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An ever-looser union?

Juxtaposing accumulation and agglomeration in the context of surveillance capitalism

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Abstract

The article explores regional policy issues at the nexus of economic geography and the recent academic literature on the political economy of digitalization. The objective is to blend these two areas of research to derive a first set of preliminary policy implications for so called "Smart Region" strategies. First, we document and analyze the finding that digitalization and, more generally, technological progress based on information and communication technologies represents a risk rather than an opportunity for many regions. Against the backdrop of the role of human capital accumulation in this process, "Smart Region" strategies should re-focus their attention on the settlement and development of "digitally competent" human capital. Second, we summarize key findings from studies that deal with the capitalist accumulation regime emerging in the course of digital change. This regime, often referred to as "platform capitalism" or "surveillance capitalism", appears to be antagonistic what is considered an integral and functional regional economy. Against this background, regions should meet calls for a rapid integration into this regime with a good deal of skepticism. Similarly, they should be careful not to embrace "smart" initiatives overhasty. Instead, they should develop their own definition of digital literacy and consciously incorporate alternatives to platform capitalism in their digital strategies. Attracting digitally competent human capital can support such an approach, especially if the respective initiatives are directed towards the public, educational and non-profit sectors.

Table of contents

1. Introduction

Datafication and digitalization threaten to cement or even exacerbate existing regional disparities. Since economic structural change has been dominated by information and communication technologies (ICT), many developed economies have experienced a marked slowdown in regional convergence (Berger and Frey 2016a). Until the early 1980s, less developed regions within world regions had caught up with more wealthy ones, while the distance between world regions did change only slowly. This has changed in recent decades. On the one hand, globalization contributed to a diffusion of economic activities across world regions. At the same time, technological progress led to a concentration of economic activity in highly developed economic areas (Berger and Frey, 2016b).

In Germany, this divergence has been less pronounced, for various reasons. Most importantly, the constitutional requirement to preserve equal living standards has resulted in relatively robust set of economic policies and institutions. Fiscal federilsm combinded with established economic organizations with a regional focus (such as the communal savings banks and utility providers) has prevented a more pronounced decoupling; however, fears that the German constitution's requirement for uniform living conditions is in danger are clearly on the rise (Opiela et al., 2019) and the effects of ITC on regional divergence are felt and are becoming a central policy issue.

What is behind this development, and how could it be effectively countered? In this paper, we look at two fundamental problems associated with digital technological progress that particularly affect structurally weak and rural regions. On the one hand, we examine the policy challenges arising from economic agglomeration theories. These theories and the respective empirical work show that the divergence between rural and urban areas that can be observed in many places cannot be explained without considering the agglomeration of human capital. On the other hand, we argue that the type of socio-technological change that has been dominant in recent decades has lead to the emergence of new variant of capitalism. This variant or new regime contradicts many of the elements and ideas that are considered crucial for a functioning regional economy. Plattform/surveillance capitalism threatens to endanger the cohesiveness of socie-economic arrangements.

We argue that only a combination of measures addressing both the unequal accumulation of human capital across regions and the problems associated with the accumulation of surveillance capital offers a chance for a successful and, above all, sustainable revitalization of structurally weak regions in times of digitalization. At the same time, we point out that both problems also reveal fundamental contradictions, which are often overshadowed by the understandable need to create viable and rational solutions for acute regional problems. In a nutshell, we argue that it might be smart not to become a "smart region", at least not in the way the term "smart"[1] is cutrrently used very often. Even the sensible combination of digitalization

[1] The term "smart region" is used differently in the literature and in social discourses. In this paper, we will start with the definition of "Smart Cities" used in Sailer et al. (2018) and based on Townsend (2014). According to this definition, the focus is on "places where information technology is connected to

and sustainability within the framework of innovative concepts (such as in the conceptualization of a"smart region" in Sailer et al. 2018, for example) is by no means a guarantee that the negative side effects of an extensive integration into the global data economy will be sufficiently cushioned.

In the following section 1.2 we first summarise the insights that arise from economic agglomeration theory with regard to the problems mentioned. A key finding is that economic divergence and changes in the human capital stock of regions are closely linked. In section 1.3 we turn to the recent academic debates on the kind of capitalism or accumulation regime that is associated with the structural digitalization of recent years. What kind of conclusions can be drawn from differenz politico-economic descriptions and diagnoses? The still preliminary results of this nascent literature raise doubts about the sustainability of current regional digitalization strategies, even if they take human capital aspects into account. Section 1.4 asks which strategies can be derived from a joint consideration of agglomeration and accumulation - and where fundamental contradictions stand in the way of a strategic approach. Section 1.5 draws a prelimiuary conclusion.

2. Economic agglomeration theory and the central role of human capital

Economic agglomeration theories (see Krugman 1996) provide numerous reasons for asymmetric growth effects of digital technological progress. Many of these technologies are characterised by considerable internal and external economies of scale. The emergence of oligopolies or even monopolies is therefore not surprising. In recent years, these entities have started to dominate the digital economy, without much political interference to counter the drawbacks of such a development. Dominant market players are building networks among each other and with smaller companies and start-ups.

These networks, which are euphemistically described as ecosystems, are strongly shaped by a variety of spillover effects, as is the tech industry in general. While these spillover effects are achievable in various ways, proximity plays a role. In regional terms, being close to other companies of similar character increases the probability of success of the respective business models. As a consequence, regions that already have a high density and also broad digital business models show high growth, while other regions show low or even negative growth. At the very least, existing differences and disparities are becoming entrenched, and in many countries of the world they are even expanding.

