stages or all at once or not at all, this gap is now minimised. A new dimension of value realisation is opened up: here, a new quality of market expansion emerges—yet the market expands not because the product is digital and the transaction costs are declining, but because the use itself, the act of consumption, can become the product—from the one-off buying act to the sustained and technologically compelling, repeated payment for being

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granted user rights and platform access. *The exploitation of labour is complemented by the exploitation of consumption.*[12] *And the non-ownership of the means of production (and means of distribution) is complemented by the dispossession of purchased goods.* I may think that I have bought the movie on a streaming platform or the e-book on my tablet, yet neither of them belong to me. I cannot pass them on to someone as a gift, leave them to be inherited or sell them on, as I would be able to do with the corresponding physical DVD or a book made of paper and cardboard. I cannot even be sure that I have acquired the use rights for the rest of my own lifetime. The purchased e-book may well disappear from my tablet or the respective app at any time, should the contract between the e-book supplier and the publisher change.

This immediately reminds us of the concept of 'accumulation by dispossession' put forward by David Harvey (see Harvey 2006a, 2003; Chapter 4, particularly: 154, 162–163 and 169–172).[13] This mechanism includes, among other things, the privatisation of land and communal property; the conversion of collective or public ownership rights into private ones; the suppression of alternative forms of production and consumption; financialisation (redistribution through the deregulation of the financial system); and globally orchestrated manipulations of crises with the aim of wealth redistribution from poor countries to rich ones, as well as government redistribution from bottom to top (via tax and economic policies, but also via the depression of wages in the social and public sectors). And, with a view to new and digitally enabled types of (dispossessive) consumption, we could add: the conversion of ownership forms into a long-term fee-based use permit; the refusal to grant ownership rights; and the user's loss of the freedom to control the consumer article's location, use, modification or maintenance and of the right to pass on the ownership of an item.

12 Klaus Dörre (2017) has more recently made the case for a revitalisation of the concept of exploitation in sociology. Proceeding from and engaging with Karl Marx's concept of exploitation and François Dubet's conception of "injustice at work" (2016), Dörre proposes a research heuristic that distinguishes between "[…] exploiters (appropriating entities such as private enterprises, financial market actors, the government, etc.), their profit (surplus labour within a range of differing labour capacities), heterogeneous groups of exploited (members of the core workforce, i.e. employees with a permanent contract in different segments of the labour market, precarious workers, the unemployed, etc.) as well as the institutional form of the respective class of tests of worth (degree of institutionalisation, regimes of legitimation) […]" (ibid.: 188–189, translation amended).

13 David Harvey considers these to be new forms of Marxian so-called primitive accumulation—i.e. an accumulation of capital that results not from the generated and realised surplus value created within the capitalist mode of production, but from other sources such as robbery. Given the term 'primitive', it has often been asserted that the concept denotes a phenomenon that capitalism has overcome historically, and yet, the concept has enjoyed renewed interest in more recent years (for a critical discussion of this question, see Bin 2018).

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Here, we encounter what is really new: the real change is not in the control of access to markets (market access is always regulated in some way or another), but in the form of the proprietor's ownership throughout the use of the product. When someone buys an e-book from Amazon, this latter remains the proprietor, just as the publisher remains the proprietor of the book if one were to purchase the same book from the actual publisher as a PDF subject to the corresponding DRM. Besides, exploitation by consumption does not affect only the online gaming enthusiast or the e-pub reader interested in historical novels—not only those who own only their labour power but no means of production. For it likewise affects the mid-tier entrepreneur whose business uses office software from Microsoft—although the term exploitation may seem slightly out of place here and is, in fact, not entirely economically accurate. Ultimately, it is something else that we are dealing with: the possibility of *value realisation without a change of ownership*. And this can lead to very different power asymmetries between companies, too.

Platforms only provide access and, as is the case in any market, set the rules. Digitalisation simplifies this access and makes it more easily controllable. Incidentally, the principle of not actually owning the purchased good—in the sense of a free disposal thereof—can also take effect in the form of legal regulations and may well concern non-digital products, too. This is the case, for example, when the manufacturer's warranty for the car I have bought (or company-owned commercial vehicle) becomes null and void if repairs are done by a non-licensed garage (or, say, by the company's own technician). Or, if farmers in both India and Indiana are forbidden to take seeds from the plants they themselves have grown from purchased seed and put them back in the soil. The legal (and, to some extent, biotechnological) base of the corresponding business models is the obligation upon the seed buyer to exclusively use the brand-owned pesticides with the purchased genetically modified seeds. In this context, the benefits of digitalisation are multiple: it makes it easier to monitor legally compliant use; it reduces the costs of constantly repeated value realisation; and it makes It possible, via the Internet of Things, to extend this accumulation mechanism to ever-more (including physical and low-cost) products. Yet, from the capital perspective, all these aspects constitute optimisations. The driver, or source of this accumulation lies elsewhere.

Another aspect—related to the already discussed unpaid labour in surveillance capitalism (see Zuboff 2019)—is more closely linked to consumption than is apparent on first sight. It indicates mechanisms and strategies that may be most obvious in the area of social media but which can also be found in online gaming as well as in the previously mentioned third-party tracking. This characteristic will increasingly encompass all new forms of digitally enabled consumption: inevitably, the use of purchased products (say, an Amazon Echo) or of platforms (i.e. during free-of-charge consumption) simultaneously generates unpaid labour for the real owner of the product used (in the best case serving the improvement of

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the service and/or product and, most likely, fostering the emergence of ever-new business models surrounding the productive force *advertising and marketing*). The corresponding implications for informational self-determination in B2C as well as for corporate (informational) sovereignty in B2B are not even foreseeable this point. In this sense, too, consumption becomes ubiquitous, for what used to be separated—consumption as a purchase act, consumption as the appropriation of use value, and surplus value-generating labour for others—can now occur simultaneously. Examining the full range of the new forms of consumption made possible by digitalisation would certainly fill another book. Hence, I will limit myself to one central aspect here: addiction as a method.

The US docudrama *The Social Dilemma* (Orlowski 2020), released in 2020, critically addresses the effects of social media, blending the dramatic plot of a play-like rendering with interviews with industry insiders such as Tristan Harris (formerly of Google), Tim Kendall (formerly of Pinterest) and Justin Rosenstein (inventor of Facebook's 'Like' buttons) and critics from other areas such as sociologist Shoshana Zuboff or legal scholar Rashida Richardson (AI Now Institute etc.). The film alleges the intentional fostering of addiction-like behaviour in order to keep people on the respective websites for as long as possible. This is most trenchantly illustrated by the question raised in the film of which industries call their customers 'users'—the answer being, drug trafficking and social media.

This phrase was probably originally taken from a blog post with a slightly different wording: "Drug Dealers and IT are the only people who call their customers 'users'." (O'Leary 2012) This witty remark aside, there is reliable evidence of parallels between these two (respectively, illegal and legal) economies, though they relate less to the motive of getting people addicted than to structural similarities between the industries. They were identified by Tom Wainwright (2016) in his comparative analysis of the operations and the economics of the value chains of Walmart and Colombian cocaine cartels (see ibid.: 9–28) and of the franchise strategies of Mexican cartels and McDonald's (see ibid.: 133–148).

A few weeks after the release of *The Social Dilemma*, Facebook (2020b) felt compelled to release a reply denying any deliberate encouragement of addictive use of social media: generally, Facebook stated, the film fails to offer a nuanced representation of the technology, instead unjustly blaming social media platforms for complex social problems. Above all, and presented as the first of the seven counter-arguments, the corporation emphasises: "Facebook builds its products to create value, not to be addictive." (That is to say, value *instead of* addiction; ibid.: 1) However, this is precisely to miss the film's central criticism, as it seeks to show just the opposite, namely that the strategic encouragement of addictive behaviour is what creates value (i.e. value *through* addiction). Facebook then lists several examples to illustrate that it has no interest in prolonging periods of use—the objective being "[to] offer value to people, not just drive usage" (ibid.). Yet this is not a convinc-

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ing counter-argument either, for no one has suggested that the motive for longer use periods is simply to achieve a longer duration of use alone. But for a company that makes its money from ad revenues, the duration of use translates into cash—which was already the case with old-fashioned TV advertising. And if a company is able to offer more custom-tailored and target group-oriented (and thus more expensive) advertising to its clients based on the analysis of user behaviour, it will also have a considerable interest in people using its own social media platform for as long and as comprehensively as possible.

One need not immediately associate this with pathological addiction, but the methods used for this kind of marketing do exhibit certain parallels. Yet, both the film, which, of course, presents the issue in a somewhat pointed tone, and Facebook's counter-arguments aside: there is much evidence that the allegation of strategies to get users addicted, proliferating across the entire industry, is based on very real and serious facts. The origin of such strategies can be found in the "Player Centric Design" (Schüll 2012: 52–75), which was already used in the design of slot machines in Las Vegas to increase the "*continuous gaming productivity*" (ibid.: 52; emphasis in the original) of individual gamblers. In this context, productivity is not measured by the results of performed labour, but by the extent of success in "*accelerating* play, *extending* its duration, and *increasing* the total amount spent" (ibid.; emphasis in the original). This can be transferred not only to the use of social media (more frequent clicks, longer website viewing periods, thus generating more ad revenues), but also to online shopping (adding items to the shopping cart more frequently, and longer website viewing periods, thus increasing the total amount spent). The author describes the intentional and strategic pursuit of *Addiction by Design*, including through the architecture and atmosphere in gambling halls, and the specific appeal made to the emotions (see ibid.: 35–51). This logic applies just as much to our present, when we consider Customer Journey, UX Design and click baiting. Besides, the precursors of tracking and user-behaviour prediction have also been around for some time: gamblers in a casino in Atlantic City were already being tracked through the use of punch cards as early as 1985, RFID came into use from the year 2000, and, ever since 2007, the industry has been working on methods to analyse the behaviour-related data stored in the slot machines (see ibid.: 137–165).

Ultimately, the gambling hall is designed to encourage addictive behaviour. The same objectives guide what Adam Alter refers to as *Addictive Technology* (2018). Although this is not to be equated with a physical addiction to substances, it is certainly more than a mere analogy or metaphor, too. Behavioural addiction can in fact be empirically measured: after injecting a dose of heroin, the neurons in the brain of an addict flash up in similar patterns as those in the brain of a gambling addict when starting a new quest in World of Warcraft (see ibid.: 71).

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Some years ago, Nir Eyal's book *Hooked* (2014) described just how intentionally 'habit forming products' are created on the basis of ever-greater amounts of user data. An external or internal trigger initiates a certain action in anticipation of a reward. This behaviour is then rewarded in varying forms—though it is precisely the unpredictability of the type of reward that prompts the desire—which prepares the ground for the user to invest (time, data, effort, social capital or money) in the product (see ibid.: 6–14).[14] From our perspective, this can mean either surplus-value generation (unpaid work) or surplus-value realisation (purchase), depending on the business model. The frightening aspect about this is not only the manipulation of emotions consciously bypassing the rational mind, but the close link to economic objectives. Eyal (see ibid.: 15–24) lists four reasons why this strategy pays off (with the above-cited parallelism between the concept of the 'users' in IT and the drugs trade becoming even more obvious):

Firstly, the so-called Customer Lifetime Value can be increased, i.e. the revenue achieved with a single customer before they cease to use the service (be it because they quit the habit, die, or switch to the competition); *secondly*, pricing is flexible: you only pay once you have become hooked. For example, many games only charge a fee once a certain level has been reached and the user can no longer imagine spending their free time without playing this game. Business software also banks on this approach: for example, a basic version of a given collaboration software that allows for a small number of users and offers slightly limited functionality represents the equivalent of the gateway drug. Once collaborative everyday work processes are no longer conceivable without this software, a company's need to expand its use to other teams or activate additional functions considerably increases its readiness to pay; *thirdly*, Viral Cycle Time, i.e. the time it takes a user to invite another person, can be shortened. This saves advertising efforts and facilitates faster scaling of the business model. *Fourthly*, the competitive advantage, once achieved, can be maintained: the risk of a user moving to the competition decreases even if the competitor offers lower prices or better products, because changing one's habits is perceived as too great an effort.

Proceeding from insights from neuroscience, neuromarketing distinguishes between three different brains: "The new brain thinks. It processes rational date. The middle brain feels. It processes emotions and gut feelings. The old brain decides. It takes into account the input from the other two brains, but the old brain is the actual trigger of decision." (Renvoise 2008: 6) This just about defines the target dimensions. Neuromarketing—just like the approaches in the digital world described above—aims at the unconscious and (explicitly) not at reason and

14 Adam Alter (2018: 93–236) suggests a slightly more differentiated process, though it is essentially based on the same motivations: goals, feedback, progress—escalation—cliffhanger(s)—social interaction.

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rationality. And, as outdated and, considering the Enlightenment, pre-modern (if not prehistoric) as this may sound, it is perfectly compatible with a highly individualised society. For, according to the author, the old brain not only reacts very strongly to simple opposites—to inputs which can be literally *grasped*, to sensory stimuli, obsessing with the beginning and the end instead of concerning itself with the in-between, and loving emotion—but it is also and primarily "self-centred", i.e. it revolves around itself and is fully immersed in satisfying its own needs (see ibid.: 11–18).

Seeing as such stimuli do appeal to what is sometimes called our saurian brain— our primitive ego—the fear of being subjected to imperceptible and uncontrollable manipulation is as justified as the attempts to refute such an assertion are promptly made. For example, the popular-science volume *Neuromarketing for Dummies* emphasises right at the beginning that neuromarketing is not out to manipulate us all into buying things we do not need. This task is attributed to marketing: "Marketing is a field devoted to influencing people to like things, and ultimately buy things, including things they may not need." (Genco 2013: 8) Neuromarketing, by contrast, the author claims, is simply the concomitant method of measurement, simply "a new way to measure *whether* and *how* marketing is working" (ibid.; emphasis in the original). What is obviously intended to assuage us can only fail, for logical reasons alone: if X is intended to manipulate, and *X is supposed to help us to understand, through certain measurements, how that manipulation works, then X will naturally take the findings produced by *X into consideration when devising any new manipulation techniques.

This is not the place to dwell on self-descriptions, consultants' narratives or the scientific foundations of neuromarketing. Still, the term itself indicates that two very distinct disciplines (and fields of application) are edging their way towards one another, with their overlapping interests referring to 'the neural'. That is, neuroscience, which studies neural processes in the brain through imaging methods; and Deep Learning procedures, which are also referred to as neural (although essentially, they have very little in common with the biological concept of the neural). New business models and the corresponding digital tools are coming into play precisely at this interface, such as those for *Emotion Detection* via language, voice or facial expression. The associated expectations of market expansion are accordingly euphoric: in the United States alone, these technologies generated total revenues of $21.6 billion in 2019, with an expected increase of 24 per cent by 2024 (see Markets and Markets 2020). The providers considered in the market report include—alongside numerous start-ups (also from Europe)—mainly familiar names: there is Google, Apple and Microsoft, from among the GAFAM group, but also those who were already influential in the early days of digital capitalism such as IBM or NEC (see ibid.).

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A recent study predicts a sea change as a result of neuromarketing, which will change the ways in which business works for all actors concerned (see Moses/Clark 2020: 449). According to the authors, neuromarketing developed from a dubious concept to a recognised academic and commercial discipline in just a short period of time, drawing great interest and raising high expectations (see ibid.). From the analytical perspective which we have elaborated here, the most likely, if not only possible interpretation would be: while the distributive forces *advertising and marketing* as well as *control and prediction*—in new forms and drawing on scientific advances—are joining forces at the highest level and are becoming increasingly efficacious on the market, in consumption and throughout society (as well as in our minds and hearts), the scholarly engagement with these processes and phenomena is only just beginning (see Mouammine/Azdimousa 2019). The *Neuromarketing Science & Business Association*, founded in 2012, is dedicated to just that, connecting science and businesses in the field of neuromarketing around the world. The association lists more than 90 companies specialising in the field, around 46 per cent of them based in Europe, 24 per cent in South America, 16 per cent in North America and 12 per cent in Asia and Australia (see NMSBA 2020a). Anyone who hopes that this organisation's *Code of Ethics* might include the protection of end consumers will be disappointed. Rather, the association prioritises three issues in this context: "[…] to restore the confidence of the public in the legitimacy and integrity of neuromarketers; to ensure neuromarketers protect the privacy of research participants; to protect the buyers of neuromarketing services" (see NMSBA 2020b)—that is to say, the task at hand is to win public trust (reassurance), to protect the data of study participants and those businesses (a matter of course, really) that purchase neuromarketing services (why do they, actually?). The target objects—namely all of us, as buyers—do not feature among the association's ethical priorities.

Based on the examples of ubiquitous consumption, our perspective makes it possible to identify the actual economic advantages beyond operational aspects: a maximum value realisation can be secured in the long term, the costs for other forms of the distributive forces *advertising and marketing* can be minimised, the user's unpaid labour (including in the form of social capital) can be harnessed for both surplus-value generation and market expansion. Besides this, competition-related market risks cannot only be reduced, but be better anticipated and more easily controlled, too. All these advantages shift the efforts aimed at value realisation from the distributive force *advertising and marketing* to that of *control and prediction*. What might have been (additionally) spent on advertising in the past is now likely to be swallowed up by the high salaries of expert employees with special knowledge in Machine Learning or neuromarketing. Here, again, it appears that many effects create a real competitive advantage only so long as not all competitors in the business employ the same methods. Nor is there any

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

guarantee of infinitely progressing market expansion. Still, our most intimate inner self—our unconscious—has fallen prey to this manipulative encroachment for some time, without, it seems, prompting any political regulatory measures or even any serious consideration thereof. Yet, this is strongly needed, as "the attention merchants" with their "[…] game of harvesting human attention and reselling it to advertisers […]" (Wu 2017: 6) have not only come to constitute a considerable segment of the US economy (ibid.), but are increasingly determining our life and our future "[…] insofar as that future will be nothing more than the running total of our individual mental states" (ibid.: 352).

The combined effects of the distributive forces and the shifts between them can already be discerned in these examples of ubiquitous consumption. We may safely assume that, in the future, the companies with an edge over the competition will not be the ones who take the lead in specialising in one specific distributive force, but rather those who are able to focus on and service several distributive forces simultaneously and constantly generate different and new bundles of business models. To get an idea of how this may work, we shall now take a closer look at Amazon.

8.3 The distributive forces and merchant capital 4.0

The chart (see Fig. 6) illustrates how the GAFAM corporations and crowd platforms as well as the most important current digital technologies (left column) can be classified from the distributive-force perspective. The crucial factor is the actual use value for 'real' customers, i.e. the actual target group of the respective business model. In the case of a manufacturer of collaborative lightweight robots, for instance, this would refer to the companies using them, or in the case of Facebook it would be the companies who pay for advertising on (or via) Facebook (and not the users). This summary overview thus intentionally focuses on the B2B perspective (after having briefly discussed an example of B2B's systematic interlinkage with the B2C and consumption side in Chapter 8.2). The guiding question underlying this representation is: what specific functions do the services provided by the GAFAM and platform companies—as well as by digital technologies—fulfil for business customers? These functions are broken down into the following columns:

- *Functions linked to surplus value generation and the productive forces*: do the digital services help the customers become more innovative (i.e. develop entirely new sources of surplus value production)? And/or do they support business customers in reorganising their processes in a way that the (relative or absolute) share of surplus value can be increased? The analytical foundation for this step was set out in Chapter 4. So, just to reiterate what I stated earlier: the

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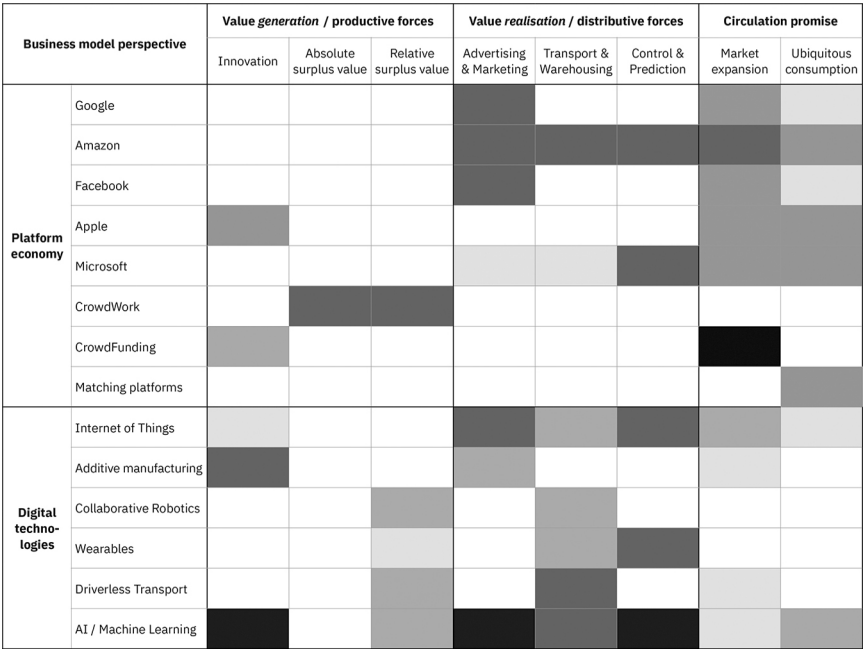
distributive forces are to be understood as part of the productive forces; we are distinguishing between the two for analytical purposes here (see Chapter 7.3).