While the reasons for entrenched disparities are manifold, most of the explanatory approaches focus on linking the externalities just described with considerations of human capital theory. In

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infrastructure, architecture, everyday objects and even our bodies in order to address social, economic and ecological problems" (Sailer 2018, p. 14). Whereas Sailer et al. (2018) then understand a "Smart Region" to be a larger-scale structure consisting of different "Smart Cities", we also apply the term to smaller-scale regions, thus generalizing the concept of a "Smart City". The main reason for this is our focus on non-urban areas and their digital strategies. In particular, we want to be able to use the term to connect spatial structures such as administrative districts or even EU regions, without excluding new forms of cooperation in regional policy, such as those discussed in Sailer et al (2018).

fact, it has been shown that regional divergences in human capital accumulation in conjunction with the changing skill requirements resulting from digitalization make a decisive contribution to explaining the observed slowdown in regional convergence (Berger and Frey, 2016a). The specific human capital required to derive economic benefits from the ICT sectors is migrating to urban centres where "digital business models" are already being successfully developed. In contrast, rural regions and regions whose industries are rather remote from ICT applications are experiencing a migration of digitally competent human capital.

In theory, there are numerous reasons for such a re-allocation of specific human capital. Duranton and Puga (2001), for example, show that young companies whose growth is strongly based on the ability to experiment benefit from the density of knowledge and ideas in urban spaces: They are therefore attracted to cities where the necessary human capital is already available. Berry and Glaeser (2005) argue that this can lead to a self-reinforcing process: As successful companies initiate digital innovation processes, which above all create employment opportunities for other digitally literate people, an additional concentration of skills in the region is taking place.

The lack of availability of human capital specific to digital change hits structurally weak regions twice over. On the one hand, it reduces the likelihood of new industries settling and developing in these regions. Their role in shaping digital change thus becomes smaller and smaller. On the other hand, the lack of availability of digital literacy hampers the further development of existing industries and business models. Small and medium-sized enterprises (SMEs) are particularly affected by this. Against the background of digitisation, they are facing numerous challenges which could only be overcome with considerable investment in digital literacy. Som (2015, p.8-9) mentions in particular the following aspects in this context:

- To the extent that the existing core competencies of SMEs are called into question, they must increasingly develop into "problem solvers" for their customers and expand their "ability to open up new markets" and fields of application.
- A particular problem is the creation of the necessary "critical minimum sizes" for the development and testing of technology-intensive activities.
- The "ability to cooperate" in partly international networks with partly "asymmetrical partners outside the own industry", which is not only necessary for the creation of critical minimum sizes, must first be developed and learned, whereby considerable translation problems are to be expected in transitional phases.
- So far, there has been a lack of "institutionalisation of professional processes of innovation and technology management" as well as the creation of corresponding framework conditions in the companies.

The problems of established SMEs with digital change already point to another set of issues that has taken shape since the emergence of the internet. Digital technological progress has brought about structural and organisational changes in the way surplus is generated and capital is accumulated. These changes are increasingly discussed under keywords such as "surveillance capitalism" (Zuboff 2019) or "platform capitalism" (Weatherby 2018). They confront regional economic structures with completely new and hitherto largely unknown challenges, which we will deal with in the following section.

Obviously, the challenges identified by Som can only be overcome if the tendency towards a concentration of digitally competent human capital in urban centres is effectively addressed. Only a reversal of the previously observed process of divergent human capital accumulation will ensure the survival of existing structures in the region. The outflow of corresponding human capital would have to be stopped and a build-up through (re)acquisition as well as education and training would have to be initiated. It is true that one should be wary of seeing an increase in the level of digital education as a panacea for regional development problems. However, building up specific human capital is at least a necessary condition for reversing the current divergence.

This argument receives support from yet another observation: It cannot be ruled out that the "chicken-and-egg problem" linking a lack of innovation dynamics with a lack of attraction for innovative workers (and vice versa) can be solved more easily if one starts with the workforce. There are several reasons for this. For example, investment in education and training is largely funded by the public sector and can therefore be centrally controlled up to a certain point, in contrast to company decisions. Furthermore, regions that are falling behind often exhibit characteristics that give them some advantages in the competition for people about to re-settle, especially with regard to the availability of affordable housing. And thirdly, measures that increase the probability of technologically competent human capital settling in the region have considerable synergies with other regional policy requirements, such as the maintenance and development of analogue and digital infrastructures that increase well-being or the modernisation (and digitisation) of the public sector.

Against this backdrop, it is not surprising that the term "smart region" probably originated in studies that call for regions that are falling behind to invest in the population's level of technological education ("smartness") and to attract corresponding groups of people (Berry and Glaeser, 2006). **But how could such a process succeed?** To answer this question, it must first be noted that non-urban regions are disadvantaged not only for reasons rooted in the logic of economic agglomeration. The socio-cultural milieus that shape digital technologies often have a clear preference for urban lifestyles. A glance at the corresponding rankings describing the "attractiveness" of different regions shows this impressively, as do the numerous studies on the ability of regions to attract start-up companies. Ideological influences, which are reflected in terms such as "start-up urbanism" also play an important role (Rossi and di Bella 2017, p. 999): Cities are becoming increasingly important as centres of a "decentralised neo-liberal project of a self-regulating entrepreneurial society" by integrating ideas of "community, cooperation and horizontality" in a culture of global capitalism. Early on in technological discourses, therefore, a fear has been established that "smart regions" could be areas in which "the winners of the new knowledge economy retire to lead a life based on libertarian principles and the idea of enlightened egoism" (Angell 2000).

Of course, there are also obstacles that are inherent to the way start-up companies operate. Often, such companies are forced to grow very rapidly and to focus on broad-based efficiency gains, objectives that can only be reached with a very broad target market. High development costs often make it difficult to manufacture a product with a strong regional focus cost-effectively. It would therefore take a lot of will, time and support from stakeholders and/or the public to address specific regional problems. Even with these pre-conditions, cultural barriers emerge. These make it difficult for start-ups with an urban character and regional SMEs to establish and maintain a productive relationship. It is generally assumed that digitalization

shrinks distances. And yet there are considerable hurdles that prevent bridging the gap between different corporate cultures and "ecosystems".