- *Functions linked to surplus value realisation and the distributive forces*: are the business customers of the digital and platform companies being provided with or offered specific services in any of the domains of the distributive forces *advertising and marketing*, *transport and warehousing*, or *control and prediction* (see Chapter 6)?
- *Circulation promise*: does the combination of distributive forces and specific forms of digitalisation entail exceptional promises of double market expansion and/or permanent value realisation through effectively compulsory consumption (see Chapters 5 and 8.2)?

Fig. 6: Business enterprises and technologies from a distributive-force perspective



For our purposes, it is necessary to always consider both the buyer and the company perspective. After all, the question from our distributive-force perspective is not: what promises are associated with the current digital technologies? Or: how were the GAFAM corporations able to grow to such proportions on the back of digitalisation? But rather: what specific economic demand is being serviced by the business models that only became possible as a result of digitalisation? And does this help explain their dissimilarity and their varied business success? In the chart,

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the darkness of the grey colour value of a field symbolises the extent to which a company or technology offer the corresponding functions of the productive or distributive forces as a business model—or rather, service—and how closely this is tied to circulation promises. The darker the field, the more this applies.

In this analytical step, we thus intentionally ignore another level, one which nevertheless remains highly relevant in digital capitalism, namely the deployment and development of productive and distributive forces aimed at the optimisation of a company's *own* surplus-value generation. After all, both the companies providing Industry 4.0 or other digitalisation technologies and, at least in part, the GAFAM corporations represent not only distributive but also productive capital. There are two reasons for omitting this aspect here: firstly, the orientation towards organising one's own processes in a way that the maximum surplus-value generation is achieved again and again is anything but typical of digital capitalism. Secondly, we encounter this orientation as much in the small manufacturing company as in the multinational digital corporation. The methods used and the means and strategies may differ—but the objective is the same. Incidentally, the essence of this was already analysed—both comprehensively and accurately—by Karl Marx. Yet what we are seeking to discern here, from a political-economic perspective, is what is new about digital capitalism. We shall therefore limit ourselves to the services aiming at boosting the value generation and realisation of business customers.

The overview serves only as a rough classification; neither is it entirely based on hard data, nor does it represent a conclusive assessment. In the following deliberations, I will therefore not explain in detail each and every coloured field (nor the ones left blank). My aim here is to present an approximation, to illustrate tendencies. In this sense, the initial overview reveals two aspects: firstly, we generally find more coloured fields in the area of value realisation and distributive forces than in the columns depicting value generation and the productive forces. Secondly, the circulation promises are more explicit in the platform and GAFAM corporations than in the technologies (likely owing to the nature of the matter, respectively). We may note the obvious: *the business enterprises and means of production of digital capitalism seem to be clearly oriented towards value realisation.*

This is an important insight, not least because the technological facets indicated in the chart can also all be found in the concepts and debates surrounding 'Industry 4.0'. The buzzword 'Industry 4.0' itself— first coined about a decade ago in the context of the Hanover fair in 2011 (see Kagermann et al. 2011)—entails a major circulation promise: it is hoped that additive manufacturing processes and 3D printing will enable personalised products and thus create new market segments, while the Internet of Things is expected to tie markets and production together more closely and flexibly. Beyond this, there are high expectations—or rather major concerns, at least with a view to the labour market—that Industry 4.0

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will lead to immense productivity increases because, for example, lightweight and collaborative robotics promise automation even in areas that have thus far hardly been automated; because wearables might make it possible to instruct unskilled staff on how to perform complex tasks; or because maintenance intervals can be extended and planned in a more detailed manner if machine and production data have been analysed via AI or Machine Learning. These promises and expectations are also reflected in the chart, even though the outcome in reality often differs considerably, as the aforementioned future scenarios were and are confronted with multiple obstacles (see Pfeiffer 2018b, 2018a, 2016b). But even if we imagine the listed technologies as being closely linked to the shop floor, the functions and promises geared towards value realisation and the market—and thus the technologies' use as distributive forces—clearly take precedence.

Among the technologies listed in the chart, there are two that are almost inseparable from all three distributive forces and both circulation promises, albeit to varying extent: the Internet of Things and AI, or rather, Machine Learning. On the one hand, they promise, both independently and in combination, more targeted production and higher value generation—that is, through an increase in surplus value, just to be precise. More direct and flexible links to the market, which are at the centre of all usage scenarios, make it possible, on the other hand, to organise all three functions of the distributive forces more effectively and partly in combination with one another. All this becomes an expression of circulation promises that are to be realised on a new level. In the process, the other technologies are either left out or integrated into the process of value realisation via the Internet of Things, as suppliers of data (however 'big' these datasets may be), which then becomes both the object and raw material for self-learning systems.

When we consider the companies and types of platforms listed, it is not only apparent that value realisation and the distributive forces take centre stage, as expected, but also that there is a wide range of corresponding business models. Hence, an explanation of the business success and/or the valuation by investors (regardless of whether justified or not) which, as is rather common, simply points to the decreasing marginal costs, to the alleged immateriality of the products or even to the data-represent-the-oil-of-the-21st-century meme is inadequate (as seen in Chapter 8.1). Only two of the companies have a colour filling across all the fields pertaining to value realisation and circulation promises: Microsoft and Amazon. But only in the case of Amazon are most of the remaining fields also marked dark grey. We will therefore conclude this somewhat cursory interpretation of the overview at this point and, as we had anticipated, dig a little bit deeper in the following section.

Among the GAFAM corporations, Amazon is in various regards a special case (see the comparison of key performance indicators (KPI) in Chapter 8.1). Neither does the company rely entirely on data-driven business nor does it increasingly

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invent or produce its own new hardware, as Apple does, for example. That said, the significance of the physical dimension is still often underestimated in the debate about Amazon—as in the debate about the platform economy more generally. In its business report for 2019, Amazon indicates the costs for the distributive force *transport and warehousing* at $37.9 billion (see Amazon 2020: 26) and thus 13.5 per cent of total annual revenue.

Each year from 2011 to 2019, Amazon's logistics costs increased more than its total revenue: in 2011, logistics costs rose by 50.2 per cent compared to the previous year, but total revenue 'only' by 33.7 per cent. It took until 2019 before the trend was reversed: compared to 2018, logistics costs now increased by 24.6 per cent, total revenue by 27 per cent (see Ti Insights 2020a: 3). Although logistics costs were on the rise for other online retailers during this period, too, hardly anyone experienced an increase comparable to Amazon's, let alone for such a prolonged period, and even with a higher Delta than in revenues (see ibid.: 11).

In debates surrounding the platform economy, figures from investment and analytics firms as well as scholars commonly interpret the immense investments Amazon is channelling towards the distributive force *transport and warehousing* as an expression of a long-term market strategy. And they most likely are that: a circulation promise of unprecedented market expansion, which is objectively verifiable as well as discursively potent.[15] Unfortunately, the investments and their real effects are rarely critically questioned. For instance, retailers who run classic high street shops tend to have—as opposed to what one may assume—lower logistics costs (relative to total revenue) than those with multiple distribution channels ('omni-channel') or pure online retailers. The mass distribution of palletised goods to unchanging shop locations still proves to be more cost efficient than individual pick-and-pack fulfilment processes and the associated last mile delivery (see Ti Insights 2020a: 1). Although Amazon has acquired a successful US supermarket chain (Whole Foods), this enterprise is active in the foods industry, of all economic sectors, and thus in the business of handling perishable goods. Whether this proves to be an ingenuous strategy of market expansion into completely new territory or just a bad investment remains to be seen.

The exceptionally high investments could also be explained in part (and the emphasis here is on 'also', as one does not exclude the other) by inadequate or (at

15 Amazon represents a special case with regard to market expansion as well. This is usually discussed with a view to the product line, as in: from a bookshop to an online marketplace for just about everything. Yet Amazon also pursues market expansion towards new and, above all, institutional buyer groups: that is to say, alongside business accounts—which have existed for a long time are aimed at the procurement side of businesses—Amazon is increasingly targeting the public sector, seeking to forge cooperation agreements that oblige public authorities and entire municipalities to buy from the company (on this, see the study on the corresponding strategies in the United States by LaVecchia/Mitchell 2018).

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least thus far) unsuccessful automation strategies. By comparison: the annual logistics costs for JD.com, the second major Amazon counterpart in Asia besides Alibaba, have been rising largely in parallel with revenue (see Ti Insights 2020a: 8). The company Ti Insights, which specialises in analytics and consulting in the area of Logistics Service Providers (LSP), regards this as an effect of the low labour costs, but also of consequent automation strategies: for example, JD.com has invested in fully-automated 'dark warehouses', in which just four employees are able to process over 200,000 shipments per day. This is rendered possible by the standardisation of goods—or packages, rather—in terms of their form, size and weight (see ibid.: 9). Amazon itself, however, is not exactly famous for its high wages: its warehousing staff make around 15 per cent less than the same group of workers earn at other companies in the same region (see LaVecchia/Mitchell 2018: 56–58). Above all, however, in introducing collaborative robotics, Amazon (2019) is pursuing a different automation approach, claiming that such robots are already 'harmoniously' collaborating with human workers in 26 of the 175 fulfilment centres worldwide.[16] Once again, it is currently unclear whether Amazon's automation strategy will triumphantly prevail, or fail. One thing that is clear is that not even the manufacturers of lightweight robotics can confirm any productivity increases resulting from their use (see Pfeiffer 2019b). Based on available data for the year 2015, Ti Insights deduces that Amazon—taking into account its retail and logistics business alone—achieved an operating profit of about 4 per cent or less. It thus fared hardly any better than the leading providers of contract logistics services—despite being backed by much greater capitalisation (see Ti Insights 2020a: 4).

Besides this, Amazon is increasingly offering its own products for sale (after all, no one has as accurate an insight as Amazon does into what kind of products will definitely sell in large quantities).[17] However, the business report does

16 Robots would replace certain tasks, not human beings. According to Amazon, human labour would thus become easier and be relieved of unpleasant and tedious tasks (see Amazon 2019). This rather sugar-coated self-description markedly contrasts with an investigative report (see Evans 2020) which demonstrates that the performance requirements and monotonous tasks have increased particularly in those fulfilment centres that Amazon has automated as outlined above. The number of workplace accidents at automated warehouse facilities is especially high: in 2019, some 14,000 Amazon employees suffered injuries so severe that they led to sick leave or limited their ability to work. The company's accident rate is thus twice as high as the industry average, rising by 33 per cent in the automated fulfilment centres between 2016 and 2019 alone (see ibid.).

17 As demonstrated by the widely publicised case of kochmesser.de, Amazon does not hesitate to throw up obstacles to competitors' business models on its own platform, in part drawing on rather dubious methods (see Bütikofer 2015). The extent to which Amazon uses its own financial strength and the knowledge its website generates against providers/sellers on its own platform has become increasingly clear over the past few years: for example, Amazon offers its own

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not specify the proportion of these sales. According to estimates by the German Retail Federation, some 40 per cent of Amazon's online revenues in Germany are generated through the company's own product line (see HDE 2020: 25). Whether or not this applies on a global scale is difficult to ascertain. Germany is Amazon's largest national online market outside the US, accounting for $22.3 billion or 7.9 per cent of annual revenue (see Amazon 2020: 68).

Only at closer inspection do we encounter the more intriguing numbers—if, that is, they can be reconstructed from the available data to begin with. The British firm Ti Insights points out that Amazon's cloud service AWS may have generated only 13 per cent of total revenue in 2019, yet at the same time it accounts for an impressive 63 per cent of the company's net earnings (see Ti Insights 2020b). In their whitepaper, the authors from Ti Insights conclude that Amazon "remains a web-services company with a retailer attached" (ibid.: 1). They find it rather difficult "to disentangle the sales profile of Amazon with a mix of third party, electronic media and Amazon's own physical inventory"; what is certain, they state, is that Amazon's revenue simultaneously drives investments. Correspondingly, in 2019, Amazon saw an increase in the Cost of Sales of 103 per cent compared to the previous year. According to the authors, the objective of these vast investments in warehousing capacity, fulfilment centres and "new in-house, large-scale, technology driven infrastructure" is "to increase the speed of response, itself a part of an attempt to grow closer to the customer and exploit the marketing potential of devices such as Alexa" (Ti Insights 2020b: 2–3). Leaving aside the fact that Alexa is a language assistant and not itself a device—instead requiring a device to run on such as, say, Echo—there could hardly be an indicator more definitive than these figures to show that Amazon is determined to consolidate its leadership position when it comes to combining the most diverse distributive-force strategies.

We could thus assume that the revenues Amazon generates on its shopping platform mostly come from a bundle of services—performed via different and interlocking distributive forces—which Amazon offers to manufacturing enterprises. As it were: distributive-force fulfilment. Correspondingly, one might expect Amazon to advertise the listed products on the platform, to store, package and despatch the products—and charge fees from every company that uses these services. And, indeed, these fees are being charged—though not only after a service has been subscribed to, but even before that:

If, say, a small-scale book publisher manages to sell 1,000 copies of a book at €10 each, amounting to €13,000 (including shipping costs of €3 per copy), then

brand products at below market price (see LaVecchia/Mitchell 2016: 15–16), structures seller fees in a way that undermines the innovative capacity of competitors (ibid.: 18–23), favours its own products in search results (ibid.: 24–25), or disadvantages non-Prime members through longer delivery times (ibid.: 29–30).

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Amazon charges sales fees of €1,950 plus another €1,010 in transaction fees, totalling €2,960 (according to the Amazon Services fee calculator 2020). Seeing as the publisher hopes to sell more than 40 products per month through this channel, he or she must set up a professional seller account, which costs €39 per month. Let us optimistically assume that our publisher not only sells all of the 1,000 copies but manages to do so within a single month, meaning that the account fee would only be charged once.[18]

So, in this example, Amazon would be entitled to almost 30 per cent of the sales price (and that is before the seller has even despatched the book, so she or he will still have to pay the postage—which, in reality, is closer to €1.90 than €3), purchase packaging material, organise handling and despatch etc.). To be sure: these 30 per cent are due *not because* Amazon advertises, stores, packages and despatches the product (these, so to speak, real distributive efforts could by all means also be delegated to Amazon, but only for an additional fee); *rather*, our imaginary publisher pays this 30 per cent fee simply to be granted access to distribution. It seems he or she could do with a bit of business coaching. For all of this, as a whole, ultimately does not really pay off, arithmetically speaking. It is worthwhile only if the promised service includes market expansion (and if the bulk of the fees accrues only after a successful sale).

It would appear that Amazon earns most of its income through additional fees that are charged for certain services—which has always been common in retail, only this time these fees are greater, more digital, and more global. So, is there nothing new here? After all, the relevant economic actors who generate their

18 The pricing process is rather complex and confusing. If our book seller were to specialise in expensive illustrated books at sales prices around €100, the sale of 100 copies would entail a fee of 26 per cent of total sales payable to Amazon, whereas the sale of 1,000 copies would command a fee of only 16.5 per cent. Percentage-based sales fees (which do not apply to small-scale sellers with less than 40 articles sold per month) differ strongly depending on the respective class of goods. They start at 7 per cent (e.g. for tyres, computers or large electronic equipment), are often in the region of 15 per cent (e.g. educational materials, software, sports & recreation) and can even reach up to 45 per cent (as of April 2020) in the case of accessories for Amazon devices. In most classes of goods, a fee of at least €0.30 per sold article is payable. This percentage fee applies not only to the price of the article, but also to shipping (and/or gift-wrapping) costs. All these costs accrue if sellers despatch the ordered goods themselves; if Amazon is commissioned to take care of these tasks, additional costs accrue for shipping by Amazon, potentially monthly warehousing fees, or fees for optional multi-channel shipping. Additional fees are also due in the case of very large sales volumes (e.g. 2 million items sold per month). For all media, a fixed-rate transaction fee is also due per item sold (for books: €1.01, for music/DVD/software articles etc.: €0.81). If someone were to sell drugstore products in the same quantity and at the same price as in the book example, Amazon's share would be lower, but—in the absence of the transaction fee—with a reverse progression: 10.8 per cent fees for sales of 1,000 articles for €10 each, or 15.8 per cent for the sale of 100 articles for €100 each.

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profits not through their own production processes but by organising trade on behalf of production capital already existed in Marx's day. According to Karl Marx, this so-called "merchant's capital grows with the progress of the capitalist mode of production, with the ease of entering retail trade, with speculation, and the redundance of released capital." (Marx 1998: 310)

Indeed, Marx does assume a merchant who relies on existing funds or those obtained at their own risk in order to purchase goods which can then be sold on the market with a certain surcharge. The merchant's profit is thus determined by the amount of invested capital: "The merchant's profit is not determined by the mass of commodity capital turned over by him, but by the dimensions of the money capital advanced by him to promote this turnover." (ibid.) Merchant capital can thus never achieve a greater profit than industrial capital. Considering the KPI presented earlier, and particularly when compared to the other GAFAM companies, Amazon—the company that corresponds to the concept of merchant capital the most—seems to confirm Marx's assertion. In the same vein—and likewise referencing Marx—Mariana Mazzucato also interprets Amazon's role as a pure means to an end for production capitalists; according to Mazzucato, Amazon is nothing but a "[…] commercial capitalist because it is a means by which production capitalists sell their goods and realize surplus value" (2018: 53).

In this regard, much has changed since Karl Marx developed his diagnosis. Neither are we dealing with simple means and intermediaries, nor exclusively with the creation of markets and the possibility of controlling the access to and rules on this market. The problem is far more complex. I would consider it crucial to note that today's digital commercial capital, or 'merchant's capital'

- relieves itself—to a lesser or greater extent, depending on the specific business model—of the need to obtain goods (either with one's own or with borrowed funds) in order to then sell these goods at a surcharge, and instead profits from every single sales act achieved by others;
- attracts other sellers and production capital as well as large-scale investors in large numbers thanks to its promise of market expansion;
- is able to invest this superabundant capital in a permanent process of optimising the distributive forces;
- thereby promises to reduce the risk to the sales of others and guarantee sales more reliably than this would be possible through other sales channels;
- additionally generates such large amounts of data that—wherever this is deemed worthwhile—products can be offered for sale independently, with a guaranteed maximum surcharge.

This last point bears a risk which—as we could see before when we discussed the examples—most companies are probably well-aware of by now. Specifically, there

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is a risk, in the case of particularly successful surplus value realisation, of falling victim to this new type of digital merchant capital, which helped make that success possible in the first place. Why should production capital expose itself to this risk? After all, some 2.3 million active selling businesses offered their products for sale on Amazon in 2020, with one million new businesses joining that same year alone (see MarketplacePulse 2020). The pressure towards market expansion and surplus value realisation seems to be so great that this risk—which surely everybody hopes to be able to strategically minimise—is being taken.

Karl Marx also notes that merchant capital represents "a capital which shares in the profit without participating in its production" (Marx 1998: 283).. Yet that is not to say that merchant capital is purely unproductive or parasitic. On the contrary. Marx mentions another function of merchant capital, beyond market expansion: namely, the shortening of the circulation process. This is the period between actual value generation and successful value realisation. It is a "time during which capital does not produce at all, least of all surplus value" (ibid.: 279), a period which "restricts the creation of values". "Merchant's capital […] may help indirectly to increase the surplus value produced by the industrial capitalists"; through market expansion, merchant capital drives the increasing division of labour among manufacturing enterprises and thus "the productivity of industrial capital, and its accumulation" (ibid.). In this instance, Marx speaks both of the business transactions between manufacturing companies (e.g. along value chains) and of the division of labour between those companies specialising in value generation and those specialising in value creation—i.e. he assumes a B2B perspective. "In so far as it shortens circulation time […] [a]nd to the extent that it confines a smaller portion of capital to the sphere of circulation in the form of money capital, it [merchant capital] increases that portion of capital which is engaged directly in production." (ibid.)

Here, too, much seems to have changed since Marx. After all, those who possess particularly large amounts of excess capital invest considerable proportions of it precisely in digital merchant capital. This, in turn, facilitates the last step in the circulation process—that to the end customer—and thus the crucial step towards value realisation. This double promise is at the heart of Amazon's business model: maximum market expansion combined with a shorter circulation period *and* a simultaneous minimising of the corresponding costs. This is the only way of explaining why Amazon shares and investments have constantly—and increasingly—been valued far above those of the other GAFAM companies. The reason lies in the dual function that Amazon has for production capital. In this sense—if we were eager to attach a name or title to current capitalism—the term 'Amazon Capitalism' (see Alimahomed-Wilson et al. 2020) might prove the most appropriate.

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9. Digitalisation: Distributive Force or Destructive Force?

By this point we have devoted a great deal of space to analytically dissecting digital capitalism. In the process, we asked the question, among others, of whether this term is helpful and judicious for understanding our current stage of economic, technological and social development. And yet, that was not the initial spur for writing this book or for theorising the concept of the distributive forces. Rather, the impulse came from my empirical research into and engagement with the ongoing changes we can observe in the processes and phenomena which are referred to as digitalisation, both in everyday language (with its corresponding inaccuracies) and in scholarly research. I have pursued this area of research ever since the 1990s, focusing especially on the interplay of technology and human labour. Initially, it was the technical aspects that drew my interest. At the time, however, the commercialisation of the Internet was still in its infancy, i.e. the Internet was hardly operational, let alone an established element in the workplace. And yet, it was already possible to identify new activities surrounding and linked to the Internet. Indeed, searching information on and via the Internet—so-called 'information broking'—constituted my first object of study (see Pfeiffer 1999b, 1999a), referred to in sociology as the 'micro-level' and the 'subject-level', i.e. an empirical approach. There, the focus was on specific forms of work and work tasks, and the method consisted of empirically reconstructing the development of the Internet and a qualitative analysis of Internet-based work. My aim was to illustrate the changes in the world of work resulting from the fact that both the tools *and* the products of labour were becoming virtual and non-material.

In a subsequent analytical step (see Pfeiffer 2014, 2004), I linked the level of specific workplace-based labour with a more general social perspective. Again, the aim was to empirically understand concrete forms of labour, which—proceeding from the example of e-services in mechanical engineering—are and will remain material but are increasingly complemented by a virtual dimension. In this process, digitalisation takes effect through its widespread operational application. And, indeed, the specific purpose for which it is deployed and the areas in which its introduction induces changes make a difference: tools/means of labour, labour capacity (the use value side of labour), labour power (the exchange value

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side of labour) or labour organisation—these are the very dimensions that Marxian analysis refers to as well. In the wake of the discussion at the time surrounding the so-called New Economy, I connected this perspective, which spans the micro and meso levels, with a critical discussion of the dominant existing hypotheses concerning the role of the Internet in ongoing changes in society.

Countless research projects and publications down the road, the hypothesis of the distributive forces materialised—at first, more intuitively, i.e. from observations of mine with regard to the most varied industries and business enterprises, which had accumulated over several decades. The corresponding, largely quantitative, empirical research first suggested and then increasingly confirmed—independently of the specific research question—certain dynamics that could neither be accounted for with the classic theoretical canon of the sociology of work and the sociology of technology nor be reduced to business strategies directed at—to put it in Marxian terms—the increase of relative and absolute surplus value. Although the empirical material and the statements made by business actors often reflected this in terms of impact (including on their own actions and decisions) they largely remained vague and imprecise with regard to the causes, frequently ascribed to globalisation, or *the* market. Of course, this is always true in a way, but by itself it fails to clarify the phenomena, dynamics and contradictions as a whole.

Over the years and decades of conducting empirical research, it also became increasingly obvious that workplaces themselves were changing. Organisational structures more and more reflected the external dynamics of globalisation and the market in all their varieties (relocation, outsourcing, mergers & acquisitions, the permanent re-configuration of value chains etc.). Many of these dynamics became the research focus of the sociology of work. That said, the focus here was invariably on individual phenomena, mostly failing to take into account the specific function of technology and largely concentrating on the—doubtless, highly relevant—impact on workplaces (for the most part concerning the countries in which most global corporations' headquarters are located). These works found substantial evidence that the 'outside' was (and still is) increasingly becoming the principal action orientation on the 'inside'. No matter if technological-material restrictions, the actual access to or availability of resources, objectively required time intervals, or the professional assessments of expert technical staff in R&D or production: all this was becoming less relevant, increasingly left unconsidered in project planning and calculations, and subordinated to the objectives related to value realisation (irrespective of how unrealistic these latter may have been).

At the same time, the logics of the non-value-creating, so-called indirect areas were becoming increasingly dominant both culturally and objectively. These areas were growing in numbers and branching out—along organisational units, work methods and distinct tasks. And even though their contribution to value generation in the stricter business-economic sense was less and less obvious, it became

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equally clear that their actual work object, alongside the permanent optimisation of the productive forces, was value realisation. The form of digitalisation that shaped workplaces, management decisions, labour organisation and work tasks more than anything else over those decades has received very little attention in the Internet-related diagnoses of contemporary society, including in those emerging from (sociological) research regarding the world of work: this refers to the IT systems that allow for the comprehensive interlinkage, control and prediction of all value-creating and value-realising processes (the best-known of which is SAP). All these observations and findings gradually combined into the distributive-force hypothesis elaborated in these pages, initially published in German (see Pfeiffer 2021, 2019a).

The essence of this hypothesis is quite simple: those productive forces which are geared towards surplus value *realisation* have become more dominant. The actual consequences for business enterprises and the corresponding actors, however, are anything but simple. And there are considerable analytical implications, too. This necessitates, first and foremost, the definition of an analytically independent term: *the distributive forces. They comprise all technological and organisational measures and activities linked to surplus value realisation that aim specifically at value realisation (which is to be as risk-free, guaranteed and continuously expansive as possible)*. However, the distributive forces remain part and parcel of the development of the productive forces; they are neither separate from them nor are they replacing them. And yet, the distributive forces—as part of the productive forces—are becoming more significant in relative terms. This has systemic reasons behind it (which are to be found in the logic of advanced capitalism) and it explains the countless phenomena of digitalisation and their success, much more clearly and profoundly than can be done without this particular analytical lens.

In this sense, the original intention motivating this book was not an analysis of digital capitalism or an engagement with this term. My aim was, rather, to attain a deeper understanding of the changing empirical phenomena in workplaces, in the design of labour processes and in the deployment of technology—although the latter was, of course, increasingly being shaped by (and, discursively often reduced to) digital technologies. Equipped with the theoretical concept of the distributive forces, then, the question of what is or may be new about digital capitalism can be addressed in a new and different way. For it is perhaps no coincidence that the digital technologies, their forms of use and the associated business models of digital capitalism display their particular strength largely in the field of the distributive forces. One of the central aims of this book is to expose precisely this.

The Digital may constitute the new element in current capitalism. However, the Digital has become so significant essentially because it revolutionises the distributive forces geared towards value realisation. And that is precisely what advanced capitalism urgently requires. Digital business models rely above all

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on the promise of infinite market expansion, ubiquitous consumption and thus almost guaranteed value realisation. Needless to say, nothing could be more enticing for an (inevitably over-)producing company than such a promise.

With regard to value generation, digital capitalism has little novel about it (even though one may get this impression at a phenomenal and most certainly at the discursive level). The increasing importance and general enhancement of the distributive forces are a reflection of present-day (digital) capitalism's efforts to mitigate the causes of crisis that haunt advanced (industrial) capitalism. That is its—essentially irredeemable—promise. Yet, because the manufacturing enterprises of industrial capitalism have long reached the limits of optimising and expanding their productive forces towards maximum achievable value generation, and successful value realisation thus constitutes the main problem they face, they tend to believe the somewhat implausible promises attached to the digital distributive forces.

Incidentally, for those who continue to harbour reservations vis-à-vis Marx's wording, all this can also be expressed entirely without using Marxian terminology. In management and consulting jargon, it would sound a bit like this: in the competition for innovation and production, business enterprises in the manufacturing industries have been optimising their production processes for decades, building global value chains and producing more and more goods, and doing so ever-more cheaply. On a global scale, competition is growing increasingly intense as a result. Innovation and production processes and the potentials of global value chains, however, have largely been optimised to their very limits, and even digital technologies have little to offer in the way of further productivity gains. The increasingly crucial competitive factor is thus the successful development of new markets and the more rapid conclusion of sales than the competition. That is the reason why more and more efforts and funds are dedicated to advertising and marketing (the stimulation of consumption), warehousing and transport (quicker access to the points of sale) and the prediction and control of sales (connecting the market to production more accurately and in real-time). Here, digital technologies (particularly AI and Big Data) and digital business models (based primarily on personalised advertising and the spatial and temporal multiplication of the point of sale) promise an effective solution. Seeing as markets and consumption are limited, it is those enterprises who implement digital transformation without hesitation and particularly comprehensively that will benefit the most from these opportunities.[1]

1 Incidentally, the same also applies—albeit with a slightly different wording, and after replacing certain terms—to national economies (and the competition among them) and their political representatives. After all, while national perspectives and corresponding patterns of reasoning are generally met with a modicum of scepticism, not least for historical reasons, particularly in Ger-

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The starting point of the hypothesis developed throughout this book, of the distributive force as the actual dynamic of digital capitalism, was just that: digital capitalism. Chapter 2 began with an extensive and critical engagement with the authors who place the term 'digital capitalism' at the heart of their analysis: Dan Schiller (2014, 1999) and Michael Betancourt (2015). The thematically structured engagement with these two authors revealed a first blind spot, which they partly do explicitly expose, and partly address only in very vague terms, but which neither of them clarifies in a satisfactory way. Namely, where and through what mechanisms is value being generated? Have there been any fundamental changes in this regard under digital capitalism?

Chapter 3 pursued these questions, based in part on Karl Marx, but primarily on Mariana Mazzucato (2018), who demonstrates how the question of value generation has been systematically marginalised by economic theory. What became clear was that nothing has fundamentally changed with regard to the source of value generation: human labour; this dimension does not indicate anything that could be identified as systemically new, i.e. a qualitative economic difference between old and new, that is, between industrial and digital capitalism.

Continuing our search for what is really new and transformative in digital capitalism, in Chapter 4 we returned to the classic analyses of the emergence of industrial capitalism developed by Karl Polanyi and Karl Marx. While Polanyi's focus is on the buying side (particularly concerning labour power), Marx concentrates on the production process and the use of human labour power to create value (and its unilateral appropriation by the capitalist). The other end, if you will—the selling side—features only marginally in both, albeit not as the actual object of study, but merely as a structuring condition for their analyses.

This revealed the second blind spot in the understanding of the new element(s) of digital capitalism, namely value realisation, which is becoming increasingly significant in advanced capitalism (whether digital or otherwise). Chapter 5 more fundamentally elaborated this hypothesis, proceeding theoretically from Marx and, basing itself on empirical examples, in terms of three dynamics: market expansion, consumption and crisis. Business enterprises are increasingly forced to deal with these dynamics in order to guarantee, as comprehensively as possible, repeated value realisation over and over. Chapter 6 described the corresponding productive forces aimed at this dimension in terms of three central distributive forces: *advertising and marketing*, *transport and warehousing*, and *control and prediction*. These three distributive forces were then analytically and historically elab-

many, politicians and ministries at the EU, national and regional levels certainly do argue from a national perspective when it comes to the competition between national economies over pole position in digital capitalism, proclaiming economic success as the goal of the entire nation and thus of all its citizens.

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orated and, drawing on empirical examples, illustrated and spelled out for the present.

In concluding our theoretical reflections, remaining unanswered questions on the distributive-force hypothesis were resolved by adding a few necessary specifications, distinctions and clarifications—especially regarding the concepts of circulation and of the development of the productive forces. This rounded out the theoretical framework expounded in the two preceding chapters. Chapters 5 to 7 thus represent both the theoretical centrepiece of this book and the analytical foundation of the distributive-force hypothesis. Chapter 8 then empirically illustrated these theoretical deliberations with a view to central actors of digital capitalism, catalysts for value realisation, considerations on merchant capital 4.0 and, finally, activities related to the distributive forces.

We had already identified two blind spots in the diagnoses that address digital capitalism: in Chapter 3, we discussed the disappearance of the source of value genesis from economics, and, in Chapter 5, we depicted the underestimated dynamism of, and relentless thirst for, value realisation. Yet the drama of capitalism comprises several acts: in the first act, value is generated, in the second act only some of that value is realised, and, in the third act this realised value is then unilaterally appropriated. In this play, which we have been performing for quite some time now—the only show in town, with no alternatives scheduled—the main plot has long ceased to circulate around question of distributing more value more fairly. The actual drama is the play itself: for the logic of value generation and of value realisation inherent in our mode of production leads to a perpetual devaluation of everything, as underscored by the reconstruction presented by Raj Patel and Jason Moore (2017). This devaluation of nature, money, labour, care, food, energy and life is not a side-effect, but a strategy: "[…] cheapening is a set of strategies to control a wider web of life." (ibid.: 3) The authors drastically illustrate this (or, rather, illustrate how drastic this is) based on the example of chicken. The short passages and cursory figures presented in the introduction (see ibid.: 3–6) alone indicate that the play, which Marx would entitle 'the destructive forces', and Polanyi the 'annihilation of substance', has been performed for far too long and too often—the stage, the set, the props, the actors and the audience are all equally at the end of their rope. Still, no one is closing down the theatre, nor will there be a new season with a new playbill: "[I]t's easier for most people to imagine the end of the planet than to imagine the end of capitalism." (Patel/Moore 2017: 2)

My intention is not to conclude this book by simply presenting a condensed summary of what has already been elaborated theoretically and empirically across so many chapters and pages. Proceeding from Marx, and going beyond his analysis, the productive forces have here been complemented with the distributive forces. Rather, basing ourselves on these deliberations, we ought to shift our attention to two additional dimensions that warrant consideration: reproduction

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and destruction. Conceiving of both as one, we are inevitably confronted with questions of ecological sustainability and to what extent our economic system is contributing to the multiple ecological disasters that can already be felt all around us. So, finally, in our search for a solution to the dilemma, we will briefly direct our attention to a specific manifestation of digitalisation: Artificial Intelligence and Machine Learning (henceforth referred to as AI/ML). Yet, before we do so, our argument requires a small analytical bridge—namely from the productive forces and the relations of production to the relations of reproduction and the destructive forces:

- Except for the basic inescapable material (i.e. physical, biological or ecological) needs of human beings, society and nature, all other needs (or, rather, their satisfaction) depend, both materially and socially, on the given productive *forces* and are tied to the existing *relations* of production. In industrial capitalism, the deployment and the development of the productive forces are driven by the goal of maximum surplus value generation.
- The material and (ultimately) ineluctable basic needs of humans, society and nature—the **re**productive *forces*—are equally determined by the *relations* of **pro**duction. Given that capitalism is always about maximising value, **re**production inevitably increasingly fails to attain the scope that would be both possible and necessary. As a result, the *relations* of **re**production themselves increasingly become a social question. This is one reason, among others, why it merits a term in its own right.
- Over the course of capitalism's development, the *distributive* forces, as a part of the productive forces, become increasingly significant. Their deployment and development are propelled by the hunt for a maximisation of opportunities for surplus value realisation. The distributive forces and the productive forces mutually reinforce one another. Distributive capital, for its part, relies principally on the promise (both to productive capital and its own investors) of value realisation and market expansion. Thus, the potential, harboured within technological progress, to protect and preserve actual substance is mostly left idle.
- Current digitalisation is being harnessed mainly for the purpose of value realisation, thereby advancing, above all, the development of the distributive forces. This engenders new configurations in the *relations* of distribution: new (global) inequalities between capital and labour, and between business enterprises located at the opposite ends of the development of the productive or distributive forces.
- Over the course of current digitalisation, the distributive forces and the productive forces are mutually reinforcing one another at an ever-faster pace. This further exacerbates the contradictions between distributive capital and

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> productive capital, while the *relations* of **re**production are increasingly becoming the all-determining existential question for everything and everyone.

In a few instances in Karl Marx's works, we can find both the term 'forces of destruction' [*Destruktionskräfte*] and 'destructive forces' [*Destruktivkräfte*]—though he refers to the exact same thing. Yet, in neither case does he refer to productive forces—i.e., conceived in a more technological sense—that might have a destructive effect (such as, say, weapons). To him and Friedrich Engels, it is the general consequences of capitalism's relations of production as such that are destructive: "In the development of productive forces there comes a stage when productive forces and means of intercourse are brought into being which, under the existing relations, only cause mischief, and are no longer productive but destructive forces (machinery and money)", as a result of which "a class is called forth which has to bear all the burdens of society without enjoying its advantages" (Marx/Engels 1976b: 52), and which will therefore initiate the revolutionary transformation of society, as Marx and Engels famously hoped. So, the main issue here is the destruction of the social, caused by the growing, economically induced rift between two classes in society.

Yet Marx also takes into account the destructive capacity directed against nature (i.e. both the natural world and human nature): in his view, capitalism implies not only a novel and unprecedentedly successful mode of production (which may have emerged repeatedly throughout history, but never in such a comprehensive form), but "a system of universal exploitation of natural and human qualities, a system of universal utility, […] and under these conditions nothing appears as something *higher-in-itself*, as an end in itself, outside this circle of social production and exchange" (Marx 1986: 336–337). That is to say, everything is subordinated to economic objectives and henceforth considered exclusively from this perspective. In this sense, both the environment and the social equally become the object of exploitation. Capital organises a "universal appropriation of nature and of the social nexus itself" (ibid.). Nature finally turns into "purely an object for men, nothing more than a matter of utility. It ceases to be acknowledged as a power for itself, and even the theoretical cognition of its autonomous laws appears merely as a stratagem for its subjection to human needs, whether as object of consumption or as means of production" (ibid.: 337). One aspect that emerges more clearly when we read the entire passage, rather than just this short extract, is that Marx's comments in this context also concern science, which provides its knowledge of the natural laws to the economy, thus essentially becoming complicit by facilitating the abandonment of long-standing practices that are more in tune with nature's needs: this would refer to, say, "nature worship, as well as […] the traditional satisfaction of existing needs and the reproduction of old ways of life confined within long-established and complacently accepted limits" (ibid.) In this sense, "[c]apital

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is destructive towards, and constantly revolutionises, all this, tearing down all barriers which impede the development of the productive forces, the extension of the range of needs, the differentiation of production, and the exploitation and exchange of all natural and spiritual powers" (ibid.).

It would be a misinterpretation of Marx to read these lines in the sense of techno-pessimism or even as a plea for a return to pre-capitalist times. Firstly, he is fully aware of historical precursors that already displayed features of the exploitation of human beings and nature. Secondly, he simultaneously acknowledges the positive effects of the unleashing of the productive forces, the scope of which had been inconceivable prior to the arrival of capitalism. Yet that does not stop him from also pointing out the destructive elements—particularly the ones which are systematically and inevitably destructive. Hence, Marx's diagnosis that (if you will) the *use* of humans, nature and society leads to their *depletion* entirely concurs with Polanyi's (see Chapter 4.1). At any rate, Karl Marx would not, per se, attribute technology a destructive potential, but certainly would do so when considering it as a productive force within the capitalist mode of production, which in his view is inevitably destructive.

We have seen that all the digitalisation strategies characteristic of distributive-force capitalism (see Chapter 6) aim primarily at growth. This was first theoretically substantiated (Chapter 5), then developed analytically (see Chapter 7) and, finally, illustrated empirically (see Chapter 8). In conclusion, the connection between digitalisation and growth appears immanently close, inextricably interwoven, at least under the conditions of this economic system. And, above all, it is ecologically disastrous. Just how disastrous these consequences will be in the absence of major changes has more recently been calculated on the basis of disconcertingly modest figures: according to this calculation, a catastrophic collapse of human society is currently the most likely scenario given the high levels of resource consumption (the study focuses specifically on the correlation between forest areas and population). Even in the most optimistic model calculation, the likelihood of our civilisation surviving is less than 10 per cent (see Bologna/Aquino 2020). For those of you who are still fairly relaxed and expect this scenario to materialise in a few centuries or so—if at all—I am afraid you can enjoy this moment only for another second or two: the authors also emphasise that the time horizon for the onset of this catastrophe is between two and four decades (see ibid.: 5). This places the ultimate disaster in such close proximity to our present that it will occur the lifetime of many of us, and most certainly during that of the next generation. Admittedly, the study can by all means be critically challenged, just like any other one based on model calculations. Moreover, most of us would surely hope that someone has committed a serious calculation error here, prompting entirely misleading forecasts. But such dramatic prospects have long become commonplace, no matter how you choose to look at it: the overexploitation of existing nat-

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ural resources is obvious, and the end of what is finite is, in logical terms, only a matter of time. That is, if we continue as today—but not if we finally put an end to the annihilation of finite resources.

Today's shocking figures beg an old and familiar question: can ecological sustainability and economic growth be reconciled, or, better yet, be combined to produce a kind of win-win situation? After all, the idea of the (New) Green Deal suggests just that—from the original conception of the term (see Friedman 2007) to the current targets stipulated by the European Union (see EU 2019). However, as pleasing to our ears as this may be, it is equally unrealistic. Jason Hickel has provided empirical evidence for this with reference to the United Nations' Sustainable Development Goals (SDGs), which also inform the corresponding EU targets. According to Hickel, the contradiction between growth and ecology, essentially codified in these targets, is irresolvable: while, on the one hand, five of the 17 goals call for a harmonious relationship with nature and the protection of the planet against environmental degradation, at the same time the SDGs set a firm goal of three per cent annual growth.[2] The incompatibility is to be compensated through efficiency increases. Hickel refutes such notions, drawing on empirical data on resource consumption and carbon emissions to conclude that the targeted growth and sustainability goals are fundamentally irreconcilable:

> "In light of the empirical evidence […] we can conclude that there are strong indications that Goal 8 (to sustain aggregate GDP growth at 3% per year) is incompatible with the sustainability objectives on resource use and climate change." (Hickel 2019: 878–879)

This hope of decoupling—i.e. the reduction of resource use while maintaining a growth path—has more recently been debunked by others as an outright "myth of decoupling" (see Jackson 2017: 84–101). Growth and ecological sustainability thus remain locked in irreconcilable opposition. And this is valid not just because Polanyi and Marx theoretically asserted this, but also in very concrete, up-to-date and empirical terms. Economics, at least in its present state, appears to have no answer on offer.[3] Technology, by contrast, is something that people place great

2 This growth target of three per cent is perhaps no coincidence given that it is considered to be the minimum figure needed for the continued functioning of the capitalist economic system: "[Capitalism] depends on the capacity to achieve 3 per cent compound growth." (Harvey 2011a: 130)

3 Concepts of an ecologically oriented economy explicitly opposed to growth date back to the 1970s; a dedicated international scholarly conference was first held in 2008 (see Flipo/Schneider 2008), firmly establishing itself since then through its regular occurrence. Just recently, a comprehensive volume was published that assembles scientifically-based action recommendations for political decision-makers as well as concepts for transitioning to a degrowth society (see Stuart et al. 2020).