Against this background, there is a growing consensus that publicly supported fora and experimental spaces are needed, to kick-start the foundation and industrial location of firms, support the development of digital human capital, bridge the gap between "regional" and "digital" players, reduce translation difficulties, and encourage the development of digital competences in non-urban areas. Under certain circumstances, the creation of such spaces can initiate communication between actors with strong technical expertise and companies, organisations and administrations with a regional focus, concrete problems and expectations. For example, actors could debate how to employ digital tools to solve problems of ecological and social sustainability or to preserve the competitiveness of regional business models. Such an approach would not only help develop a better understanding for the possibilities and limits of digital innovation for local entities. It would also address the often lamented lack of a normative orientation.

While forums and experimental spaces can indeed be instrumental in kick-starting projects and support human capital development, their potential should not be over-estimated. Insofar as they remain within the limits of existing of modes of legitimation and rationalization, their scope appears to be limited or at least very uncertain. This uncertainty results from the fact that the speed and thrust of technical innovations is essentially determined by the requirements of competition. Where the principle of competition becomes all too powerful, however, there is little room for alternative ideas of legitimacy and rationality.

So what else can be done to attract and strengthen digitally competent human capital? The answer to this question is largely still outstanding. However, it is possible to distinguish three perspectives that at least provide starting points for further analysis. The first perspective is the one taken here, the perspective of regional economics combined with insights on the digital challenges of the current pool of regional companies. In addition to the above-mentioned theoretical and empirical studies on the distribution of specific human capital in the region (Berger and Frey, 2016a and 2016b, Duranton and Puga (2001, 2004), and Berry and Glaeser 2005, 2006), particular attention should be paid to studies that link questions of locational choice with questions of human capital formation, in particular when these studies pay due attention to operational aspects (e.g. Koppel 2016, Korn 2019 and Revilla Diez 2002).

The second perspective is based on a more fundamental examination of forms of digital employment that take into account the specific requirements of non-urban regions. A purely business-orientated and economic approach does not go far enough to satisfactorily address the challenges of acquiring digitally competent human capital. Specific requirements must be taken into account which in many respects imply a reversal of the social logic of digitisation which has so far been dominant in Germany. Digitisation, which is essentially oriented towards competitiveness and profit interests, fails in the regional context not only because of a lack of economies of scale. In order to make regional models successful, a stronger focus on normative aspects and a greater role for the public sector appears to be unavoidable. Existing programmes and projects often fall short here, as they are not adequately funded by the public sector and operate under the assumption that digitisation is ultimately a task that companies will implement in a profit-oriented manner.

Thirdly, existing concept and strategy papers on the topic of "work in the future" or "good work" contain valuable starting points, especially when they critically examine the consequences of

digitisation for the world of work (for an overview see Suchy, 2020). The so-called "Mittelstand" in Germany is widely regarded as ready to tackle the challenges of digitisation. However, studies repeatedly (and in line with the preceding analysis) conclude that there is a lack of knowledge and resources to make digitisation a success. Increasingly, questions are also being raised about the relationship between digitisation and the quality of work. The aim here is to develop strategies for the positive shaping of digitisation processes for employees and to open up scope for co-design and co-determination.
From the three perspectives mentioned above, starting points for the formulation of regional digital strategies can be derived. Specifically, three interrelated goals should be pursued:

1. Innovative models for building digitally literate human capital in the region should be initiated, supported and researched.
2. In order to take into account the necessity of critical minimum sizes, special models of innovative division of labour between regions should be tested and evaluated, also involving cooperative and/or public structures.
3. Finally, explicit consideration should be given to technological possibilities for reorganising and supporting the division of labour between SMEs, always bearing in mind the risks of excessive automation.

Above all, however, a willingness to take an experimental approach will be necessary. Even if the perspectives described above provide valuable starting points, reference cases and models are rare, and corresponding empirical data is lacking. Based on concrete cases in the field of recruitment, competence building and scientific support, "good examples" of employee recruitment, training and further education should therefore be developed, generalised and made transferable. The examined use cases should represent and test concrete design possibilities that could become the standard for the working world of tomorrow. In addition to the development of competencies in the work process, the research is also particularly concerned with the exploration of new, network and platform-based forms of work.
These new forms should also be explicitly conceived as an alternative to existing digital forms of work. For example, it should be asked what role cooperative structures or the public sector can play as institutional carriers of innovative forms of digitally competent human capital. For this purpose, it is necessary to keep the normative dimension of digitisation in mind. After all, securing the future of work through sustainability means taking other dimensions of social progress into account in addition to economic progress. Consequently, we should also experiment with structures that are explicitly closed to an economic control of success.

3. Regional development in times of surveillance capitalism

The challenges posed by digitisation and datafication from an agglomeration economic perspective are extremely difficult to resolve. But at least as challenging are the problems arising from the specific accumulation regime that has emerged over the past three decades. Various authors have examined the structures and characteristics of this regime (see, among others, Lanier 2010, de Reuver, Sørensen and Basole 2018, the review by Weatherby (2018) and the investigations in Klüh and Sturn, 2020). Recent contributions by Zuboff (2015, 2019) and Srnicek (2017) have attracted particular attention. A critical reading of the thesis of the formation

of a specific form of capitalism developed in these contributions (supplemented with references to the analyses in Klüh and Sturn, 2020) will be the basis for identifying further problems that currently arise for structurally weak and rural regions.

The contribution by Srnicek (2017) stands out, among other things, because he has taken the trouble to analyse and systematise what is really "new" against the background of current political-economic theory.[2] The starting point of the analysis is a thesis that has almost become commonplace. A new raw material lies at the bottom of the upheavals in our economic system: data (Srnicek 2017, p. 39)[3]. In general, data are information but differ from knowledge, however, in that they are information about what is happening and not why something is happening. Also, contrary to what is generally implicitly assumed in the context of digitisation, data are by no means immaterial. Their collection, storage and processing is responsible for a significant proportion of the world's energy consumption. The question of where the servers are located on which the data are stored is not only gaining in economic, but also increasingly in geostrategic importance. Different exploitation activities are grouped around data - and here, the description as a raw material is quite apt. Data is collected, documented, organized, stored, maintained and much more (Srnicek 2017, p.39-42).