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hopes in, particularly concerning the issue of resource efficiency or resource avoidance. In this vein, the German Federal Ministry of the Environment, Nature Conservation and Nuclear Safety (BMU) likewise attaches considerable expectations to the conceptual combination of ecological sustainability and technological innovation. The ministry envisages the two forming a "Dream Team" (see Schulze 2019)—even though the responsible federal minister is fully aware that digitalisation could act as "fire accelerant" of ecological and social crises as well (see ibid.; translation amended).

Throughout this book, we have repeatedly mentioned the ecological consequences of digitalisation and the distributive forces: for example, in the context of crypto mining, during our engagement with Michael Betancourt (see Chapter 2.4), while discussing the material aspects of digitalisation and the use of rare earths in the manufacturing of AI-related hardware (see Chapter 2.3) or with regard to the ecological impact of large cargo ships (see Chapter 6.2). In our concluding summary, we must distinguish between the following three sources of ecological impact that need to be analytically separated. They include, firstly, the capitalist mode of production, which so crucially depends on market expansion and growth; secondly, specific phenomena linked to the development of the distributive forces; and, thirdly, digitalisation itself. All three levels are closely interconnected and, in truth, would each warrant a separate analysis as well as a detailed exploration of their mutual interplay. However, I have no intention of elaborating such a detailed account here. Yet in order to highlight the consequences directly linked to digitalisation as such, we cannot evade the question discussed in the following final sections of this study. While the current discourse concentrates primarily on the already barely containable environmental degradation caused by physical-material industry or transport-related carbon emissions, it often goes overlooked that digitalisation itself—as virtual as it may appear—entails very real material and physical ecological damage (not to mention the intentional and inherent social consequences of a distributive force capitalism). Just to get an idea of the extent of ecological damage caused by digitalisation, here are but a few examples:

- During the decade following the release of the very first iPhone in 2007, the share of the world's carbon footprint owing to information and communication technologies as a whole (software and hardware) tripled (from one to three per cent). It is estimated that this figure will reach 14 per cent by 2040 (see Belkhir/Elmeligli 2018).
- The production of ever-larger and more powerful screens for smartphones entails significantly higher carbon emissions than did previous mobile phone models (see Suckling/Lee 2015). And there certainly is no indication that new technologies will improve this situation: the carbon emissions of an iPhone 7 were 10 per cent higher than those of the iPhone 6s, the production of which in

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turn had already increased carbon emissions by 54 per cent compared to the iPhone 4. Besides this, the recycling rate of smartphones is extremely low (see ibid.).

- A single Bitcoin transaction requires as much electricity as an average household in the Netherlands uses per month (see Vries 2018). Some projections predict—based, however, on user numbers, not on transactions—that the use of Bitcoin alone would cause sufficient carbon emissions to drive global warming above the 2-degree mark within three decades (see Mora et al. 2018). This merits special emphasis: even if *all* other CO_2 emissions were brought to zero, Bitcoin transactions alone would cause global temperatures to rise by 2 degrees—and Bitcoin is just one among thousands of cryptocurrencies.
- The sharing economy is also part of the problem: for example, e-scooters in a sharing model without a fixed station produce more than half the amount of carbon emissions caused by a private car (with a combustion engine), while an e-bike's carbon footprint per mile is five times that of a conventional bicycle (see Hollingsworth et al. 2019). Added to this is the fact that these models are not even worthwhile economically: car sharing in Germany is profitable only in the few inner-city districts of large cities with a high population density; and yet, only five per cent of the population live in such areas.

It could be objected—and you may well feel this impulse yourself while reading these lines—that these are examples of the old digitalisation, but that the emergence of AI and ML today heralds a new generation of digital technologies that offer unprecedented opportunities for tackling ecological challenges. Some may also notice at this point—should they have read through all preceding chapters—that the topic of AI/ML has not featured prominently or explicitly in this book thus far.

Of course, it is hardly possible to write about digital capitalism during the 2020s without addressing Artificial Intelligence and (self-)learning systems (i.e. Machine Learning or Deep Learning). Many of the empirical phenomena associated with the distributive forces in digital capitalism are already using AI/ML—which applies in particular to advertising and marketing (see Chapter 6.1), but also increasingly to transport and warehousing (see Chapter 6.2) and, above all, to control and prediction (see Chapter 6.3), the latter of which links up advertising and marketing with transport and warehousing and increasingly connects them to specific production locations along global value chains and the many places of and opportunities for ubiquitous consumption (see Chapter 8.2). None of this is conceivable any longer without AI/ML, but neither can it be explained or defined

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(neither technologically nor analytically) by this relatively recent facet of digitalisation alone.[4]

Currently, the more recent business models pursued by the major digital corporations and in the start-up and platform economy (see Chapter 8.1) are largely based on the use of AI/ML and often attract the interest of investors precisely for this reason (see Chapter 8.2). Similarly, today's hardware—from the gadgets that enable ubiquitous consumption to the technologies of Industry 4.0—is inconceivable without AI/ML elements (see Chapter 8.3). In this sense, there is nothing special about AI/ML, it is merely a more recent technological facet of digitalisation. In other words, AI/ML generally changes nothing about the preconditions or validity of the political-economic analysis of digital capitalism presented here. Therefore, so far, there was no need for a chapter on AI/ML specifically, and this book's line(s) of argument shall not be unravelled again in this final recap.

Yet from the perspective on reproduction and distribution which we are contributing here, this sideways glance is certainly worthwhile. For we do require clarification on the question of whether digitalisation has continued to develop in such a way that previously existing dilemmas of productive-force and distributive-force capitalism could be resolved through technological means. Might it be possible that precisely these smart, self-learning and autonomous algorithms can help us reconcile growth and ecology, seeing as we are unable to do so ourselves given our limited human intelligence? There are numerous science-fiction narratives in this vein, but also those diagnoses which offer the optimistic assessment that intelligent technology will compensate for humanity's ecological stupidity (i.e. destroying its natural basis of existence through its own actions).

As concerns AI/ML, we must address two exemplary questions—which would in fact apply to all the other phenomena of digitalisation as well. The answers may help us gauge whether the development of the productive forces and the distributive forces in capitalism would also allow for fundamentally different forms of use—which would not be (or at least not primarily) driven by the need to constantly reach the next stage of maximum value generation and value realisation.

4 Of course, there are fierce disputes over how 'recent' Artificial Intelligence actually is. One historical account, for example, regards AI as an expression of humanity's general propensity for numbers-based knowledge and thus dates its beginnings to the 6th century AD (see the time series according to McCorduck 2004: xxiii and 523). Alan Turing is credited with having been the first to raise the question, during a symposium in 1947, of whether machines are capable of thinking. Yet the actual— in a sense institutional—founding of AI is commonly attributed to a conference that took place at Dartmouth College in Hanover, New Hampshire, in 1956 (see Konrad 1998; Nilsson 2010: 52–56). Only since the late 1980s, however, have there been repeated leaps in the computing speed of processors that allow for the realisation of more recent AI approaches such as Unsupervised or Reinforcement ML (see ibid.: 413–421), or Bayesian networks (see ibid.: 381–397), which AI today usually denotes.

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This pertains, firstly, to the question of whether the paramount (and, logically irresolvable) contradiction between endless growth and the finiteness of natural resources (which Karl Polanyi regards as the crucially threatened substance in capitalism, alongside the human substance of society; see Chapter 4.1) can be resolved or mitigated, if not economically or politically, then at least technologically. So, could AI/ML contribute to the conservation and protection—and, above all, a more moderate use—of nature and natural resources? Or, in other words: does AI/ML harbour a utopian potential, in which this digital technology could be deployed, so to speak, as a *reproductive* force? After all, many people associate AI/ML with the prospect of being able to reconcile ecology and capitalism—and thus (not for the first time in the history of digitalisation) with the hope of transcending immanent economic restrictions. The second question we seek to answer here is whether AI/ML could—as the vast body of dystopias dealt with in popular culture and debated throughout society would suggest—instead become a particular *destructive* force distinct from all other digital technologies.

Let us begin with the positive aspects. The BMU apparently has great faith in the ecological opportunities provided by AI/ML, funding some 50 corresponding projects in in the context of a €27 million strong programme set up in 2019 (BMU 2019). The objectives deemed worthy of grants include: the preservation of biodiversity; the promotion of nature-compatible agriculture, sustainable consumption or sustainable mobility; transparency and utilisation of environmental data and thus a more reliable basis for decision-making concerning environmental-protection policies; a reduction of the demand for energy and resources; and ensuring protection standards and ecologically oriented programming of AI algorithms (see ibid.). So, can digitalisation, and AI/ML in particular, (also) open up a development path towards post-growth? And, if so, in what way(s)? Some promising applications are already underway (including among the projects funded by the BMU), though they are, of course, far more quickly conceptualised than implemented. The following examples, however, underscore that the technological options for reproduction can always be easily complemented with a 'but', pointing to economic restrictions and thus destruction:

- For example, personalised medicine could save lives and prevent resistances that also affect eco-systems. *However, this is not possible* given a pharmaceutical industry that already tolerates supply shortages for certain (mass)medicines today (simply because the profit margins are too small) and conducts R&D in a way that medical therapy implies not the healing of patients but rather their lifelong dependence on medication.
- Drones, for instance, could detect the nests of ground-breeding birds in fields and allow for their removal before harvesting machines destroy them. *However, this is not possible* given an industrial agriculture which—due to the quest

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for endless productivity increases and the disastrous combination of genetically modified seeds and aggressive chemical fertilisers—has effectively already almost wiped out these ground-nesters through the destruction of their food chains.

- Personalised on-demand production could lead to all kinds of product-related resource consumption being reduced and occurring only when specific individuals have indicated their specific demand via an online order. In ecological terms, this would represent a huge lever for curbing today's volumes of mass-produced goods. *However, this is not possible* if, even in those areas where this would have been technological feasible for years, such as in the car industry, the all-determining indicator of Overall Equipment Effectiveness (OEE) commands the continuation of production in a 24-hour shift system even in the absence of demand.
- For example, the targeted carbon-neutral production of many car manufacturers combined with the shift to e-mobility—currently frequently linked to the target year 2030—could indeed make a huge difference. *However, this is not possible* if these widely marketed plans are tied to implausibly high growth and profit targets (adding to the other unresolved ecological questions concerning e-mobility).[5]
- A perfect mix of road and rail, depending on the specific goods and transport routes, could serve to organise logistical flows of goods in an ecological manner. *However, this is not possible* if the Deutsche Bahn (German rail) continues, as it has done for decades, to decommission rail lines dedicated to freight because they are not sufficiently profitable (and: indeed, is forced to do so because the Deutsche Bahn's policies continue to stipulate profitability as the decisive criterion for continuing a given route's operation).
- Digitalisation could help detect polluters all around the world and even in remote areas, or track down, for example, the large-scale illegal extraction of natural resources. *However, this is not possible* as long as there are business models such as that of the Nestlé corporation—meaning: the radical exploitation of regional groundwater reservoirs in order to sell this water in (plastic) bottles—and these business models are legally and politically enabled and protected.

5 This applies to one example from my research that exhibits an annual productivity increase of five per cent and an ROS increase of 6 per cent per annum. Specifically, a particular manufacturing line in the surveyed company, which today produces 200,000 vehicles with an internal combustion engine each year, is supposed to produce 250,000 vehicles of the same model per year as an electric car in the future. This implies an increase in carbon emissions of 25 per cent.

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The subjunctive 'could' in each of these examples is, of course, not related to the question of technological feasibility. All of it is already technologically feasible today, or could at least be realised in a very short period of time. And yet, digitalisation and AI/ML will not be used for ecological purposes (at least not on a broad scale and beyond the funded projects) as long as ecology is faced with economic interests. In the absence of fundamental changes in the relations of production and distribution, we will be unable to deploy both the productive and the distributive forces as an enabler of a socially and ecologically sustainable mode of reproduction. Let us take this thought one step further and consider AI/ML technologies themselves (and not only the context of their economic embedding) with a view to their potentially destructive character. AI in particular is often attributed, both in literature and academic discourse, a special dystopian potential.

Let us start with the question of *growth*. Needless to say, AI/ML is not primarily being marketed as a technology that limits or even prevents growth, but, on the contrary, linked to promises of growth and market expansion. The consulting industry is even portraying AI/ML as the indispensable precondition for "survival and success" (PwC 2017: 24) on the markets. According to consultants, AI/ML will lead to a global GDP increase of around 14 per cent, driving it to $15.7 trillion by 2030 (see ibid.: 5); AI/ML is expected to engender productivity increases of 55 per cent and growth rates of 58 per cent in the field of "consumption side impacts" (ibid.: 7)—meaning that the greater part of related activities is geared towards the distributive forces. Although a more recent study does present a markedly lower growth estimate of the global market for AI/ML (39.9 per cent for 2019), the forecast annual growth rates are much higher (42.2 per cent) (see GVR 2020). Of course, there are always interest-driven reasons for such studies to 'think big' and perhaps offer very optimistic calculations. So far, even the experts' predictions regarding the proliferation and use of AI have proven rather inaccurate (see Armstrong et al. 2014). Nor are exaggerated expectations a new phenomenon: in the past, too, during the first stage of AI from 1983 to 1993, average annual AI-induced revenue increases in the United States were—quite optimistically—predicted to range from 29.4 per cent (use in R&D) to 118.1 per cent (use in private households) (see Klotz 1986: 562). The numbers aside, this clearly shows that, upon closer inspection, AI/ML technologies turn out—just like all other productive and distributive forces—to be destructive, at least in the analytical sense, simply because they are part and parcel of production processes. They thus become the crucial enablers of the current development of the distributive forces, leading to growth and an unequal distribution of capital and risks.

A second probe concerns AI/ML's *ecological footprint*. We have seen earlier that digitalisation as such—despite its alleged immateriality—produces a considerable and thoroughly material ecological footprint. Unfortunately, this is no different in the case of AI/ML, and indeed its actual extent is quite shocking: the carbon

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emissions caused by the training of just a single AI/ML algorithm are almost five times that of an average car with an internal combustion engine (including that car's production and use over its entire lifespan), or the same as 300 return flights between San Francisco and New York City (see Strubell et al. 2019). The carbon emissions produced in order to develop AI to a level that could make it into an academic journal—i.e. not remotely close to any real forms of application yet—are equivalent to those accumulated over half a car's lifespan (see ibid.). And the number of such learning and training processes is rising (see Schwartz et al. 2019): the sum of computing operations per learning process is doubling every 3.4 months, increasing at an exponential rate; from 2012 to 2018, these operations increased by the staggering factor of 300,000 (see Amodei et al. 2019).[6] So, the available empirical figures illustrate that there is no reason to expect an effect of AI/ML on growth and carbon footprint that would enable an enhanced reproduction of nature. On the contrary: AI/ML is exhibiting the familiar destructive tendencies propelled by both the digital and non-digital productive and distributive forces.

This leaves, finally, a level of investigation that takes the technology itself into view and explores whether it may harbour destructive potential even beyond its economic use. After all, according to some, nothing could be more certain, considering such delightfully shocking terms as "weapons of math destruction", coined by Cathy O'Neil (see 2016).

This refers to the *intentionally destructive deployment of technology*: AI/ML can be used (like almost any technology) for intentionally and directly destructive purposes. The effects of this use may be most obvious and immediate in the military context, but its impact in the manipulation of opinion can also have (and is already having) destructive consequences for democratic structures and participation (see, e.g., Hesse 2020). Such intentionally destructive use may, therefore, be anything but exclusive to AI/ML, but here the implications are far less containable and partly irreversible.

What I would regard to be much more intriguing and concerning—and much less debated, by contrast—is the *unintentionally destructive deployment* of AI/ML, which occurs as a result of uninformed application and unprofessional handling and is, in a way, a specificity of AI/ML (in particular with regard to learning processes, algorithms, data, scales of measurement, etc.). Proceeding from my own empirical observations concerning strategies of AI/ML deployment in workplace contexts, pursued by typical German business enterprises over the past two years,

6 The original study is from 2018, the version cited here was corrected in 2019—yet not with regard to the numbers it calculated, but because of its originally inaccurate representation of Moore's Law. The study compares the required Petaflops per day for some prominent examples, from Alex Net in 2012 to AlphaGoZero in 2018.

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the following forms of unintentionally destructive use deserve brief mention (and require a systematic research perspective for the future, too):

For example, such unintentionally destructive deployment of AI/ML can be witnessed when the simplicity of the statistical model is completely overestimated while the complexity of the selected context of application is underestimated. Because causalities are implied where there is only data static. Because algorithms, which tend towards the (statistical) centre over the course of their learning processes, discard objectively relevant observations as statistical outliers. Because the knowledge of data-adequate scales of measurement and the requirement of their compatibility with the selected algorithm is lacking. Because knowledge is lacking of the required compatibility of both (the scales of data measurement and the algorithm selected) with the objective conditions of the context of application. Because implementation is often left exclusively to information and data scientists without consulting the experts from the context of application concerned. Because data is used simply because it exists, without questioning its factual validity (focusing instead on its mathematical accuracy). Because data as such is already systematically distorted from the outset, reflecting real (desired or undesired) imbalances in society or in the context of application which, in the absence of corrective weighting, are then perpetually reinforced over the course of autonomous processing. Because data also displays a less obvious distortion which objectively arises from the particular ease or difficulty of its collection—the lack of awareness of which, however, prevents a corresponding corrective weighting. Because it remains entirely unclear in the case of many AI/ML applications how long the learning process is supposed to last, and based on what data, and whether this must occur only initially or be repeated on a regular basis—and what criteria should guide these decisions.

The destructive consequences of AI/ML may also materialise simply because AI/ML processes are being used—in an aimless embrace of their hip-ness—even in contexts where fixed coding or a relational database would produce more adequate context-related results with less effort. And, finally, destructive use of AI/ML may occur when it is regarded as a technology that cannot as such be shaped or influenced and hence none of the questions of design and decision-making essential for its constructive deployment are even considered. Besides this, AI/ML poses a new challenge which will confront us all, and which does not present itself in this form in other fields of technology and digitalisation: we need to answer the question of how we want to use results in our everyday work context that may appear as an unequivocal and objective fact but are really no more than a more or less accurate, calculated prediction (meaning, in the individual case, they can also always be false positive or false negative).

All this will perhaps remain without consequences, or simply become a nuisance, rather than destructive in the proper sense. And yet, at any rate, data will

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already have been generated and analysed, learning processes initiated—and a corresponding ecological footprint produced regardless. So, there is always a degree of destruction. It must be noted, however, that there is a clearly discernible difference between the potential unintentionally destructive impacts: if AI/ML fails to function properly in the area of the distributive forces, usually nothing dramatic happens. In the worst case, certain target groups receive incongruous advertising messages or annoying purchase recommendations, certain sales predictions fail to materialise as expected or a package is delivered to the front door not quite as promptly as promised. Yet, wherever AI/ML-based decisions concern what Polanyi refers to as substance (individual health, social cohesion, nature's reproductive capacity) or the material base of essentially all productive forces (raw materials, production methods, infrastructure), erroneous decisions made by AI/ML (or: the misinterpretation of generated results) can entail dramatic and often irreversible consequences. This could mean that the machine malfunctions; the infrastructure is overstretched; people die; the machine's polarising articulation causes irreconcilable divisions; a biotope is contaminated for all time, etc.

That is to say, not even AI/ML technologies will simply resolve the contradiction between growth and ecology. More often, they will contribute to it. Beyond this, they also entail other, very specific destructive risks, which we will have to learn to cope with responsibly. If, however, even this most recent and promising facet of digitalisation cannot resolve (or at least drastically mitigate) the antagonism between the growth compulsion of our economic mode and the growth limitations of the (natural and human) substance, then all we are left with once again is a critical consideration of the economic system itself. So, what would have to happen? The dynamics inherent in our economic system, bent as it is on growth and the expansion of markets and consumption, are dramatically at odds with the finite resources and the close-to-exhausted reproductive capacity of nature (and thus our own). Digitalisation—including in its most recent form of Artificial Intelligence and self-learning systems—has a destructive effect when it serves as a mere means to enhance these economic dynamics. This applies when digitalisation is deployed as a productive force, but all the more so when it is used as a distributive force.

As a productive force, digitalisation at least does engender utilisable use values (though not all of them are really useful, and utility often cannot remotely justify the corresponding resource use). Assuming fair mechanisms of distribution, there is a possibility that, with much effort and political will (forming globally), we may be able to use some of these use values sensibly, thereby slightly reducing the mountains of waste and the problem of disposal. Furthermore, digitalisation as a productive force could assist in organising production processes in a way that minimises resource consumption as far as possible and responds to individual demand instantly instead of continuing mass production.

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Yet this would have to be flanked by a completely different use of digitalisation as a distributive force: digitalisation as a distributive force would have to be deployed in the area of advertising and marketing in order to minimise consumption, point out ecological follow-up costs ('externalities') and gradually erode the demand for products without any real use value (who can decide this, through what kind of procedures, remains to be seen—though digitalisation may prove to be a helpful tool for this latter purpose, too). In the area of transport and warehousing, digitalisation as a distributive force would have to minimise ecologically critical transport routes, optimise last-mile delivery in accordance with ecological principles and support more local/regional economic networks through decentralised warehousing.