The fact that data play a role in the capitalist exploitation process is not really new in itself. What has changed significantly through technological progress, however, is the sheer amount of editable data and the methods available for processing it. These methods make data an increasingly important source of value extraction: data "teach" algorithms in a way that gives the companies controlling the algorithms a competitive advantage; they enable the coordination and thus the "outsourcing" of labour; they contribute to the optimisation and increasing flexibility of the production process; they enable the transformation of low-margin products into high-margin services; and through data analysis and data dissemination, they themselves become the source of new, larger amounts of data (Srnicek 2017, pp. 41-42).

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[2] In the first chapter of his book, Srnicek develops his thesis of a political-economic environment in which it becomes meaningful and profitable to use data as raw material and to establish corresponding business practices. It is not possible to go into the details of his analysis here, but two main reasons are crucial for his argumentation: first, huge amounts of free capital looking for profitable investment opportunities, and second, the precarization of the labour market in the context of weakening unions. Both can ultimately be traced back to the liberalization that has been advancing since the 1970s and the development of a corresponding, heavily financed macro-regime (Hütten und Klüh 2017).

[3] Far too often the thesis of data as the new raw material is used without sufficient reflection. Whether the immense amounts of data that are currently being "unearthed" will ever meet the economic, technological and social expectations placed in them is largely open. Even if this were the case, the comparison of raw materials is in some respects misleading. In particular, data cannot be traded on competitive world markets like raw materials. Their dissemination is either restricted for good reasons (including data protection law) or hindered by the fact that the major platforms and other players have a considerable interest in keeping a large part of their data "for themselves" and not reselling it "like oil". When talking about data as a raw material, it is therefore important not to have too much of an idea in mind, such as is commonly used in everyday language with regard to iron ore or crude oil. Srnicek is concerned with a decidedly (form) logical determination: to understand data as a raw material means that its processing by its owner enables it to increase in value. What is confusing here is the fact that data exploited in this way can (and usually even do) take the form of data itself - without then still being raw material. Conversely, however, it is also true that purchased data can become the raw material for the new owner's own use.

Over the past two decades, companies have increasingly managed to harness these key functions of data to generate surplus value. The development of so-called "platforms" plays a decisive role in this process. Platforms are therefore at the heart of the new accumulation regime and have even given it a new name. "Platform capitalism" is based on a logic of accumulation which, although it is based on the practices of large platform companies, now goes far beyond them (see in particular Klüh and Sturn, 2020). In addition to consumers, whose monitoring and control was and is in many respects the starting point of corresponding business practices, small and medium-sized enterprises and public administrations are increasingly being drawn into the maelstrom of corresponding business models.

Platforms are characterised by certain features (cf. Srnicek 2017, pp. 36-48): Firstly, they are "digital infrastructures" which enable two or more parties to interact with each other. As intermediaries, they bring together different user groups, such as customers, advertisers, service providers, producers, suppliers and physical objects; they also function as a kind of toolbox that enables users to develop their own products. In other words, platforms position themselves between different user groups and form the basis for their activities within and outside the network. This gives them privileged access to their data, which they use for their own business interests.

Whether this privatised form of data use is socially desirable has not been discussed at all, or not sufficiently (see Klüh and Sturn, 2020). The very fact that it is classified as infrastructure makes it clear that public goods are made available on and through platforms. Different platforms are characterised (to varying degrees, but nevertheless throughout) by the classic test criteria for public goods, "non-excludability" and "non-rival in consumption". At least some of them are thus actually predestined for direct control by the public authorities. The fact that the search engine Google and its communication services are not publicly but privately organised is therefore by no means a matter of course. On the contrary: there is much to be said for promoting the collectivisation of corresponding structures.

This view is reinforced by the second characteristic of the platforms: their success is also and above all based on network effects that the corresponding companies use and at the same time proactively produce. For users, it is all the more attractive to be active on a platform, the more players already use it. A registration on Facebook is usually motivated by the fact that many others are already active there. This, then, increases the incentive for others to register. For example, the hit quality of Google's search engine is the main incentive for its use, which then increases the hit quality again, etc. However, network infrastructures, as we know, have a natural tendency to monopoly, which should be another reason for democratic control of platforms. This argumentation is reinforced by the fact that platforms very quickly build up new business activities, which increase their offer and thus the available data volume and thus tend to strengthen existing network effects. Platforms exploit considerable *economies of scale* and *scope*, not least because the real investment costs are mainly borne by the users: Uber does not have to build or buy cars, AirBnb does not have to build or buy apartments or houses.

According to Srnicek, the third characteristic is the "cross-subsidisation" of different business areas by one and the same platform (Srnicek 2017, p. 46). Thus, some services can be offered for free (and thus attract new users), while others compensate for the resulting expenses. This practice mixes classic private economic activities with classic state economic activities, which makes it even more difficult to break up the corresponding structures. Such a break-up already fails because the relevant services claim global reach and therefore often offer few points of

attack for national or European regulations.. This already pronounced immunity of corporations to tax, antitrust or data protection law intervention is again specifically safeguarded by the respective companies (see Klüh and Sturn, 2020).

Fourthly and finally, platforms may appear at first glance to be an "empty space" for free design by the users; but in the background and as basic architecture, control and "governance" by the rules of the platform and thus its owners are present (Srnicek 2017, pp. 46-47). Although the code (or other rules) enables users to deal creatively and productively with the development of new products and possibilities of use, at the same time a bond to the ecosystem of the platform is formed. This bond is a major reason for the extractive nature of the corresponding economies: *"All these characteristics make platforms key business models for extracting and controlling data. By providing a digital space for others to interact in, platforms position themselves so as to extract data from natural processes (weather conditions, crop cycles, etc.), from production processes (assembly lines, continuous flow manufacturing, etc.), and from other businesses and users (web tracking, usage data, etc.). They are an extractive apparatus for data."* (Srnicek 2017, p. 48).

What follows from this analysis for the question of a future-oriented development of regions in consideration of the digital transformation? Out of the numerous implications, only three will be highlighted here. First, it is difficult to imagine that the current form of platform capitalism can be reconciled with the small-scale structure of a functioning regional economy. One does not have to agree with all the premises of Srnicek's analysis critical of capitalism, to recognise "the natural tendency towards monopolisation" of the data economy, which can be seen in the four so-called GAFAs (for Google, Amazon, Facebook, Apple), among others[4]. In addition, other business models are emerging, which are often less profitable but no less powerful (as the examples of Uber and AirBnB show)[5]. Finally, numerous business models in previously decentralised economic sectors are also designed for economies of scale that can only be achieved by larger corporate structures. Against this background, the question arises as to how regionally operating economic units (both households and small and medium-sized enterprises)

[4] In order to understand the influence and possibilities of these companies, it is necessary to point out some remarkable peculiarities of these giants: The balance sheets of the respective companies are characterized not least by the fact that a large part of the assets are held in the form of financial resources. Moreover, the lion's share of the funds is managed "offshore", making access via taxation considerably more difficult. In many respects, they are not production or service units, but global financial institutions. This enables a very unique form of agile corporate management: new market developments can always be used in the company's own interest by making appropriate acquisitions, while changes in the political landscape can be counteracted by shifting the financial resources. There is a great deal of independence from banks, which in previous phases of capitalist development have always been able to steer the innovative potential of the corporate sector as "ephors" of economic development (Schumpeter 1912). This additional control, which has always been a starting point for state influence, is now no longer necessary.

[5] In the case of these companies, too, there are some specific financial characteristics which give them a special position. In particular, compared to traditional companies, they exhibit an astonishing degree of financial strength and thus independence against the background of pronounced losses. This is based on the role of financially strong individual investors and capital accumulators and on the fact that the respective companies have set themselves up not only as platforms for specific services but also as platforms for the management of venture capital funds (so-called ecosystems).

could be interlinked with the economic units dominating the platform economy. The risks here are considerable, as the following simple examples show:

- The expansion of online trade by corporations such as Amazon is causing considerable problems for many local retailers outside prime locations (Wotruba, 2017), often in combination with the migration movements discussed in Section 2. So far, only isolated cases have succeeded in noticeably counteracting the thinning of local and regional trading structures that can be seen in many places.
- The implementation of intelligent transport and energy concepts requires data that are often under the control of large digital corporations. Attempts by regional players to create their own database are important against this background, but so far they have often not been able to compete with the data density and quantity of commercialised data pools.
- Public administrations often use systems that are controlled by large IT companies. However, attempts to use open source applications to break free of such dependencies have often failed, as the example of Munich shows.

It is certainly too early to generalize this development. However, the dangers of an essentially asymmetrical distribution of data, financial resources, personnel capacities and possibilities of exerting influence cannot be dismissed out of hand, especially if the possibilities of large Internet groups are taken into account to exert influence on the organisation of regional development themselves and to participate in corresponding pilot projects and implementation plans. However, the asymmetry mentioned is almost unavoidable, among other things because the data necessary for the implementation of such concepts are often in private hands. Smart Cities could thus easily become places where "corporations build cities" (Rieder 2014), Smart Regions could become places where "corporations pursue regional policy".
Second, it would be naïve to underestimate the challenges that arise in establishing small-scale digital business models. It remains to be seen, therefore, whether the promotion of a regional start-up culture or the promotion of new business models in the crafts sector is really the best way forward. Start-up companies too often have to pay tribute to the logic of platform capitalism: Either they succeed in exploiting network and scale effects themselves; or they are absorbed into existing structures. It is not for nothing that many platform providers see themselves as "ecosystems" that incorporate small-scale structures into a global value creation architecture from the outset. The efficiency advantages this brings with it are certainly not to be dismissed. However, no regional economy can be based on efficiency alone (Morozov, 2014). Also in connection with new digital business opportunities for existing handicraft enterprises and similar service providers, there are obvious microeconomic and business management challenges: The expensive acquisition and, above all, maintenance of the corresponding hardware and software requires economies of scale that can often only be achieved on a supra-regional scale; it is therefore not uncommon for new business models to be accompanied first by an intensification and then a restriction of competition. A good example of this are efforts to establish digital business models in the crafts sector. Even if interesting ideas and developments can sometimes be observed here, the problems of platform capitalism often remain unsolved (Dürig and Weingarten, 2019). If, for example, a local painting company wants to make better use of its paint mixing machine and therefore wants to market its capacities online on a supra-regional basis, it will enter into competition with the services of other craft enterprises,

especially outside its current market radius. What is perceived on the surface and in the company's home town as a strengthening of the regional economy is perceived elsewhere as a further weakening of local suppliers. In more general terms, platform capitalism stands out precisely because it subjects large parts of the economy to a specific logic. Srnicek describes this development by showing, among other things, how other architectures have developed from the original advertising platforms: cloud platforms, industry platforms, product platforms, lean and less lean on-demand platforms. Although these sometimes seem less invasive than media based on advertising, important basic structures of the new digital capitalism are strengthening: they are forcing specific "monitoring and evaluation practices" in ever new areas of the economy, thus exacerbating existing asymmetries and sometimes inequalities and promoting the development of proprietary markets (Staab, 2019a).

It would therefore be wrong to measure the influence of the new platforms only by their economic market power. Platforms find political, social and economic structures and strengthen them, sometimes they create them themselves. These structures are of a more general nature than the financial volumes of individual tech giants. According to Srnicek, they are based on the principles of "offshoring", "outsourcing" and "on-demand". Srnicek's historical-economic classification makes it clear that although all three phenomena preceded the platforms, they now form an almost perfect symbiosis with them. The rising "offshore" profits occur in a global deregulated economy shaken by the financial crisis, in which states shy away from investment spending in accordance with the dogma of austerity policy. The trend towards "outsourcing" as well as "on-demand" production and services has been prepared by a small-scale division of the work process and the decreasing influence of trade unions and can be perfected in a digital-global networked economy. The latter in particular leads to the much-lamented precarious employment of underpaid and self-employed workers.