And, finally, in the area of control and prediction, digitalisation as a distributive force could link up all this with production and consumption locations in a way that allows for organising the fairest possible satisfaction of needs while causing the smallest possible ecological footprint. Beyond this, digitalisation would also have to be used to constantly monitor its own application—both as a productive and a distributive force—as well as permanently minimise its resource use and ecological footprint. This would also mean replacing its own functions with non-digital forms wherever possible, in order to create less resource-intensive alternatives.

Were we to consequently deploy digitalisation in these ways on a global scale, the ecological effects might still be considerable for many people, but could perhaps be mitigated to the extent that nature's reproductive capacity stands a chance—wherever that is even still possible at this point. That said: were we to consequently deploy digitalisation in these ways on a global scale, then that would just about fundamentally counteract our current economic mode—for then there would no longer be any growth (let alone *more* growth). Were we to consequently deploy digitalisation in these ways on a global scale, a situation of such unequal distribution as today would no longer be possible, seeing as, from an ecological perspective, the accumulation of very much in the hands of very few is always the worst solution, and a more equitable distribution always the better one. This applies to the accumulation of values with an ecological footprint as much as to the risks arising from ecological consequences. Were we to consequently deploy digitalisation in these ways on a global scale, then we might still have a thoroughly digitally based economy, but it would no longer be (more or less digital) capitalism.

In this instance, Karl Marx might have pointed out that such a smooth path of transformation (which would indeed turn our entire way of life upside down) is unrealistic. He would likely interject that those (individual and collective) actors who have thus far benefited from the destructive logic of the 'always more' will not simply surrender their privileges—quite possibly not even in return for the prospect of saving the planet. With regard to the major digital corporations of

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our time, this would also be the ultimate litmus test for the Silicon Valley meme of wanting to make the world a better place. At least for the time being, Silicon Valley actors commonly regarded as unique visionaries are not so much preoccupied with saving the planet, but rather with conquering the moon (Jeff Bezos) and Mars (Elon Musk). Karl Marx would certainly have a valid point when asking why the beneficiaries of the existing system should actively and constructively participate in implementing changes that could herald the end of their astronomical profits.

Nor would Karl Polanyi, we may safely assume, have pinned his hopes on the common sense of those at the top of his market society (bearing in mind, of course, that both Karl Marx and Karl Polanyi never direct their critique at the individual acting in their role as entrepreneur, but are concerned with economic structures and mechanisms). Concerning the first great transformation that Polanyi describes, he has something else in mind: deceleration. And other actors, too: politicians. His own plea to politics is unequivocal: "A belief in spontaneous progress' should not make us blind to the 'role of government in economic life. This role consists often in altering the rate of change, speeding it up or slowing it down as the case may be […]" (Polanyi 2001: 39). Today, the free-market oriented, economically liberal state is becoming more and more removed from the principles of the politically liberal (democratic) state. It is therefore no surprise that political actors, consistently opt for acceleration in the context of digital transformation, and—as we have seen—never establish any ecological goals without concomitant growth targets.

Based on an example from the Tudor period, Polanyi shows how the deceleration of enclosures and dispossessions, enforced by the political authorities of the time, at least allowed for those affected to "adjust themselves to changed conditions without fatally damaging their substance, human and economic, physical and moral [and] find new employment [and] new sources of sustenance" (Polanyi 2001: 39). And yet, it is uncertain whether global economic processes, accelerated by the digitalised distributive forces as they are, could even be decelerated by geographically bound social and political processes to begin with. And is it even possible, more generally, to reduce the pace of technological, economic and commercial development to the extent nature would require to be able to adjust to the changes? What other choice do we currently have than to at least work towards deceleration (without losing sight entirely of the option of exiting this economic mode altogether)? And to scrutinise each political decision and deployment of digitalisation in terms of their contribution to deceleration? After all, digitalisation, in its predominant deployment as distributive force and driver of market expansion and consumption in digital capitalism, has so far been geared towards unbridled acceleration.

Bruno Latour's call to *Love your Monsters* (2011) might in fact open up a third path, although it remains to be seen whether such a postmodernist turn is pos-

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sible without radically restructuring the economy. He urges us to take on sincere concern for the consequences of our actions simply as a normal responsibility. At the same time, he rejects the dominant position among eco-activists (i.e. calls for self-restriction) as an ultimately early-modernist notion, in that it entails the scandalisation of unanticipated consequences: "[…] the return of unexpected consequences appears as a scandal (which it is for the modernist myth of mastery) […]" (ibid.: 24). His position is that unexpected consequences ought to be dealt with as we have always done (so he asserts), namely by "intervening, acting, wanting, caring"—only more explicitly, more consequently and at an "ever-increasing scale" (ibid.).

By the time this book is published, Bruno Latour's call cited here will be a decade old. A decade in which digitalisation—particularly in its use as a distributive force—has exponentially scaled Latour's monsters. It is in fact questionable whether we even have the time to discuss differing positions among those who have already identified the protection of the natural environment as an existential imperative. The limitless use and exploitation of humans, nature and society will hardly be mitigated or even stopped simply by one group imposing restrictions on themselves and another expanding care activities. We will be increasingly unable to avoid asking about the systemic reasons for the perpetual creation of one monster after another—and why a systematic engagement with unexpected consequences is possible only when it can be turned into a business model. This issue of the monster as such, however, needs to be resolved not only discursively, but in real terms. And there is little time left to do so. Otherwise, Latour's monsters will prevail.

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

Bibliography

Ad Alliance (2020): Home. Ad Alliance. https://www.ad-alliance.de/ from 16.9.2020.

Albeaik, Saleh / Kaltenberg, Mary / Alsaleh, Mansour / Hidalgo, Cesar A. (2017): "Improving the Economic Complexity Index". In: arXiv:1707.05826 [physics, q-fin].

Alimahomed-Wilson, Jake / Allison, Juliann / Reese, Ellen (2020): "Introduction: Amazon Capitalism". In: Alimahomed-Wilson, Jake/Reese, Ellen (Ed.), The Cost of Free Shipping: Amazon in the Global Economy. London: Pluto Press, pp. 1–19.

Allen, David G. (2019): "Repurposing large US malls and retail spaces". In: International Forum 22/1, pp. 5–17.

Allianz pro Schiene (2020): Übersicht: Alle Informationen zum Güterverkehr auf der Schiene. Allianz pro Schiene. https://www.allianz-pro-schiene.de/themen/gueterverkehr/ from 19.9.2020.

Alphabet (2020): Annual Report 2019. Mountain View: Alphabet Inc. https://sec.report/Document/0001652044-20-000008/ from 8.10.2020.

Alphaliner (2020): Top 100. https://alphaliner.axsmarine.com/PublicTop100/ from 16.9.2020.

Alter, Adam (2018): Irresistible: The Rise of Addictive Technology and the Business of Keeping Us Hooked. New York: Penguin.

Amazon (2020): Annual Report 2019. Seattle: Amazon.com Inc. https://s2.q4cdn.com/299287126/files/doc_financials/2020/ar/2019-Annual-Report.pdf from 6.10.2020.

Amazon (2019): Was Roboter in Amazon Logistikzentren machen (und was sie nicht machen). https://www.aboutamazon.de/logistikzentrum/unsere-innovationen/was-roboter-in-amazon-logistikzentren-machen-und-was-sie-nicht-machen from 31.10.2020.

Amodei, Dario / Hernandez, Danny / Sastry, Girish / Clark, Jack / Brockman, Greg / Sutskever, Ilya (2019): AI and Compute. OpenAI. https://openai.com/blog/ai-and-compute/ from 8.11.2020.

Anand, Nikhil / Gupta, Akhil / Appel, Hannah (Ed.) (2018): The Promise of Infrastructure. Durham: Duke University Press.

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

Apple (2019): Annual Report 2019. Redmond: Apple Inc. https://annualreport.stocklight.com/NASDAQ/AAPL/191181423.pdf.

Armstrong, Stuart / Sotala, Kaj / ÓhÉigeartaigh, Seán S. (2014): "The errors, insights and lessons of famous AI predictions – and what they mean for the future". In: Journal of Experimental & Theoretical Artificial Intelligence 26/3, pp. 317–342.

ATAG (2018): Aviation: Benefits Beyond Borders. Genf: Air Transport Action Group.

Baekdal, Thomas (2019): The Original Cookie specification from 1997 was GDPR compliant. https://baekdal.com/thoughts/the-original-cookie-specification-from-1997-was-gdpr-compliant/.

Baines Jr., Edward (1835): History of the cotton manufacture in Great Britain. London: H. Fisher, R. Fisher, and P. Jackson.

Balsiger, Philip (2016): The Fight for Ethical Fashion: The Origins and Interactions of the Clean Clothes Campaign. New York: Routledge.

Barbrook, Richard / Cameron, Andy (1996): "The Californian Ideology". In: Science as Culture 6/1, pp. 44–72. DOI: https://doi.org/10.1080/09505439609526455.

Barkai, Avraham (1994): "Judentum und Kapitalismus. Ökonomische Vorstellungen von Max Weber und Werner Sombart". In: Menora. Jahrbuch für deutsch-jüdische Geschichte Bd. 5, pp. 25–38.

Barlösius, Eva (2019): Infrastrukturen als soziale Ordnungsdienste: Ein Beitrag zur Gesellschaftsdiagnose. Frankfurt/M., New York: Campus.

Bartosz, Mika (2019): "Transgressing between consumption and production: Materialistic outlook on the digital labour of prosumers". In: Capital & Class 43/2, pp. 339–356.

Baudrillard, Jean (1998): The Consumer Society: Myths and Structures. Los Angeles: Sage.

Bauman, Zygmunt (2007): Consuming Life. Cambridge, Malden: Polity Press.

Becker, Irene (2017): "Konsumteilhabe nach Wohlstandsschichten – verbreitete Defizite". In: Forschungsverbund Sozioökonomische Berichterstattung (Ed.), Berichterstattung zur sozioökonomischen Entwicklung in Deutschland. Exklusive Teilhabe – Ungenutzte Chancen. Dritter Bericht. Bielefeld: wbv, pp. 1–36. DOI: https://doi.org/10.3278/6004498w018.

Belkhir, Lotfi / Elmeligli, Ahmed (2018): "Assessing ICT global emissions footprint: Trends to 2040 & recommendations". In: Journal of Cleaner Production 177, pp. 448–463. DOI: https://doi.org/10.1016/j.jclepro.2017.12.239.

Bell, Daniel (1999): The Coming of Post-industrial Society. A Venture in Social Forecasting. New York: Basic.

Bellemare, Michel Luc (2020): Techno-Capitalist-Feudalism. Durhum: Blacksatin.

Bendell, Jim (2016): Does capitalism need some Marxism to survive the Fourth Industrial Revolution? https://www.weforum.org/agenda/2016/06/could-cap

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

italism-need-some-marxism-to-survive-the-4th-industrial-revolution/ from 23.6.2016.

Benjamin, Walter (2019): "The Work of Art in the Age of Mechanical Reproduction". Illuminations. Essays and Reflections. Boston, New York: Mariner Books Houghton Mifflin Harcourt, pp. 166–195.

Berghoff, Hartmut / Scranton, Philip / Spiekermann, Uwe (2012): "The Origins of Marketing and Market research: Information, Institutions, and Markets". In: Berghoff, Hartmut/Scranton, Philip/Spiekermann, Uwe (Ed.), The Rise of Marketing and Market Research. New York: Palgrave Macmillan, pp. 1–26.

Betancourt, Michael (2018): Kritik des digitalen Kapitalismus. Darmstadt: WBG.

Betancourt, Michael (2015): The Critique of Digital Capitalism: An Analysis of the Political Economy of Digital Culture and Technology. Brooklyn, New York: Punctum Books.

Biagi, Frederico (2013): ICT and productivity: a review of the literature. Sevilla: European Commission Joint Research Centre. http://op.europa.eu/en/publication-detail/-/publication/d9cdb5ed-aaa5-4030-9623-c46769068e39/language-en from 24.8.2020.

BIBB Berufssuche (2020): BIBB / Informationen zu Aus- und Fortbildungsberufen. https://www.bibb.de/dienst/berufesuche/de/index_berufesuche.php from 29.9.2020.

Bieritz, Loreto / Drosdrowksi, Thomas / Stöver, Britta / Thobe, Ines / Wolter, Marc Ingo (2017): "Konsumentwicklung bis 2030 nach Haushaltstypen und Szenarien". In: Forschungsverbund Sozioökonomische Berichterstattung (Ed.), Berichterstattung zur sozioökonomischen Entwicklung in Deutschland. Exklusive Teilhabe – Ungenutzte Chancen. Dritter Bericht. Bielefeld: wbv, pp. 1–34. DOI: https://doi.org/10.3278/6004498w017.

Bin, Daniel (2018): "So-called Accumulation by Dispossession". In: Critical Sociology 44/1, pp. 75–88. DOI: https://doi.org/10.1177/0896920516651687.

Blanchette, Jean-François (2011): "A material history of bits". In: Journal of the American Society for Information Science and Technology 62/6, pp. 1042–1057. DOI: https://doi.org/10.1002/asi.21542.

Blättel-Mink, Birgit / Hellmann, Uwe (Ed.) (2010): Prosumer Revisited: Zur Aktualität einer Debatte. Wiesbaden: Verlag für Sozialwissenschaften.

Bloom, Nicholas / Jones, Charles I. / Reenen, John van / Webb, Michael (2017): Are Ideas Getting Harder to Find? (NBER Working Paper Nr. 23782). National Bureau of Economic Research.

Blum, Andrew (2012): Tubes: A Journey to the Center of the Internet. New York: Ecco Press.

BMF (2020): Monatsbericht des BMF. Berlin: Bundesministerium für Finanzen. https://www.bundesfinanzministerium.de/Monatsberichte/2020/01/Downloads/monatsbericht-2020-01-deutsch.pdf?__blob=publicationFile&v=6.

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

BMU (2019): Künstliche Intelligenz für den Umweltschutz – Pressemitteilung. Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit. https://www.bmu.de/pressemitteilung/kuenstliche-intelligenz-fuer-den-umweltschutz-nutzen/ from 8.11.2020.

Boal, William M. / Ransom, Michael R. (1997): "Monopsony in the Labor Market". In: Journal of Economic Literature 35/1, pp. 86–112.

Boehm, Klaus / Esser, Ralf / Materzok, Christoph / Giessen, Wanja Alexej (2019): The future of advertising Pathways to survival in four scenarios. Deloitte Center for the Long View.

Bologna, Mauro / Aquino, Gerardo (2020): "Deforestation and world population sustainability: a quantitative analysis". In: Scientific Reports 10/1, pp. 7631. DOI: https://doi.org/10.1038/s41598-020-63657-6.

Brabänder, Christian (2020): Die Letzte Meile: Definition, Prozess, Kostenrechnung und Gestaltungsfelder. Wiesbaden: Springer Gabler.

Bratton, Benjamin H. (2016): The Stack. Cambridge, MA: MIT Press.

Brie, Michael (2017): "For an Alliance of Liberal Socialists and Libertarian Commonists: Nancy Fraser and Karl Polanyi—a Possible Dialogue". In: Brie, Michael (Ed.), Karl Polanyi In Dialogue. A Socialist Thinker of Our Time. Montreal, New York, London: Black Rose, pp. 7–64.

Briesen, Detlef (2001): Warenhaus, Massenkonsum und Sozialmoral: Zur Geschichte der Konsumkritik im 20. Jahrhundert. Frankfurt/M., New York: Campus Verlag.

Brockhoff, Klaus (Ed.) (2002): Geschichte der Betriebswirtschaftslehre: Kommentierte Meilensteine und Originaltexte. 2. Aufl. Wiesbaden: Gabler.

Brötz, Rainer / Kaiser, Franz (Ed.) (2015): Kaufmännische Berufe – Charakteristik, Vielfalt und Perspektiven. Bonn: BIBB – Bundesinstitut für berufliche Bildung.

Brunner, Hans (2015): Mit dem Wandel leben: Eine kritische Betrachtung aktueller Themen unserer Zeit. Marburg: Tectum.

Brynjolfsson, Erik / Rock, Daniel / Syverson, Chad (2018): The Productivity J-Curve: How Intangibles Complement General Purpose Technologies (NBER Working Paper Nr. 25148). Cambridge: National Bureau of Economic Research. http://www.nber.org/papers/w25148 from 29.10.2018.

Bughin, Jaques / Kotz, Hans-Helmut / Mischke, Jan (2018): Strong aggregate demand: Critical for reaping benefits of digitisation. Vox – CEPR's Policy Portal. https://voxeu.org/article/strong-aggregate-demand-critical-reaping-benefits-digitisation from 26.12.2018.

Bütikofer, Christian (2015): Amazon verliert Rechtsstreit um Schweizer Produkt. Handelszeitung. https://www.handelszeitung.ch/unternehmen/amazon-verliert-rechtsstreit-um-schweizer-produkt-810935 from 9.10.2020.

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

BVSE (2020): 10 Fragen und Antworten zum Textilrecycling. https://www.bvse.de/gut-informiert-textil-recycling/10-fragen-und-antworten-zum-textilrecycling.html.

Cain, Sian (2020): David Graeber, anthropologist and author of Bullshit Jobs, dies aged 59. The Guardian. http://www.theguardian.com/books/2020/sep/03/david-graeber-anthropologist-and-author-of-bullshit-jobs-dies-aged-59 from 7.10.2020.

Castells, Manuel (2000): The Rise of the Network Society: Economy, Society and Culture. Chichester: Wiley-Blackwell.

Cattero, Bruno / D'Onofrio, Marta (2018): "Organizing and Collective Bargaining in the Digitized 'Tertiary Factories' of Amazon: A Comparison Between Germany and Italy". In: Ales, Edoardo/Curzi, Ylenia/Fabbri, Tommaso/Rymkevich, Olga/Senatori, Iacopo/Solinas, Giovanni (Ed.), Working in Digital and Smart Organizations: Legal, Economic and Organizational Perspectives on the Digitalization of Labour Relations. Cham: Springer, pp. 141–164.

Chen, Weili / Zheng, Zibin / Ngai, Edith C.H. / Zheng, Peilin / Zhou, Yuren (2019): "Exploiting Blockchain Data to Detect Smart Ponzi Schemes on Ethereum". In: IEEE Access 7, pp. 37575–37586. DOI: https://doi.org/10.1109/ACCESS.2019.2905769.

Christensen, Clayton M. / Bever, Derek van (2014): "The Capitalist's Dilemma". In: Harvard Business Review June, pp. 2–10.

Cieślik, Jerzy (2017): Entrepreneurship in Emerging Economies: Enhancing its Contribution to Socio-Economic Development. Cham: Springer International.

Claassen, Rutger (2009): "Scarcity". In: Handbook of Economics and Ethics. DOI: https://doi.org/10.4337/9781848449305.00068.

Cohen, Stephen S. / Zysman, John (1987): Manufacturing matters: The myth of the post-industrial economy. New York: Basic Books.

CoinMarketCap (2021): Cryptocurrency Prices, Charts And Market Capitalizations. CoinMarketCap. https://coinmarketcap.com/ from 16.11.2020.

Collins, Chuck / Ocampo, Omar / Paslaski, Sophia (2020): Billionaire Bonanza 2020. Washington D.C.: Institute of Policy Studies. https://ips-dc.org/wp-content/uploads/2020/04/Billionaire-Bonanza-2020.pdf.

Conrad, Lisa (2017): Organisation im soziotechnischen Gemenge. Mediale Umschichtungen durch die Einführung von SAP. Bielefeld: transcript.

Crawford, Kate / Joler, Vladan (2018): Anatomy of an AI system. The Amazon Echo as an anatomocal map of human labor, data and planetary resources. New York: AI Now Institute. https://anatomyof.ai from 9.12.2018.

Crawford, Susan (1983): "The origin and development of a concept: the information society". In: Bulletin of the Medical Library Association 71/4, pp. 380–385.

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

Dafoe, Allan (2015): "On Technological Determinism: A Typology, Scope Conditions, and a Mechanism". In: Science, Technology, & Human Values 40/6, pp. 1047–1076. DOI: https://doi.org/10.1177/0162243915579283.

Dahrendorf, Ralf (1995): A History of the London School of Economics and Political Science, 1895–1995. Oxford, New York: Clarendon.

Dale, Gareth (2016): Reconstructing Karl Polanyi. London: Pluto.

Dale, Gareth / Holmes, Christopher / Markantonatou, Maria (2019): Karl Polanyi's Political and Economic Thought. Newcastle upon Tyne: Agenda Publishing.

Datanyze (2020): Retargeting Market Share Report | Competitor Analysis | Facebook Web Custom Audiences, Google Dynamic Remarketing, Google Remarketing. Datanyze. /market-share/retargeting from 16.9.2020.

Deloitte (2015): Facebook's global economic impact. A report for Facebook. London: Deloitte. https://www2.deloitte.com/content/dam/Deloitte/uk/Documents/technology-media-telecommunications/deloitte-uk-global-economic-impact-of-facebook.pdf from 3.11.2020.

Desai, Radhika / Polanyi Levitt, Kari (Ed.) (2020): Karl Polanyi and twenty-first-century capitalism. Manchester: Manchester University Press.