Thirdly and finally, the emergence of platform capitalism is accompanied by specific cultural, socio-economic and ideological changes that potentially conflict with regional economies and identities. Interestingly, the city and the region itself are often described as a kind of platform (Light and Seravilli, 2018). Innovative models of regional development also make increasing use of this description (Asheim, Boschma and Cooke, 2011). To put it bluntly, one could therefore argue that regions and cities are alternative models of functional platforms which now face considerable competition from private enterprise platforms. The two platform architectures are characterised by extremely different value frameworks, which often appear to be incompatible with each other. This is particularly evident in the case of new technologies, which explicitly claim to render traditional structures of social and economic organization obsolete[6]. It quickly becomes clear that essential elements that are usually associated with the framing of a regional economy and society are fundamentally called into question. Thus, the claim is made that the establishment of trust between different nodes should in future be increasingly established

[6] One example of such a technology is blockchain, which has developed in recent years from a niche phenomenon of rather little attention to a real hype. In the meantime, a good deal of scepticism has come to the fore with regard to the question of which applications can actually be implemented meaningfully with this technology. However, the corresponding utopian ideas, which often originated in radical-libertarian circles, continue to work and help to secure a logic of digitalisation that largely follows a liberal economic logic (Hütten and Klüh, forthcoming). The contributions in Klüh and Sturn (2020) show the ideas about the institutional and organisational order of the economy that this logic is associated with.

mechanically and be detached from the ties to specific individuals or organisations. Core components of regional economic orders (such as public institutions and traditional associations and federations) should be dissolved and transferred into global, contractual structures by means of smart contracts. Market-based, decentralized forms of coordination are to replace hierarchy-based models. The idea that a renegotiation of the tense relationship between autonomy and control is possible in the data economy always plays a role here (on these aspects see in particular the introductory chapter in Klüh and Sturn, 2020).

The continuous "collection" and targeted use of personal data are often at the centre of such ideas. In many respects, this aspect of monitoring and manipulation represents the "core" of the "macro-regime" that is emerging with the term platform capitalism (on the specific terms, see Klüh 2015). This is where the above-mentioned analysis by Zuboff (2015, 2019) comes in, which reflects many of the ideas discussed by Srnicek, but focuses somewhat less on contextualization and somewhat more on contouring. For Zuboff, in the wake of the success of Google and Facebook, a new capitalist logic has emerged, which can be characterized by four aspects in particular (and is thus openly characterized by the representatives of platform economics such as the economist Hal Varian): The constant "intensification of data extraction and data analysis", the development of "new forms of contracts" by means of computer monitoring and automation, the objective of an ever increasing "personalization and individual adaptation" of platform services, and the use of technological infrastructures to conduct "continuous experiments" with users and consumers (Zuboff 2019, pp. 64-67, own translation).

Zuboff (2019) emphasizes, similarly to Srnicek, that the practices of surveillance capitalism owe their effectiveness to the collision of two developments: a process of individualisation that has already lasted several centuries, and a process of neo-liberal economic reforms that lasted several decades, in the context of which individual self-determination has become increasingly difficult. The contradiction between these two developments, which can be felt in the lives of every individual, opens up numerous points of attack for surveillance capitalist practices. In the early days of the new regime, which were characterized not least by the absence of a legal framework, these were exploited without regard for the boundaries of the human horizon of experience or the moral integrity of autonomous individuals, in part also in cooperation with state agencies interested in surveillance[7]. The success of these tactics has led to the fact that the practices of surveillance have become the central mode of the new information capitalism. In this mode, human behaviour becomes a raw material. The most personal data is siphoned off without the consent of or communication with the individual and used to manipulate behaviour. This is accompanied by an extraordinary power of private actors, which also perpetuates itself. In particular, the division of knowledge as the central axis of the social order of the 21st century is being privatised. Equipped with this wealth of power, a transfer of the control logic of the net into the real world of the "Internet of Things", and then into the social world and politics, will be driven. According to Zuboff, this is by no means a dystopia, but rather an attribution of digital economies that has already been realized to a large extent.

[7] Klüh and Sturn (2020) speak of a combination of surveillance capitalism and surveillance etatism and also emphasize the fact that the internet is gaining momentum as a space for economic activity at a time when there has been much talk of the end of history. The notion that the socio-economic reality of the 1990s was a kind of end point has ensured that previously present social "immune systems" were downgraded at the very moment when the new invasive business practices were being tested.

Smart houses, smart cities and smart regions opened up numerous possibilities for the promoters of this new digital capitalism to shape society according to their target images and to transfer the practice of surveillance from the virtual to the real world. Zuboff even goes so far as to see in the concept of the "smart city" the "Petri-shell" of the "reality business" of surveillance capitalism, in which all its elements come together (Zuboff 2019, pp. 226-27, own translation). As with most developments in surveillance capitalism, there is a mixture of commercial interests and a thoroughly radical vision of future society behind such projects. With euphemisms such as "Big Data", "Artificial Intelligence", "Machine Learning", "Cloud Computing" or even "Smart City", an agenda is concealed in which a vision of society is at stake that is far more than totalitarian. The instrumental power of the digital complex aims to organize and adjust society in a way that robs it of its future, because perfect planning and control take the place of democracy and politics.

One could certainly object to this view that smart regions in Germany and Europe are established under conditions that set limits to the excesses described by Zuboff or at least regulate them. In fact, these are often at least partly public projects that are carried out in compliance with strict data protection regulations. Moreover, the term "smart" covers much more than digital innovations, because aspects of sustainability and quality of life are always taken into account. However, these certainly correct objections cannot hide the fact that large digital companies also play a decisive role in many of the corresponding projects in this country and that mass extraction and evaluation of data remains a core component. The term "smart" could just as well be dropped if data acquisition and the control of behaviour in traffic and energy consumption did not play a central role.

It could also be argued that the dominant role of platforms and monitoring mechanisms are important but not stand-alone features of the new digital capitalism. It would therefore be interesting to add further analyses and to systematize the literature on the currently emerging accumulation regime, which has certainly been selective so far, (for an overview see, for example, Pace [2018], Betancourt [2016] and Staab [2019a]). Of particular interest would be the addition of perspectives from the fields of labour (see, among others, Scholz [2017]), finance (see, among others, Langley and Leyshon [2018]) and ecology (see, among others, Kostakis, Roos and Bauwens [2019]). Taken as a whole, however, these analyses reinforce the picture already outlined: the emerging accumulation regime and existing notions of good regional development stand in a tense relationship that reveals fundamental contradictions in many respects.