Destatis (2020): IKT-Indikatoren 52911. https://www-genesis.destatis.de/genesis/online?sequenz=tabellen&selectionname=52911*#abreadcrumb from 25.9.2020.

Dolata, Ulrich (2019): "Privatization, curation, commodification". In: Österreichische Zeitschrift für Soziologie 44/1, pp. 181–197. DOI: https://doi.org/10.1007/s11614-019-00353-4.

Dolata, Ulrich (2011): Radical Change as Gradual Transformation: Characteristics and Variants of Socio-technical Transitions, and Irreversibly Transforming Employment and the Economyn im Social Web (SOI Discussion Paper Nr. 2011– 03). Stuttgart: Universität Stuttgart. https://www.sowi.uni-stuttgart.de/dokumente/forschung/soi/soi3_dolata_radical_change.pdf from 15.2.2014.

Dörre, Klaus / Rosa, Hartmut / Becker, Karina / Bose, Sophie / Seyd, Benjamin (2019): Große Transformation? Zur Zukunft moderner Gesellschaften: Sonderband des Berliner Journals für Soziologie. Wiesbaden: Springer VS.

Drahos, Peter / Braithwaite, John (2002): Information Feudalism: Who Owns the Knowledge Economy? New York: Taylor & Francis.

Drucker, Peter F. (2015): Innovation and Entrepreneurship: Practice and Principles. Boston: Butterworth Heinemann.

Drucker, Peter F. (1999): "Beyond the Information Revolution". In: Atlantic Monthly 284/4, pp. 47–57.

Drucker, Peter F. (1994): "The age of social transformation". In: The Atlantic Monthly 274/5, pp. 53–80.

Drucker, Peter F. (1993): "The Rise of the Knowledge Society". In: The Wilson Quarterly 17/2, pp. 52–71.

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

Drucker, Peter F. (1969): The Age of Discontinuity: Guidelines to our Changing Society. New York: Harper & Row.

DSLV (2019): Jahresbericht 2018/2019. Berlin: Bundesverband Spedition und Logistik.

Dubet, Francois (2016): Injustice at Work. Illustrated Edition. Milton Park, New York: Routledge.

DVZ (2019): "Länder und ihre Logistikkosten". In: Deutsche Verkehrs-Zeitung.

Eggert, Anne-Katrin / Müller, Josef K. / Wimmer, Ernst Anton / Zissler, Dieter (2010): "Fortpflanzung und Entwicklung". In: Dettner, Konrad/Peters, Werner (Ed.), Lehrbuch Der Entomologie. Heidelberg, Berlin: Springer Spektrum, pp. 357–463.

EHI (2020): Umsatz im Einzelhandel mit Bekleidung und Textilien (2005–2019). Handelsdaten. https://www.handelsdaten.de/textilien-und-bekleidung/umsatz-im-einzelhandel-mit-bekleidung-und-textilien-deutschland-zeitreihe from 13.9.2020.

Engels, Frederick (2001): "Engels to Conrad Schmidt, 5 August 1890". Marx-Engels Collected Works (MECW) Vol. 49. London: Lawrence & Wishart, pp. 6–9.

Engels, Frederick (1998): "Preface to Capital, Vol. III.". Marx-Engels Collected Works (MECW) Vol. 37. London: Lawrence & Wishart, pp. 5–23.

Engels, Frederick (1987): "Anti-Dühring. Herr Eugen Dühring's Revolution in Science". Marx-Engels Collected Works (MECW) Vol. 25. London: Lawrence & Wishart, pp. 5–312.

Engels, Frederick (1978): "The English Ten Hours' Bill". Marx-Engels Collected Works (MECW) Vol. 10. London: Lawrence & Wishart, pp. 288–301.

Engels, Frederick (1976): "German Socialism in Verse and Prose". Marx-Engels Collected Works (MECW) Vol. 10. London: Lawrence & Wishart, pp. 235–273.

Engels, Frederick (1975): "Condition of the Working Class in England". Marx-Engels Collected Works (MECW) Vol. 4. London: Lawrence & Wishart, pp. 295–596.

EU (2019): The European Green Deal (Nr. COM(2019) 640 final). Brussels: European Commission. https://eur-lex.europa.eu/resource.html?uri=cellar:b828d165-1c22-11ea-8c1f-01aa75ed71a1.0002.02/DOC_1&format=PDF.

Euler, Dieter / Severing, Eckart (2017): Welche Berufsausbildungen sind durch akademische Bildungsangebote gefährdet? Indikatoren für eine Verschiebung von der Berufsausbildung in akademische Studienangebote. Gütersloh: Bertelsmann Stiftung. https://www.bertelsmann-stiftung.de/fileadmin/files/BSt/Publikationen/GrauePublikationen/LL_GP_Welche_Berufsausbildungen_gefaehrdet.pdf from 3.9.2018.

Evans, Will (2020): How Amazon hid its safety crisis. Reveal. https://revealnews.org/article/how-amazon-hid-its-safety-crisis/ from 31.10.2020.

Eyal, Nir (2014): Hooked: How to Build Habit-Forming Products. London, New York, Toronto: Portfolio Penguin.

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

Facebook (2020a): Annual Report 2019. Menlo Park: Facebook Inc. https://sec.report/Document/0001326801-20-000013/ from 15.10.2020.

Facebook (2020b): What "The Social Dilemma" Gets Wrong. https://about.fb.com/wp-content/uploads/2020/10/What-The-Social-Dilemma-Gets-Wrong.pdf from 6.10.2020.

FAW (2020): Key2OOH. Werbewirkungsstudie. Frankfurt/M.: Fachverband Außenwerbung. https://faw-ev.de/media/downloads/2020/faw_werbewirkungsstudie_key2ooh_charts.pdf from 17.9.2020.

FAW (2005): Die Allgemeinstelle. Rundum gelungene Werbung. Frankfurt/M.: Fachverband Außenwerbung. https://faw-ev.de/media/downloads/allgemeinstelle_rundum_gelungene_werbung.pdf from 17.9.2020.

Ferrary, Michel / Granovetter, Mark (2009): "The Role of Venture Capital Firms in Silicon Valley's Complex Innovation Network". In: Economy and Society 38/2, pp. 326–359. DOI: http://dx.doi.org/10.1080/03085140902786827.

Ferretti, Federico / Vandone, Daniela (2019): Personal Debt in Europe: The EU Financial Market and Consumer Insolvency. Cambridge: Cambridge University Press. https://www.cambridge.org/core/books/personal-debt-in-europe/CB644258ECFF244A47E5889AAF805090 from 19.9.2020.

Filler, Thies (2019): Entwicklung einer Methodik für die durchgängige Integration von Hardware- und Softwaremodellen in Simulationen für Fahrfunktionen. Wiesbaden: Springer Fachmedien.

Fine, Ben / Harris, Laurence (1979): Rereading Capital. New York: Macmillan.

Flipo, Fabrice / Schneider, François (Ed.) (2008): Economic De-Growth for Ecological Sustainability and Social Equity. Proceedings of the 1st International Conference, Paris, 18.–19. April 2008. Paris: European Society of Ecological Economics. https://www.growthintransition.eu/wp-content/uploads/2008_degrowth-conference-proceedings.pdf from 27.6.2018.

Friedman, Milton (1970): "The Social Responsibility of Business is to Increase its Profits". In: The New York Times Magazine, p. 17.

Friedman, Thomas L. (2007): "A Warning From the Garden". The New York Times from 19.1.2007. https://www.nytimes.com/2007/01/19/opinion/19friedman.html from 2.10.2020.

Fröhlich, Elisabeth / Lord, Sascha / Steinbiß, Kristina / Weber, Torsten (2018): Marketing: Eine praxisorientierte Einführung. Konstanz, München: UTB.

Fuchs, Christian (2015): "Towards Marxian Internet Studies". In: Fuchs, Christian/Mosco, Vincent (Ed.), Marx in the Age of Digital Capitalism. Leiden, Boston: Brill, pp. 22–67.

Gaugler, Eduard / Köhler, Richard (Ed.) (2002): Entwicklungen der Betriebswirtschaftslehre: 100 Jahre Fachdisziplin – zugleich eine Verlagsgeschichte. Stuttgart: Schäffer-Poeschel.

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

Gavet, Maëlle (2020): Trampled by Unicorns: Big Tech's Empathy Problem and How to Fix It. Hoboken, New Jersey: Wiley.

Gavett, Gretchen (2014): "CEOs Get Paid Too Much, According to Pretty Much Everyone in the World". In: Harvard Business Review. https://hbr.org/2014/09/ceos-get-paid-too-much-according-to-pretty-much-everyone-in-the-world from 7.10.2020.

Genco, Stephen J. (2013): Neuromarketing For Dummies. Mississauga: Wiley.

Gestring, Norbert / Neumann, Ute (2007): "Von Mall Rats und Mall Bunnies. Jugendliche in Shopping Malls". In: Wehrheim, Jan (Ed.), Shopping Malls: Interdisziplinäre Betrachtungen eines neuen Raumtyps. Wiesbaden: VS Verlag für Sozialwissenschaften, pp. 135–152.

Ghaemi, S.N. (2020): "Digital depression: a new disease of the millennium?". In: Acta Psychiatrica Scandinavica 141/4, pp. 356–361. DOI: https://doi.org/10.1111/acps.13151.

Gleeson-White, Jane (2020): Six Capitals Updated Edition: Capitalism, climate change and the accounting revolution that can save the planet. Sydney, Melbourne: Allen & Unwin.

Gleeson-White, Jane (2013): Double Entry: How the Merchants of Venice Created Modern Finance. Sydney, Melbourne: Allen & Unwin.

Glen, Carol (2017): Controlling Cyberspace: The Politics of Internet Governance and Regulation. Santa Barbara: Praeger.

Grabher, Gernot / König, Jonas (2020): "Disruption, Embedded. A Polanyian Framing of the Platform Economy". In: Sociologica 14/1, pp. 95–118. DOI: https://doi.org/10.6092/issn.1971-8853/10443.

Graeber, David (2011): Debt: The First 5,000 Years. Brooklyn: Melville House.

Grim, Priscilla / no name, Chris (2011): We are the 99 Percent. We Are the 99 Percent. https://wearethe99percent.tumblr.com/post/9289779051/we-are-the-99-percent from 7.10.2020.

GTAI (2020): US-Markt für Lagerflächen trotzt der Coronakrise | Branchen | USA | Bau. Germany trade & Invest. https://www.gtai.de/gtai-de/trade/branchen/branchenbericht/usa/us-markt-fuer-lagerflaechen-trotzt-der-coronakrise-532502 from 19.9.2020.

Gurley, Lauren Kaori (2020): Secret Amazon Reports Expose Company Spying on Labor, Environmental Groups. Motherboard – Tech by Vice. https://www.vice.com/en/article/5dp3yn/amazon-leaked-reports-expose-spying-warehouse-workers-labor-union-environmental-groups-social-movements?mc_cid=71b7edb678&mc_eid=739a596898 from 29.11.2020.

Hardt, Michael / Negri, Antonio (2000): Empire. Cambridge Oxon: Harvard University Press.

Hartmann, Dominik / Guevara, Migual R. / Jara-Figueroa, Christian / Aristarán, Manuel / Hidalgo, César A. (2017): "Linking Economic Complexity, Institu-

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

tions, and Income Inequality". In: World Development 93, pp. 75–93. DOI: http://dx.doi.org/10.1016/j.worlddev.2016.12.020.

Harvey, David (2011a): The Condition of Postmodernity: An Enquiry into the Origins of Cultural Change. Malden: Blackwell.

Harvey, David (2011b): The Enigma of Capital: And the Crises of Capitalism. London: Profile Books.

Harvey, David (2006a): "Neo-Liberalism as Creative Destruction". In: Geografiska Annaler: Series B, Human Geography 88/2, pp. 145–158. DOI: https://doi.org/10.1111/j.0435-3684.2006.00211.x.

Harvey, David (2006b): The Limits to Capital. London, New York: Verso.

Harvey, David (2003): The New Imperialism. Oxford: Oxford University Press.

Haug, Wolfgang Fritz (2009): Kritik der Warenästhetik. Gefolgt von Warenästhetik im High-Tech-Kapitalismus. Frankfurt/M.: Suhrkamp.

Haug, Wolfgang Fritz (1986): Critique of Commodity Aesthetics: Appearance, Sexuality, and Advertising in Capitalist Society. Minneapolis: University of Minnesota Press.

Hausmann, Ricardo / Hidalgo, César A. (2011): The Atlas of Economic Complexity. Mapping Paths to Prosperity. Cambridge: MIT Press.

HDE (2020): Online Monitor 2020. Köln. https://einzelhandel.de/index.php?option=com_attachments&task=download&id=10433 from 9.10.2020.

Hecht, Sonja (2014): Ein Reifegradmodell für die Bewertung und Verbesserung von Fähigkeiten im ERP-Anwendungsmanagement. Wiesbaden: Springer Fachmedien.

Hellmann, Kai-Uwe (2013): Der Konsum der Gesellschaft. Studien zur Soziologie des Konsums. Wiesbaden: Springer VS.

Hellmann, Uwe / Schrage, Dominik (2005): Das Management der Kunden. Studien zur Soziologie des Shopping. Wiesbaden: VS Verlag für Sozialwissenschaften.

Helm, Sabrina / Kim, Soo Hyun / Van Riper, Silvia (2018): "Navigating the 'retail apocalypse': A framework of consumer evaluations of the new retail landscape". In: Journal of Retailing and Consumer Services (online first). DOI: https://doi.org/10.1016/j.jretconser.2018.09.015.

Hennig, Karl Wilhelm (1962): Doppelte Buchführung. Wiesbaden: Gabler.

Hesse, Wolfgang (2020): "Das Zerstörungspotenzial von Big Data und Künstlicher Intelligenz für die Demokratie". In: Informatik Spektrum 43/5, pp. 339–346. DOI: https://doi.org/10.1007/s00287-020-01283-2.

Hickel, Jason (2020): "The Imperative of Redistribution in an Age of Ecological Overshoot: Human Rights and Global Inequality". In: Humanity: An International Journal of Human Rights, Humanitarian, and Development 10/3, pp. 416–428.

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

Hickel, Jason (2019): "The contradiction of the sustainable development goals: Growth versus ecology on a finite planet". In: Sustainable Development 27/5, pp. 873–884. DOI: https://doi.org/10.1002/sd.1947.

Hidalgo, Cesar (2016): Why Information Grows: The Evolution of Order, from Atoms to Economies. New York: Basic.

Hidalgo, César A. / Hausmann, Ricardo (2009): "The building blocks of economic complexity". In: PNAS – Proceedings of the National Academy of Sciences of the United States of America 106/26, pp. 10570–10575. DOI: https://doi.org/10.1073/pnas.0900943106.

Hohlmann, Brita (2007): Organisation SAP – Soziale Auswirkungen technischer Systeme. Darmstadt, Malden: TU Darmstadt.

Holleran, Claire (2011): Shopping in Ancient Rome: The Retail Trade in the Late Republic and the Principate. Oxford: Oxford University Press.

Hollingsworth, Joseph / Copeland, Brenna / Johnson, Jeremiah X. (2019): "Are e-scooters polluters? The environmental impacts of shared dockless electric scooters". In: Environmental Research Letters 14/8, pp. 084031. DOI: https://doi.org/10.1088/1748-9326/ab2da8.

Holmes, Aaron (2020): The Big 4 tech companies — Amazon, Apple, Facebook, and Google — blew past Wall Street estimates in their latest-quarter earnings reports. Business Insider. https://www.businessinsider.com/aapl-amzn-goog-fb-q3-earnings-big-tech-results-analysis-2020-10 from 30.10.2020.

Hopkins, Terence K. / Wallerstein, Immanual (1986): "Commodity Chains in the World-Economy Prior to 1800". In: Review (Fernand Braudel Center) 10/1, pp. 157–170.

Horch, Annegret / Handrich, Lars / Pavel, Ferdinand (2016): Die ökonomische Bedeutung der Werbung. Berlin: Deutsches Institut für Wirtschaftsforschung (DIW). https://diw-econ.de/wp-content/uploads/2016/10/diwkompakt_2016-115.pdf.

Hörstermann, Katharina (2016): "Konsumausgaben als Wohlstandsindikator – was können sie uns über Armut und Ungleichheit berichten? Ein Vergleich einkommens- und konsumbasierter Armuts- und Ungleichheitsmaße mit Hilfe der Einkommens- und Verbrauchsstichprobe". In: Zeitschrift für Soziologie 45/3, pp. 181–199. DOI: https://doi.org/10.1515/zfsoz-2015-1011.

Huws, Ursula (1999): "Material World: The Myth of the Weightless Economy". In: Socialist Register 35, pp. 29–55.

IATA (2019): World Air Transport Statistics. Montreal, Genf.

Isaacson, Walter (2011): Steve Jobs: The Exclusive Biography. New York: Simon & Schuster.

Israel, Joachim (1979): Language of Dialectics and the Dialectics of Language. Copenhagen: Munksgaard.

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

Jackson, Tim (2017): Prosperity without Growth: Foundations for the Economy of Tomorrow. London, New York: Taylor & Francis.

Jackson, Tim (1996): "This bug in your PC is a smart cookie". Financial Times UK from 12.2.1996. https://archive.org/stream/FinancialTimes1996UKEnglish/Feb%2012%201996%2C%20Financial%20Times%2C%20%2312%2C%20UK%20(en)#page/n29/mode/2up from 20.6.2020.

Johnson, Glenn / Quance, C. Leroy (2013): The Overproduction Trap in U.S. Agriculture: A Study of Resource Allocation from World War I to the Late 1960's. New York, London: RFF Press.

Kagermann, Henning / Lukas, Wolf-Dieter / Wahlster, Wolfgang (2011): "Industrie 4.0: Mit dem Internet der Dinge auf dem Weg zur 4. industriellen Revolution". vdi Nachrichten from 1.4.2011. http://www.vdi-nachrichten.com/Technik-Gesellschaft/Industrie-40-Mit-Internet-Dinge-Weg-4-industriellen-Revolution from 24.5.2015.

Katschker, Filip (2020): The most valuable companies in the world rely on data-based business models. LSPdigital. https://www.lsp.de/en/insights/most-valuable-companies-world-rely-data-based-business-models from 10.10.2020.

Kemp-Benedict, Eric (2014): An interpretation and critique of the Method of Reflections (MPRA Paper Nr. 60705). Bangkok: Chulalongkorn University. https://mpra.ub.uni-muenchen.de/60705/ from 28.8.2020.

Kenney, Martin / Zysman, John (2018a): "Unicorns, Cheshire Cats, and the New Dilemmas of Entrepreneurial Finance". In: Venture Capital. An International Journal for Entrepreneurial Finance (forthcoming).

Kenney, Martin / Zysman, John (2018b): Work and Value Creation in the Platform Economy (Nr. 2018–4). BRIE Working PaperBerkeley: Berkeley Roundtable on the International Economy. https://brie.berkeley.edu/sites/default/files/brie_wp_20184.pdf from 14.10.2018.

Kenney, Martin / Zysman, John / Bearson, Dafna (2020): What Polanyi Teaches Us: The Platform Economy and Structural Change. Berkeley: University of California. https://brie.berkeley.edu/sites/default/files/brie_working_paper_2020-6.pdf from 17.9.2020.

Kenning, Peter (2020): Definition: Distribution. https://wirtschaftslexikon.gabler.de/definition/distribution-28886 from 26.9.2020.

Keupp, Jan (2017): Die Gegenstandslosigkeit des Materiellen: Was den material turn zum Abtörner macht. Mittelalter. Interdisziplinäre Forschung und Rezeptionsgeschichte. https://mittelalter.hypotheses.org/10617 from 1.9.2020.

Khurana, Rakesh (2010): From Higher Aims to Hired Hands. Princeton: Princeton University Press.

Kiatpongsan, Sorapop / Norton, Michael I. (2014): "How Much (More) Should CEOs Make? A Universal Desire for More Equal Pay". In: Perspectives on Psychological Science 9/6, pp. 587–593. DOI: https://doi.org/10.1177/1745691614549773.

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

Kim, Youcheer / Kim, Yongshin (2019): "Institutional Origins of the US–China Trade War: The Concurrence of America's Limited Legal Leverage and China's Overproduction". In: Pacific Focus 34/3, pp. 345–375. DOI: https://doi.org/10.1111/pafo.12147.

Kirby, Peadar (2020): Karl Polanyi and the Contemporary Political Crisis: Transforming Market Society in the Era of Climate Change. New York: Bloomsbury Academic.

Kleibert, Jana M. / Mann, Laura (2020): "Capturing Value amidst Constant Global Restructuring? Information-Technology-Enabled Services in India, the Philippines and Kenya". In: The European Journal of Development Research 32/4, pp. 1057–1079. DOI: https://doi.org/10.1057/s41287-020-00256-1.

Klein, Christian (2020): Bericht auf der ordentlichen Hauptversammlung am 20. Mai 2020. Walldorf: SAP AG. https://www.sap.com/docs/download/investors/2020/sap-2020-hv-ceo-rede-praesentation.pdf.

Klein, Naomi (2010): No Logo. 10th anniversary edition. London: Harper Collins.