Regional digitisation strategies and "smart regions" should take this into account by also seeing themselves as potential counter-drafts to the now widely criticised practices of platform and surveillance capitalism. In this respect, analyses of surveillance capitalism in particular offer positive starting points for innovative models of regional development, especially for rural areas. Zuboff, for example, calls for the establishment of "protection zones" in which privacy is preserved in such a way that free personal development is once again possible. Such protective zones can certainly be established without a region having to decouple itself from the digital world. There are plenty of starting points. In some places, cooperative initiatives have been formed that are specifically trying to break away from the logic described above. Within the framework of so-called platform cooperatives, the advantages of a platform organisation are used without the logic of platform capitalism being applied at the same time. Another model is offered by information cooperatives that market their data jointly, thus thwarting the business model of the large Internet groups, which focuses on the individual consumer (Roos, 2019). In

the area of the so-called sharing economy, the insight is increasingly gaining ground that only a radical detachment from the digital accumulation logic will enable sustainable models of the joint use of assets. It quickly becomes clear that the municipal library, the public swimming pool or the public park are well-functioning forms of sharing, which must first be preserved and then developed further in a second step. Digital technologies can then also be used in this further development. In order to exploit this potential, however, a whole series of conditions would have to be met, some of which are difficult to meet. We will turn to these prerequisites in the next section.

4. Agglomeration and accumulation

What follows from this analysis for the question of a future-oriented regional development under the conditions of digitisation and datafication? What can cities, districts and supra-regional associations do to counteract further divergence? The analysis so far raises doubts whether a strategy of increased integration with the structures of digital capitalism will bring the positive effects that are often assumed. It is often assumed that approaches of the so-called "platform economy" can enable regions to compensate for the disadvantages of a lack of basic equipment with digital competence and corresponding human capital. Even if this were possible - and this is doubtful because of the contradictions described above between the logic of digital capitalism, which is based on globalisation, data extraction and high growth dynamics, and the logic of functioning regional economies, which is based on local economic cycles, social capital and sustainable growth dynamics - considerable hurdles would have to be overcome. In addition to the development of an appropriate technical infrastructure, the problem of strengthening human capital with digital skills would have to be solved first and foremost, because even docking to the major platforms requires thinking in terms of new business models and practices. However, such a strengthening is anything but an easy undertaking, given the feedback mechanisms described above.

In particular, such promotion of digitally literate human capital must take into account the risks arising from the analysis in section 3. The logic of platform capitalism described above, for example, gives rise to doubts about the sustainability of many business models that are currently being tested by start-ups that rely heavily on digitisation. These often place a clear emphasis on the extraction of data and the control of behaviour, often with the aim of promoting environmental sustainability. Whether located in urban or regional areas, many start-ups are primarily investment objects for venture capitalists looking for returns or development centres for large digital companies. The majority of companies are either closed down or bought up after a short time. This is not surprising, as scalability is a crucial element of the corresponding value creation architectures. Due to the accumulation dynamics of business models based on data extraction, only quantity can ensure long-term survival in the market. And this quantity can rarely be mapped locally or regionally, but only supra-regionally or internationally.

Even the digital strengthening of local companies and the establishment of start-ups whose business model uses platform-based technologies only to enhance local services does not guarantee success if it takes place in the context of the logic described above. Firstly, the technologies described are also likely to increase the competitive pressure between the participating local producers. Contributing to this is the fact that many digital platforms often tend to overemphasize market, efficiency and competition logic (Juniper 2018). Secondly, it is

not uncommon for the participating regional players to engage in structures that leave digital progress to the large corporations, which continue to be located in urban areas. And thirdly, such structures often strengthen the already dominant large digital groups with considerable market power. A digitisation of the regions, led and guided by the existing centres, therefore threatens to consolidate previous disparities of an economic and ideological nature or, worse still, to contribute to the dissolution of regional economic structures.

The consequence could be an "ever looser union", a continuous drifting apart of dynamic growth regions and problem regions that are falling further and further behind. In fact, the analysis in section 2 shows that digitisation carries the danger of further decoupling of economically strong and economically weak areas. The rapid development of information and communication technologies is, with a relatively high probability, an important reason for the decoupling that has been observed in recent years. Together with demographic changes, it contributes to the drifting apart of society. However, technology and demographics are not solely responsible; the wrong economic policy choices play a decisive role in explaining this. The divergence brought by technological change has not been countered by additional investment in public infrastructure and employment. Rather, massive cuts have been made in the supply of public services in education, health care and administration in certain regions under the pretext of alleged fiscal bottlenecks and under pressure from institutionalised austerity programmes such as the German debt brake or the Stability and Growth Pact. By far the most dramatic consequence of this combination of technological and demographic change and the withdrawal of the state is political in nature and is reflected in the electoral successes of right-wing populist parties in many more rural regions.

It is often feared that the dynamics of an "ever looser union" could develop not only between regions but also between different segments of society (see in particular Staab 2019a and the references there). The contributions presented in Section 3 all share this fear: The drifting apart of regions could reflect a general centrifugal force. Srnicek and Zuboff in particular agree that this centrifugal force consists in the logic of economic liberalism, economization and financial socialization, which has been further reinforced by a specific form of digitalisation. To a certain extent, both accumulation and agglomeration theories emphasize the dangers rather than the opportunities of technological progress. This is regrettable, since new technologies have the potential to promote prosperity, quality of life and sustainability.

In order to tap this potential and possibly even return to the dynamics of "ever closer union", it would be of central importance to strengthen the centrifugal forces that have so far contributed to the continued existence of social cohesion. In fact, as a consequence of the misguided developments of recent years, it is becoming increasingly clear that digitisation needs a kind of "new start" in many respects. Incidentally, this in no way means that we should abandon the idea of the platform itself. Rather, it is a matter of creating cooperative, public and/or private and democratically controlled platforms. This can be built on established institutionalisations of the public sphere. However, this requires a detachment from the primacy of marketable solutions that have dominated digitisation up to now, as well as a strengthening of alternative forms of organization.