Kline, Robert R. (2001): "Technological Determinism". In: Smelser, Neil J./Baltes, Paul B. (Ed.), International Encyclopedia of the Social & Behavioral Sciences. Oxford: Pergamon, pp. 15495–15498.

Klotz, Ulrich (1986): "'Künstliche Intelligenz' und Expertensysteme – Mythos oder Realität?". In: Die Mitbestimmung 11, pp. 562–587.

Köhler, Richard (2002): "Marketing – Von der Reklame zur Konzeption einer marktorientierten Unternehmensführung". In: Gaugler, Eduard/Köhler, Richard (Ed.), Entwicklungen Der Betriebswirtschaftslehre: 100 Jahre Fachdisziplin – Zugleich Eine Verlagsgeschichte. Stuttgart: Schäffer-Poeschel, pp. 355–384.

Konrad, Erhard (1998): "Zur Geschichte der Künstlichen Intelligenz in der Bundesrepublik Deutschland". In: Siefkes, Dirk/Eulenhöfer, Peter/Stach, Heike/Städtler, Klaus (Ed.), Sozialgeschichte der Informatik: Kulturelle Praktiken und Orientierungen, Studien zur Wissenschafts- und Technikforschung. Wiesbaden: Deutscher Universitätsverlag, pp. 287–296. https://doi.org/10.1007/978-3-663-08954-4_17.

Kotkin, Joel (2020): Coming of Neo-Feudalism: A Warning to the Global Middle Class. New York: Encounter.

Krause, Ulrich (1982): "Marxsche Reproduktionsschemata und Wirtschaftstheorie von M. Turban – Buchbesprechung". In: Zeitschrift für Nationalökonomie/Journal of Economics 42/3, pp. 327–330.

Kristol, David M. / Montulli, Lou (1997): HTTP State Management Mechanism. Network Working Group. https://tools.ietf.org/html/rfc2109.

Kroker, Michael (2018): Die lange Liste schwieriger und gefloppter SAP-Projekte. https://www.wiwo.de/unternehmen/it/haribo-lidl-deutsche-post-und-co-

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

die-lange-liste-schwieriger-und-gefloppter-sap-projekte/23771296.html from 11.4.2019.

Küffmann, Karin (2020): "Vergleich ausgewählter lokaler Online-Marktplätze für stationäre Einzelhändler". In: HMD Praxis der Wirtschaftsinformatik 57/3, pp. 1–19. DOI: https://doi.org/10.1365/s40702-018-00463-9.

Kühl, Stefan (2005): Exit. How Venture Capital Changes the Laws of Economics. Working Papers 3/2005Hamburg: Helmut-Schmidt-Universität. https://uni-bielefeld.de/fakultaeten/soziologie/fakultaet/personen/kuehl/pdf/Paper3.2005.-Exit-How-Venture-Capital-changes-the-Law-of-Economics.pdf.

Kühl, Stefan (2003): Exit: Wie Risikokapital die Regeln der Wirtschaft verändert. Frankfurt/M.: Campus.

Kumar, Ashok (2020): Monopsony Capitalism: Power and Production in the Twilight of the Sweatshop Age. Cambridge, New York: Cambridge University Press.

Kurzweil, Ray (2005): The Singularity is Near. When Humans Transcend Biology. London: Penguin.

Kus, Basak / Nolan, Brian / Whelan, Christopher W. (2017): "Material Deprivation and Consumption". In: Brady, David/Burton, Linda M. (Ed.), The Oxford Handbook of the Social Science of Poverty. New York: Oxford University Press, pp. 577–601.

Lash, Scott (2002): Critique of Information. London, Thousands Oaks, New Delhi: Sage.

Latour, Bruno (2011): "Love Your Monsters. Why We Must Care For Our Technologies As We Do Our Children". In: Breakthrough Journal Fall, pp. 19–26.

Lauer, Josh (2012): "Making the Ledgers Talk: Customer Control and the Origins of Retail Data Mining, 1920–1940". In: Berghoff, Hartmut/Scranton, Philip/Spiekermann, Uwe (Ed.), The Rise of Marketing and Market Research. New York: Palgrave Macmillan, pp. 153–170.

LaVecchia, Olivia / Mitchell, Stacy (2018): Amazon's Next Frontier: Your City's Purchasing. Amazon is changing the rules for how local governments buy goods — and putting cities, counties, and school districts at risk. Minneapolis, Portland, Washington: Institute for Local Self-Reliance. https://ilsr.org/wp-content/uploads/2018/07/ILSR_AmazonsNextFrontier_Final.pdf from 22.1.2019.

LaVecchia, Olivia / Mitchell, Stacy (2016): Amazon's Stranglehold: How the Company's Tightening Grip Is Stifling Competition, Eroding Jobs, and Threatening Communities. Minneapolis, Portland, Washington: Institute for Local Self-Reliance. https://ilsr.org/wp-content/uploads/2016/11/ILSR_AmazonReport_final.pdf from 22.1.2019.

Lefebvre, Henri (2009): Dialectical Materialism. Minneapolis: University of Minnesota Press.

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

Lefebvre, Jean-Pierre (1987): "Produktivkraft". In: Haug, Wolfgang Fritz (Ed.)/Utz, Ilse (Tran.), Kritisches Wörterbuch des Marxismus. Band 6: Pariser Kommune bis Romantik. Berlin: Argument, pp. 1065–1071.

Lehmacher, Wolfgang (2017): Digital einkaufen: Warum wir unsere Wohnzimmer in Marktplätze verwandelt haben. Wiesbaden: Springer Fachmedien.

Lepik, Andres / Bader, Vera Simone (Ed.) (2016): World of Malls: Architectures of Consumption. Berlin, Hamburg: Hatje Cantz.

Locke, Robert R. / Spender, J.C. (2011): Confronting Managerialism: How the Business Elite and Their Schools Threw Our Lives Out of Balance. London, New York: Zed Books.

Logemann, Jan / Cross, Gary / Köhler, Ingo (2019): "Beyond the Mad Men: Consumer Engineering and the Rise of Marketing Management, 1920–1970s". In: Logemann, Jan/Cross, Gary/Köhler, Ingo (Ed.), Consumer Engineering, 1920s–1970s: Marketing between Expert Planning and Consumer Responsiveness. New York: Palgrave Macmillan, pp. 1–20.

Logemann, Jan L. (2019): Engineered to Sell: European Emigrés and the Making of Consumer Capitalism. Chicago, London: The University of Chicago Press.

Lutz, Burkhard (1987): "Das Ende des Technikdeterminismus und die Folgen. Soziologische Technikforschung vor neuen Aufgaben und neuen Problemen". In: Lutz, Burkhard (Ed.), Technik und sozialer Wandel. Verhandlungen des 23. Deutschen Soziologentags in Hamburg 1986. Frankfurt/M., New York: Campus, pp. 34–52. https://www.ssoar.info/ssoar/bitstream/handle/document/17995/ssoar-1987-lutz-das_ende_des_technikdeterminismus_und.pdf?sequence=1.

Luxemburg, Rosa (1951): The Accumulation of Capital. London: Routledge.

MacDonald, Dwight (2017): Ford Foundation. Routledge.

Magic Lasso Adblock (2020): Hey Google, stop tracking me. https://www.magiclasso.co/insights/hey-google/ from 8.11.2020.

Maier, Benedikt (2019): Automobilvertrieb 2030: Strukturen, Szenarien und Lösungsansätze. Wiesbaden: Springer Fachmedien.

Majumder, Sreenath / SenGupta, Anuradha (2020): The Political Economy of Digital Automation: Measuring its Impact on Productivity, Economic Growth, and Consumption. Abingdon: Routledge.

Marker, Dennis (2012): Fifteen Steps to Corporate Feudalism: How the Rich Convinced America's Middle Class Eliminate Themselves. Santa Fe: One Standard.

MarketplacePulse (2020): Number of Sellers on Amazon Marketplaxe. https://www.marketplacepulse.com/amazon/number-of-sellers from 29.10.2020.

Markets and Markets (2020): Emotion Detection and Recognition Market. Hadapsar, Northbrook. https://www.marketsandmarkets.com/Market-Reports/emotion-detection-recognition-market-23376176.html from 1.11.2020.

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

Marx, Karl (1998): "Capital, Vol. III. The Process of Capitalist Production as a Whole". Marx-Engels Collected Works (MECW) Vol. 37. London: Lawrence & Wishart.

Marx, Karl (1997): "Capital, Vol. II. The Process of Circulation of Capital". Marx-Engels Collected Works (MECW) Vol. 36. London: Lawrence & Wishart.

Marx, Karl (1996): "Capital, Vol. I. The Process of Production of Capital". Marx-Engels Collected Works (MECW) Vol. 35. London: Lawrence & Wishart.

Marx, Karl (1988): "Economic Works 1861–63". Marx-Engels Collected Works (MECW) Vol. 30. London: Lawrence & Wishart.

Marx, Karl (1987): "A Contribution to the Critique of Political Economy". Marx-Engels Collected Works (MECW) Vol. 29. London: Lawrence & Wishart, pp. 257–417.

Marx, Karl (1986): "Economic Manuscripts of 1857–58". Marx-Engels Collected Works (MECW) Vol. 28. London: Lawrence & Wishart.

Marx, Karl (1985): "Value, Price and Profit". Marx-Engels Collected Works (MECW) Vol. 20. London: Lawrence & Wishart, pp. 101–149.

Marx, Karl (1982): "Letter to Pavel Vasilyevich Annenkov". Marx-Engels Collected Works (MECW) Vol. 38. London: Lawrence & Wishart, pp. 95–106.

Marx, Karl (1976a): "The Poverty of Philosophy. Answer to the Philosophy of Poverty by M. Proudhon". Marx-Engels Collected Works (MECW) Vol. 6. London: Lawrence & Wishart, pp. 104–212.

Marx, Karl (1976b): "Wages". Marx-Engels Collected Works (MECW) Vol. 6. London: Lawrence & Wishart, pp. 415–437.

Marx, Karl / Engels, Frederick (1978): "Reviews from the Neue Rheinische Politisch-ökonomische Revue No. 4". Marx-Engels Collected Works (MECW) Vol. 10. London: Lawrence & Wishart, pp. 301–337.

Marx, Karl / Engels, Frederick (1976a): "Manifesto of the Communist Party". Marx-Engels Collected Works (MECW) Vol. 6. London: Lawrence & Wishart, pp. 477–519.

Marx, Karl / Engels, Frederick (1976b): "The German Ideology". Marx-Engels Collected Works (MECW) Vol. 5. London: Lawrence & Wishart, pp. 19–539.

Mason, Paul (2016): Postcapitalism: A Guide to Our Future. London: Penguin.

Mazzucato, Mariana (2018): The Value of Everything: Making and Taking in the Global Economy. London: Allen Lane.

Mazzucato, Mariana (2015): The Entrepreneurial State: Debunking Public vs. Private Sector Myths. New York: Public Affairs.

McCorduck, Pamela (2004): Machines Who Think: A Personal Inquiry into the History and Prospects of Artificial Intelligence. 2. Edition. Boca Racon: CRC Press.

Meek, Ronald L. (2008): Economics of Physiocracy. Essays and translations. London: Routledge.

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

Mende, Martin (2019): "Retail Apocalypse or Golden Opportunity for Retail Frontline Management? – ProQuest". In: Journal of Retailing 95/2, pp. 84–89. DOI: https://doi.org/DOI:10.1016/j.jretai.2019.06.002.

Mezzadri, Alessandra (2017): The Sweatshop Regime: Labouring Bodies, Exploitation, and Garments Made in India. New York: Cambridge University Press.

Microacquire (2020): Buy a startup within 30 days. Trusted listings. No fees. https://microacquire.com from 20.11.2020.

Microsoft (2020): Supply Chain Management | Microsoft Dynamics 365. https://dynamics.microsoft.com/de-de/supply-chain-management/overview/ from 26.9.2020.

Microsoft (2019): Annual Report 2019. Redmond: Microsoft Corporation. https://c.s-microsoft.com/en-us/CMSFiles/MSFT_FY19Q4_10K.docx?version=0a785912-1d8b-1ee0-f8d8-63f2fb7a5f00 from 9.10.2020.

Milanović, Branko (2019): Capitalism, Alone: The Future of the System That Rules the World. Cambridge: Harvard University Press.

Miles, Edward W. (2019): The Purpose of the Business School: Alternative Views and Implications for the Future. Cham: Springer.

Miller, Peter (2001): "Governing by Numbers: Why Calculative Practices Matter". In: Social Research 68/2, pp. 379–396.

Mingardi, Alberto (2015): "A Critique of Mazzucato's Entrepreneurial State". In: The Cato Journal 33/3, pp. 603–625.

Minssen, Heiner (2012): "Die Transformation von Arbeitskraft in Arbeit". In: Minssen, Heiner (Ed.), Arbeit in der modernen Gesellschaft: Eine Einführung, Studientexte zur Soziologie. Wiesbaden: VS Verlag für Sozialwissenschaften, pp. 31–47.

Mora, Camilo / Rollins, Randi L. / Talady, Katie / Kantar, Michael B. / Chock, Mason K. / Shimada, Mio / Franklin, Erik C. (2018): "Bitcoin emissions alone could push global warming above 2°C". In: Nature Climate Change 8, pp. 924–936. DOI: https://doi.org/10.1038/s41558-018-0321-8.

Moreno, Luis / Jimenez, Raul (2018): Robotized democracies: US and EU: neo-feudalism and citizenship income? Madrid, Barcelona: Independently published.

Morozov, Evgeny (2017): Freedom as a Service: The New Digital Feudalism and the Future of the City. New York: Farrar Straus & Giroux.

Moses, Elissa / Clark, Kimberly Rose (2020): "The Neuromarketing Revolution: Bringing Science and Technology to Marketing Insight". In: Bukhrashvili, Paata/Chkoniya, Valentina/Madsen, Ana Oliveira (Ed.), Anthropological Approaches to Understanding Consumption Patterns and Consumer Behavior. Hershey: Business Science Reference, pp. 449–464.

Mouammine, Yahia / Azdimousa, Hassan (2019): "Using Neuromarketing and AI to collect and analyse consumer's emotion: Literature review and perspectives". In: International Journal of Business & Economic Strategy 12/2, pp. 34–38.

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

Moyn, Samuel (2015): Human rights and the age of inequality. OpenGlobalRights. https://www.openglobalrights.org/human-rights-and-age-of-inequality/ from 2.10.2020.

Murnane, Ben (2018): Ayn Rand and the Posthuman. The Mind-Made future. Cham: Palgrave Macmillan.

Murphy, Mike (2020): Facebook employees may face pay cut if they move to cheaper areas to work from home. MarketWatch. https://www.marketwatch.com/story/facebook-employees-may-face-pay-cut-if-they-move-to-cheaper-areas-to-work-from-home-2020-05-21 from 9.9.2020.

Nassehi, Armin (2019): Muster: Theorie der digitalen Gesellschaft. München: C.H. Beck.

Naujoks, Kyra-Mano (2014): "Die Geschichte der Umsatzsteuer – vom Warenumsatztempelgesetz bis zur Netto-Allphasen-Umsatzsteuer mit Vorsteuerabzug". In: Seer, Roman (Ed.), Steuern im historischen Kontext. Frankfurt/M.: Peter Lang, pp. 259–294.

Negt, Oskar / Kluge, Alexander (1993): Public Sphere and Experience. Toward an Analysis of the Bourgeois and Proletarian Public Sphere. Minneapolis, London: University of Minnesota Press.

Nilsson, Nils J. (2010): Quest for Artificial Intelligence: A History of Ideas and Achievements. Cambridge, New York: Cambridge University Press.

Nissen, Hans-Peter (1992): "Die Reproduktionsschemata von Karl Marx". In: Nissen, Hans-Peter (Ed.), Makroökonomie I: Einführung in Die Volkswirtschaftliche Gesamtrechnung, Physica-Lehrbuch. Heidelberg: Physica, pp. 251–262. https://doi.org/10.1007/978-3-662-00651-1_21.

NMSBA (2020a): Neuromarketing Companies. https://nmsba.com/buying-neuromarketing/neuromarketing-companies from 20.11.2020.

NMSBA (2020b): NMSBA Code of Ethics. https://nmsba.com/buying-neuromarketing/code-of-ethics from 20.11.2020.

Nuss, Sabine / Butollo, Florian (2019): "Einleitung der Herausgeber". In: Butollo, Florian/Nuss, Sabine (Ed.), Marx und die Roboter. Vernetzte Produktion, Künstliche Intelligenz und lebendige Arbeit. Berlin: Dietz, pp. 8–21.

NVCA (2020): NVCA Yearbook 2020. Washington, San Francisco: National Venture Capital Association. https://nvca.org/wp-content/uploads/2020/04/NVCA-2020-Yearbook.pdf from 30.9.2020.

OEC (2020): Observatory of Economic Complexity. https://oec.world/en/resources/about from 16.10.2020.

O'Leary, Daniel (2012): Drug Dealers and IT are the only people who call their customers "users." AIIM Community. https://community.aiim.org/blogs/daniel-oleary/2012/07/08/drug-dealers-and-it-are-the-only-people-who-call-their-customers-users from 6.10.2020.

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

Oliver Jr., Henry M. (1950): "Has Market Capitalism Collapsed? Allen Morris Sievers – Book Review". In: Journal of Political Economy 58/4, pp. 366. DOI: https://www.journals.uchicago.edu/doi/abs/10.1086/256973.

O'Neil, Cathy (2016): Weapons of math destruction: how big data increases inequality and threatens democracy. First edition. New York: Crown.

Oppermann, Marita / Oppermann, Uwe (2020): Liste der Hochsee-Kreuzfahrtschiffe. http://www.oppermann-wuppertal.de/VGB/schiffe.htm from 17.9.2020.

Oracle (2020): Oracle Cloud ERP. Oracle. //www.oracle.com/emea/applications/erp/ from 26.9.2020.

Orlowski, Jeff (2020): The Social Dilemma – A Netflix Original documentary. https://www.thesocialdilemma.com/ from 6.10.2020.

Osterhage, Wolfgang W. (2014): ERP-Kompendium: Eine Evaluierung von Enterprise Resource Planning Systemen. Berlin, Heidelberg: Springer.

Pacioli, Luca (1997): Abhandlung über die Buchhaltung. Stuttgart: Schäffer-Poeschel.

Pangarkar, Nitin (2018): "The formula for successful innovation at SAS: Integrating internal and external knowledge". In: Global Business and Organizational Excellence 37/2, pp. 24–31. DOI: https://doi.org/10.1002/joe.21839.

Parker, Martin (2018): Shut Down the Business School: What's Wrong with Management Education. London: Pluto.

Patel, Raj / Moore, Jason W. (2017): A History of the World in Seven Cheap Things: A Guide to Capitalism, Nature, and the Future of the Planet. University of California Press.

Pfeiffer, Sabine (2021): Digitalisierung als Distributivkraft: Über das Neue am digitalen Kapitalismus. Bielefeld: transcript.

Pfeiffer, Sabine (2019a): "Digitale Transformation: Great, greater, tilt…? Von der Produktiv- zur Distributivkraftentwicklung". In: Dörre, Klaus/Rosa, Hartmut/Becker, Karina/Bose, Sophie/Seyd, Benjamin (Ed.), Große Transformation? Zur Zukunft moderner Gesellschaften. SB des Berliner Journals für Soziologie. Wiesbaden: Springer VS, pp. 383–400.

Pfeiffer, Sabine (2019b): "Produktivkraft konkret. Vom schweren Start der Leichtbauroboter". In: Butollo, Florian/Nuss, Sabine (Ed.), Marx und die Roboter. Vernetzte Produktion, Künstliche Intelligenz und Lebendige Arbeit. Berlin: Dietz, pp. 156–177.

Pfeiffer, Sabine (2018a): "Industry 4.0: Robotics and Contradictions". In: Bilić, Paško/Primorac, Jaka/Valtýsson, Bjarki (Ed.), Technologies of Labour and the Politics of Contradiction. Cham: Palgrave, pp. 19–36.

Pfeiffer, Sabine (2018b): "The 'Future of Employment' on the Shop Floor: Why Production Jobs are Less Susceptible to Computerization than Assumed". In: International Journal for Research in Vocational Education and Training (IJRVET) 5/3, pp. 208–215. DOI: https://doi.org/10.13152/IJRVET.5.3.4.

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

Pfeiffer, Sabine (2017): "The Vision of 'Industrie 4.0' in the Making—a Case of Future Told, Tamed, and Traded". In: Nanoethics 11/1, pp. 107–121. DOI: https://doi.org/10.1007/s11569-016-0280-3.

Pfeiffer, Sabine (2016a): Beyond Routine: Assembly Work and the Role of Experience at the Dawn of Industry 4.0. Consequences for Vocational Training. (Working Paper Nr. 01–2016). Stuttgart: University of Hohenheim, Chair of Sociology. www.sabine-pfeiffer.de/files/downloads/2016-Pfeiffer-Assembly.pdf.

Pfeiffer, Sabine (2016b): "Robots, Industry 4.0 and Humans, or Why Assembly Work Is More than Routine Work". In: Societies 6/2, pp. 1–26. DOI: https://doi.org/10.3390/soc6020016.

Pfeiffer, Sabine (2014): "Digital Labour and the Use-value of Human Work. On the Importance of Labouring Capacity for understanding Digital Capitalism". In: tripleC. Journal for a Global Sustainable Information Society 12/2, pp. 599–619.

Pfeiffer, Sabine (2013): "Web, Value and Labour". In: Work Organisation, Labour and Globalisation 7/1, pp. 12–30. DOI: https://doi.org/10.13169/workorgalaboglob.7.1.0012.

Pfeiffer, Sabine (2004): Arbeitsvermögen. Ein Schlüssel zur Analyse (reflexiver) Informatisierung. Wiesbaden: VS Verlag für Sozialwissenschaften.

Pfeiffer, Sabine (1999a): Dem Spürsinn auf der Spur. Subjektivierendes Arbeitshandeln an Internet-Arbeitsplätzen am Beispiel Information-Broking. München, Mering: Hampp.

Pfeiffer, Sabine (1999b): "Ignored and Neglected – Work in Cybersociety". In: Armitage, John/Roberts, Joan (Ed.), Exploring Cybersociety. Social, Political, Economic and Cultural Issues. Vol. 2. Newcastle: University of Northumbrian.

Pfeiffer, Sabine / Kawalec, Sandra (2020): "Justice expectations in crowd and platform-mediated work". In: The Economic and Labour Relations Review 31/4, pp. 483–501. DOI: https://doi.org/10.1177/1035304620959750.

Pfeiffer, Sabine / Oestreicher, Elke / Ritter, Tobias (2016a): "Hidden and Neglected: Food Poverty in the Global North – The Case of Germany". Hidden Hunger. Malnutrition and the First 1,000 Days of Life: Causes, Consequences and Solutions., World Review of Nutrition and Dietetics. Basel: Karger, pp. 16–23.

Pfeiffer, Sabine / Ritter, Tobias / Oestreicher, Elke (2015): "Food Insecurity in German households: Qualitative and Quantitative Data on Coping, Poverty Consumerism and Alimentary Participation.". In: Social Policy and Society 14/3, pp. 1–13. DOI: https://doi.org/10.1017/S147474641500010X.

Pfeiffer, Sabine / Sauer, Stefan / Ritter, Tobias (2019): "Agile methods as stress management tools? An empirical study". In: Work Organisation, Labour & Globalisation 13/2, pp. 20–36. DOI: https://doi.org/DOI: 10.13169/workorgalaboglob.13.2.0020.

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

Pfeiffer, Sabine / Wühr, Daniela / Schütt, Petra (2016b): "Virtual Innovation Work: Labour, Creativity, and Standardisation". In: Webster, Juliet/Randle, Keith (Ed.), Virtual Workers and the Global Labour Market. Basingstoke: Palgrave Macmillan, pp. 77–93.

Piketty, Thomas (2014): Capital in the Twenty-First Century. Boston: Harvard University Press.

Pilot (2020): Media Trends 2020. Hamburg: Pilot GmbH. https://www.pilot.de/neuigkeiten/blick-in-die-zukunft-pilot-media-trends-2020/ from 16.9.2020.

Pitcher, Jack (2020): Jeff Bezos Adds Record $13 Billion in Single Day to Fortune. Bloomberg Technology. https://www.bloomberg.com/news/articles/2020-07-20/jeff-bezos-adds-record-13-billion-in-single-day-to-his-fortune from 25.10.2020.

Polanyi, Karl (2001): The Great Transformation: The Political and Economic Origins of Our Time. Boston: Beacon.

Polanyi Levitt, Kari (2020): "The return of Karl Polanyi: from the Bennington Lectures to our present age of transformation". In: Desai, Radhika/Polanyi Levitt, Kari (Ed.), Karl Polanyi and Twenty-First-Century Capitalism. Manchester: Manchester University Press, pp. 21–59.

Popiel, Pawel (2018): "The Tech Lobby: Tracing the Contours of New Media Elite Lobbying Power". In: Communication, Culture and Critique 11/4, pp. 566–585. DOI: https://doi.org/10.1093/ccc/tcy027.

Porter, Michael E. (1985): The Competitive Advantage: Creating and Sustaining Superior Performance. New York: Free Press.

Proctor, Robert N. (2008): "Agnotology: A Missing Term to Describe the Cultural Production of Ignorance (and Its Study)". In: Proctor, Robert N./Schiebinger, Londa (Ed.), Agnotology: The Making and Unmaking of Ignorance. Stanford: Stanford University Press, pp. 1–36.

Proulx, Serge / Heaton, Lorna / Kwok Choon, Mary Jane / Millette, Mélanie (2011): "Paradoxical empowerment of produsers in the context of informational capitalism". In: New Review of Hypermedia and Multimedia 17/1, pp. 9–29. DOI: https://doi.org/10.1080/13614568.2011.552646.

PwC (2017): Sizing the prize. What's the real value of AI for your business and how can you capitalise? Frankfurt/M.: PricewaterhouseCoopers. http://preview.thenewsmarket.com/Previews/PWC/DocumentAssets/476830.pdf.

Rau, Julia (2018): Caritas-Mitarbeiterin: "Die Qualität der Spenden ist deutlich schlechter geworden." stern.de. https://www.stern.de/wirtschaft/muell/caritas-in-hamburg---die-qualitaet-der-spenden-ist-deutlich-schlechter-geworden--7897064.html from 11.9.2020.

Reichwein, Sabine (1980): Die Litfaßsäule. Die 125jährige Geschichte eines Straßenmöbels aus Berlin. Berlin: Berliner Forum. https://faw-ev.de/media/downloads/die-litfasaeule_125j-geschichte.pdf from 17.9.2020.

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

Renvoise, Patrick (2008): Neuromarketing: Understanding the Buy Buttons in Your Customer's Brain. Nashville: HarperCollins.

Rifkin, Jeremy (2014): The Zero Marginal Cost Society. The Internet of Things, the Collaborative Commons, and the Eclipse of Capitalism. New York: Palgrave Macmillan.

Ritsert, Jürgen (1997): Kleines Lehrbuch der Dialektik. Darmstadt: Primus.

Ritzer, George (1998): "Introduction". In: Baudrillard, Jean (Ed.), The Consumer Society: Myths and Structures. Los Angeles: Sage, pp. 1–24.

Robinson, Joan (1969): The Economics of Imperfect Competition. New York: St. Martin's.

Rothstein, Sidney A. (2020): Toward a Discursive Approach to Growth Models. Social Blocs in the Politics of Digital Transformation. Köln: Max-Planck-Institut für Gesellschaftsforschung. https://www.mpifg.de/pu/mpifg_dp/2020/dp20-8.pdf from 28.8.2020.

Sachs, Wolfgang (2013): "Missdeuteter Vordenker. Karl Polanyi und seine 'Great Transformation'". In: Politische Ökologie 133, pp. 18–23.

Sage (2020): Sage als Unternehmen. https://www.sage.com/de-de/unternehmen/ from 26.9.2020.

SAP (2020): Quarterly Statement Q2/2020. Walldorf: SAP AG. https://www.sap.com/investors/en/reports.html?tab=reports&sort=latest_desc&pdf-asset=320623c2-a57d-0010-87a3-c30de2ffd8ff&page=1 from 18.9.2020.

Scheurer, Christin (2019): Zieh mich an! Ein konsumsoziologischer Beitrag zu digitalisierten Formen des Einkaufens. Baden-Baden: Tectum.

Schiller, Dan (2014): Digital Depression: Information Technology and Economic Crisis. Urbana, Chicago, Springfield: University of Illinois Press.

Schiller, Dan (2011): "Power Under Pressure: Digital Capitalism In Crisis". In: International Journal of Communication 5, pp. 924–941.

Schiller, Dan (1999): Digital Capitalism. Networking the Global Market System. Cambridge, London: MIT Press.

Scholz, Trebor (2012): Digital Labor: The Internet as Playground and Factory. New York, Oxon: Routledge.

Schröder, Carsten / Bartels, Charlotte / Göbler, Konstantin / Grabka, Markus M. / König, Johannes (2020): "Millionaires under the Microscope: Data Gap on Top Wealth Holders Closed; Wealth Concentration Higher than Presumed". In: DIW Weekly Report 30+31, pp. 313–323.

Schüll, Natasha Dow (2012): Addiction by Design: Machine Gambling in Las Vegas. Princeton: Princeton University Press.

Schulze, Svenja (2019): Rede zu 40 Jahren Umweltinnovationsprogramm. bmu.de. https://www.bmu.de/RE8703 from 23.5.2020.

Schumpeter, Joseph A. (2003): Capitalism, Socialism and Democracy. New York: Routledge.

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

Schwab, Klaus / Malleret, Thierry (2020): COVID-19: The Great Reset. Cologny, Geneva: World Economic Forum.

Schwartz, Roy / Dodge, Jesse / Smith, Noah A. / Etzioni, Oren (2019): "Green AI". In: arXiv:1907.10597 [cs, stat].

Shambaugh, Jay / Nunn, Ryan (Ed.) (2018): Place-Based Policies for Shared Economic Growth. Washington: Brookings, The Hamilton Project.

Sharma, Suresh D. / Bhagat, Arpan R. / Parisi, Salvatore (2019): Raw Material Scarcity and Overproduction in the Food Industry. Cham: Springer.

Sheldon, Roy / Arens, Egmont (1976): Consumer Engineering: A New Technique of Prosperity. New York: Harper and Brothers.

Shirvanimoghaddam, Kamyar / Motamed, Bahareh / Ramakrishna, Seeram / Naebe, Minoo (2020): "Death by waste: Fashion and textile circular economy case". In: Science of The Total Environment 718, pp. 137317. DOI: https://doi.org/10.1016/j.scitotenv.2020.137317.

Siefkes, Christian (2016): "Produktivkraft als Versprechen". In: Prokla 46/4, pp. 621–638.

Sievers, Allen Morris (2020): Has Market Capitalism Collapsed? A Critique of Karl Polanyi'S New Economics. New York: Columbia University Press.

Solon, Olivia (2018): "They'll squash you like a bug": how Silicon Valley keeps a lid on leakers. The Guardian. http://www.theguardian.com/technology/2018/mar/16/silicon-valley-internal-work-spying-surveillance-leakers from 29.10.2019.

Solow, Robert M. (2007): "The last 50 years in growth theory and the next 10". In: Oxford Review of Economic Policy 23/1, pp. 3–14. DOI: https://doi.org/10.1093/oxrep/grm004.

Solow, Robert M. (1987): "We'd better Watch Out. Book Review of 'Manufacturing Matters' by Stephen S. Cohen and John Zysman". The New York Times from 12.7.1987.

Solow, Robert M. (1956): "A Contribution to the Theory of Economic Growth". In: The Quarterly Journal of Economics 70/1, pp. 65–94. DOI: https://doi.org/10.2307/1884513.

Sombart, Werner (1928): "Das Warenhaus, ein Gebilde des hochkapitalistischen Zeitalters". In: Verband deutscher Waren- und Kaufhäuser (Ed.), Probleme Des Warenhauses. Beiträge Zur Geschichte Und Erkenntnis Des Warenhauses in Deutschland. Berlin, pp. 77–88.

Sontow, Karsten / Treutlein, Peter / Kloppenburg, Markus (2020): ERP in der Praxis 2020/2021 – Anwenderzufriedenheit, Nutzen & Perspektiven. Aachen: Trovarit AG.

Statista (2019): Statistiken zur SAP SE. Statista. https://de.statista.com/themen/232/sap/ from 26.9.2020.

Statista / BNP Paribas Real Estate (2020): Lager- und Logistikflächenumsatz in Deutschland in den Jahren von 2003 bis 2019. Statista Research Department.

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

https://de.statista.com/statistik/daten/studie/250959/umfrage/flaechenumsatz-von-lager-und-logistikimmobilien-in-deutschland/ from 29.3.2020.

Streeck, Wolfgang (2017): Buying Time: The Delayed Crisis of Democratic Capitalism. London, New York: Verso.

Strubell, Emma / Ganesh, Ananya / McCallum, Andrew (2019): "Energy and Policy Considerations for Deep Learning in NLP". In: arXiv:1906.02243 [cs].

Stuart, Diana / Gunderson, Ryan / Petersen, Brian (2020): The Degrowth Alternative: A Path to Address Our Environmental Crisis? Abingdon, New York: Routledge.

Suckling, James / Lee, Jaequetta (2015): "Redefining scope: the true environmental impact of smartphones?". In: The International Journal of Life Cycle Assessment 20/8, pp. 1181–1196. DOI: https://doi.org/10.1007/s11367-015-0909-4.

Sundhoff, Edmund (1990): Die Distributionswirtschaftslehre an den Kölner Hochschulen. Köln: Bachem.

Tabacki, Nebojša (2020): Consuming Scenography: The Shopping Mall as a Theatrical Experience. London, New York: Methuen Drama.

Tesla Inc. (2020): Tesla Annual Report 2020. Form 10-K [Section 13 and 15(d), not S-K Item 405]. Palo Alto. https://sec.report/Document/0001564590-20-004475/.

Thomas, Michael (Ed.) (2011): Deconstructing Digital Natives: Young People, Technology, and the New Literacies. New York, London: Routledge.

Ti Insights (2020a): E-commerce Logistics Costs: trends and dynamics in logistics spending amongst online retailers. Bath, UK: Ti Insights. https://www.ti-insight.com/whitepapers/e-commerce-logistics-costs-trends-and-dynamics-in-logistics-spending-amongst-online-retailers/?whitepaperTitle=Global%20e-commerce%20logistics%20costs:%20trends%20and%20dynamics%20in%20logistics%20spending%20amongst%20online%20retailers from 21.9.2020.

Ti Insights (2020b): Financial Review – the story from LSPs so far… Whitepaper. Bath, UK: Ti Insights. https://www.ti-insight.com/whitepapers/financial-review-the-story-so-far/?whitepaperTitle=Financial%20Review%20%E2%80%A6the%20story%20so%20far from 10.8.2020.

Timmermans, Kris / Roark, Chris / Abdalla, Rodrigo (2019): Big Zero: The Transformation of ZBB into a Force for Growth, Innovation and Competitive Advantage. Penguin Books, Limited.

Tørsløv, Thomas / Wier, Ludvig / Zucman, Gabriel (2018): The Missing Profits of Nations. Copenhagen, Berkeley. http://gabriel-zucman.eu/files/TWZ2018.pdf from 14.6.2018.

Tsing, Anna (2009): "Supply Chains and the Human Condition". In: Rethinking Marxism 21/2, pp. 148–176. DOI: https://doi.org/10.1080/08935690902743088.

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

Versino (2020): Was kostet Sie SAP Business One? Preisübersicht September 2020. Versino AG. https://versino.de/produkte/sap-business-one/kosten/ from 24.9.2020.

Voice (2020): VOICE legt Gespräche über indirekte Nutzung mit der SAP auf Eis. https://voice-ev.org/voice-legt-gespraeche-ueber-indirekte-nutzung-mit-der-sap-auf-eis/ from 24.9.2020.

Volkswagen AG (2020): Mobilität für kommende Generationen. Geschäftsbericht 2019. Wolfsburg. https://geschaeftsbericht2019.volkswagenag.com/serviceseiten/downloads/files/download.php?file=gesamt_vw_gb19.pdf from 9.10.2020.

Vollmer, Hendrik (2003): "Bookkeeping, accounting, calculative practice: the sociological suspense of calculation". In: Critical Perspectives on Accounting 14/3, pp. 353–381. DOI: https://doi.org/10.1006/cpac.2002.0528.

Voss, H. / Davis, M. / Sumner, M. / Waite, L. / Ras, I.A. / Singhal, D. / Jog, D. (2019): "International supply chains: compliance and engagement with the Modern Slavery Act". In: Journal of the British Academy 7/s1, pp. 61–76.

Vries, Alex de (2018): "Bitcoin's Growing Energy Problem". In: Joule 2/5, pp. 801–805. DOI: https://doi.org/10.1016/j.joule.2018.04.016.

Wainwright, Tom (2016): Narconomics: How To Run a Drug Cartel. New York: Public Affairs.

Walker, Candice E. / Krumhuber, Eva G. / Dayan, Steven / Furnham, Adrian (2019): "Effects of social media use on desire for cosmetic surgery among young women". In: Current Psychology. DOI: https://doi.org/10.1007/s12144-019-00282-1.

Walshaw, Tim (2019): Double Entry Bookkeeping. Bradford: Timoty Walshaw.

WARC (2020): Global Ad Trends: COVID-19 & Ad Investment. London: World Advertising Research Center. https://content.warc.com/gat-june-2020.html.

Warner, Charles (2020): "Print and Out of Home". In: Warner, Charles/Lederer, William/Moroz, Brian (Ed.), Media Selling: Digital, Television, Audio, Print and Cross-Platform. Hoboken: John Wiley & Sons, pp. 475–494.

Wayne, Mike (2003): Marxism And Media Studies: Key Concepts and Contemporary Trends. Pluto.

WBGU (2011): Welt im Wandel. Gesellschaftsvertrag für eine Große Transformation. Hauptgutachten. Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen. https://www.wbgu.de/fileadmin/user_upload/wbgu/publikationen/hauptgutachten/hg2011/pdf/wbgu_jg2011.pdf from 17.3.2011.

Weinstein, Adam (2011): "We Are the 99 Percent" Creators Revealed. Mother Jones. https://www.motherjones.com/politics/2011/10/we-are-the-99-percent-creators/ from 7.10.2020.

Weiser, Mark (1991): "The Computer for the 21st Century". In: Scientific American 265/3, pp. 94–104. DOI: https://doi.org/10.1038/scientificamerican0991-94.

https://doi.org/10.14361/9783839459935 - am 13.02.2026, 01:33:27. https://www.inlibra.com/de/agb - Open Access -

Wengenroth, Ulrich (2015): Technik der Moderne – Ein Vorschlag zu ihrem Verständnis. München: TU München. https://www.fggt.edu.tum.de/fileadmin/tuedso1/www/Wengenroth-offen/TdM-gesamt-1.0.pdf.

Williams, Matthew S. (2020): Strategizing against Sweatshops: The Global Economy, Student Activism, and Worker Empowerment. Philadelphia: Temple University Press.

Wirminghaus, Niklas (2020): Werbeschlacht kostete Lieferdienste eine dreiviertel Milliarde Euro. Capital. https://www.capital.de/wirtschaft-politik/werbeschlacht-kostete-lieferdienste-eine-dreiviertel-milliarde-euro from 12.6.2020.

Wirtschaftswoche (2019): Die Megaflops unter den SAP-Großprojekten. Wirtschaftswoche. https://www.wiwo.de/unternehmen/it/ueberblick-die-megaflops-unter-den-sap-grossprojekten/24076628.html from 25.9.2020.

Wu, Tim (2020): Curse of Bigness: How Corporate Giants Came to Rule the World. London: Atlantic Books.

Wu, Tim (2017): The Attention Merchants: The Epic Struggle to Get Inside Our Heads. London: Atlantic Books.

Youn, Anthony (2019): "What Is the Ideal Instagram Filter?". In: Aesthetic Surgery Journal Open Forum 1/2, pp. 1–8. DOI: https://doi.org/10.1093/asjof/ojz019.

Young, William (1985): Postmortem: New Evidence in the Case of Sacco and Vanzetti. Amherst: University of Massachusetts Press.

ZAW (2020): Bruttoinlandsprodukt und Investitionen in Werbung in Deutschland 2015 bis 2019. Zentralverband der Werbewirtschaft. https://zaw.de/wp-content/uploads/2020/06/2020-ZAW-BiP-2015-2019-scaled.jpg from 13.9.2020.

ZAW (2018): Wert der Werbung. Berlin: Zentralverband der Werbewirtschaft (ZAW). https://zaw.de/wp-content/uploads/2019/10/Wert-der-Werbung-2018_Web.pdf.

Zuboff, Shoshana (2019): The Age of Surveillance Capitalism. London: Profile.

Zucman, Gabriel / Tørsløv, Thomas / Wier, Ludvig (2017): The Missing Profits of Nations. Data and Replication Archive. http://gabriel-zucman.eu/missing profits/ from 12.6.2020.

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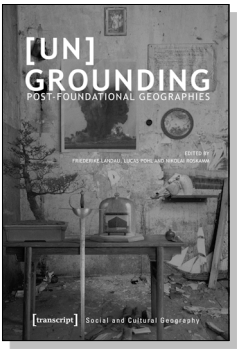

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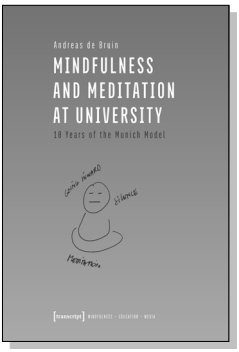

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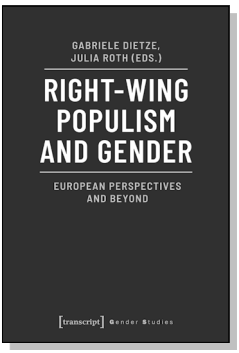

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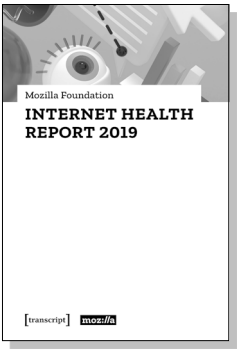

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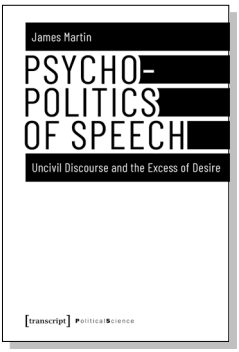

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