First and foremost, this concerns the state. For too long, the state has stood on the sidelines of the digital transformation. In addition, the state was often tempted to side the logic of private surveillance with systematic state spying. This mixture of inactivity and actionism has damaged

its credibility; only few trust the state to play a decisive role in shaping a sustainable digital society. This mistrust is further reinforced by the concentration of power in large, globally active internet groups. How is the nation state to gain control over the essentially global structure of the internet? All these doubts, however, do not alter the fact that only the public sector should have the resources and instruments to make a break from platform and surveillance capitalism. Staab (2019b) points in particular to the possibility of creating "publicly curated" platforms and, in this context, refers to a classic "Smart City" or "Smart Region" application from the field of public transport. He also doubts whether the grass-roots democratic actors favoured in particular by Zuboff (2019) will be able to lead the fight against surveillance capitalism. In contrast, he relies on "confidence in the steering power of state institutions", which is said to be effective on three levels in particular: The level of regulation and setting of frameworks, as can be seen, for example, in the European Data Protection Regulation, the level of cartel and competition law, and the level of the "entrepreneurial state".

Of course we must warn against seeing state solutions as a panacea. For this reason, secondly, framework conditions must be set which promote successful digitisation in the private sector or civil society. These include, in particular, measures in the area of data protection and data security as well as the establishment of digital infrastructures that offer an alternative to the offerings of the large digital corporations. A special role is played here by organisations whose aim is to establish cooperative forms of business. One of these is cooperatives. As already mentioned above, cooperative initiatives have developed into a motor of innovative approaches that thwart the logic of platform and surveillance capitalism, especially in the field of digitisation. These approaches are to be promoted, stabilized and, if necessary, scaled. On the other hand, the collective bargaining partners and in particular the trade unions play a central role when it comes to the future of work in the digital world.

Finally and thirdly, the question arises as to how, with a return to public and cooperative actors, the certainly desirable international networking can be represented by the internet. In order to answer this question, it is first necessary to question one premise of the logic of digitisation to date: that it is always desirable to increase the degree of global networking. Especially from a regional economic perspective, it is unproblematic if a phase of globalisation is followed by a phase of de-globalisation for a certain period of time. After all, this does not mean giving up the advantages of the international division of labor and multilateral cooperation. Against the background of climate change, it will also be necessary to question the classic orientation between the poles of the "local" and the "global" (Latour, 2017). In this new orientation, the European Union has a (if not the) central role to play, especially with regard to digitisation. As Staab (2019b) points out, this is due not least to the fact that Europe has retained a residual "trust in the steering power of state institutions that act in a democratically legitimate manner". This remnant will be necessary in order to find a European path to digitisation that avoids both the excesses of surveillance capitalism and surveillance etatism.

Such a European platform economy, publicly controlled and co-designed by cooperative actors, would also counteract the trend that has been set in motion by transferring the logic of surveillance capitalism to labour markets. Increasingly, this is based on employment relationships that are essentially precarious and characterised by a high degree of control. With regard to the accumulation and agglomeration effects of human capital (which have a similar self-reinforcing tendency to that of data), a global division of labour into low-paid jobs in

production and well-paid jobs in services can be observed. In the United States, however, the trend has long been to reflect this division within an economy. People with university degrees have long since been working as on-demand service providers via platform jobs, while a few have been given the opportunity to enjoy an employee benefits package on the Apple campus that even the old industry jobs did not provide.. This form of division of labour will therefore not be limited to the distinction between the geographic centre and the periphery and apparently cannot be prevented by investing in education. For a digital economy in the sense of platform capitalism needs only a few well-trained employees. The solution must therefore lie in a detachment from platform capitalism itself, also for labour market economic reasons.[8]

Regional digitisation strategies or innovative "Smart Region" concepts could make an important contribution to such a new platform economy by consciously positioning themselves as a counter-draft to current trends. In fact, they represent an important use case for implementing the above-mentioned strengthening and upgrading of state, cooperative and European actors. The establishment and development of digitally competent human capital is a task in which the public sector obviously plays the central role, especially as a provider of schools and universities as well as in the support of company recruitment and further education measures. Against the background of the analysis above, it is also advisable to deploy a significant proportion of the new digitally competent human capital not in profit-oriented, but in welfare-oriented, public and scientific areas. To achieve this, however, it is necessary to significantly expand the capacities of the corresponding institutions and of public administration as a whole and to strengthen the corresponding organisations, which are often understaffed in terms of personnel and funding. Nevertheless, existing structures can be built upon in this area.

In other areas, however, state actors would have to develop a new self-concept of their role in innovation and change processes (on the role of state actors in such processes see Mazzucato, 2015). To achieve this, it is necessary, on the one hand, to provide them with better financial resources (which, not only against the background of the current interest rate level, would be macroeconomically feasible without problems). On the other hand, the public and democratically legitimised decision-makers must be convinced that it is they, and not the private sector, that have the longer (and more controllable) leverage. A good example are projects of cooperative and trade union initiatives which - often using digital technology - break new ground in cooperative work or resource sharing. These initiatives often fail because of the high costs

[8] It would therefore be just as wrong to predict eternal dominance in the market for today's dominant companies as it would be to ignore the fact that monopolies exist and will exist. If nothing changes, SMEs will increasingly be forced to develop and execute their business models just like individuals on the dominant platforms. On the other hand, the space next to the platforms will become increasingly narrow. SMEs and their workers will therefore be forced into the role of "independent contractor" for the platforms themselves and subjected to a completely new form of wage pressure. It is questionable whether SMEs will be able to employ their staff in the long term in the form of socially acceptable employment relationships. Even under the best conditions of an expanded 5G network, small and medium-sized enterprises would accept orders placed via platforms at the lowest price and auction off individual work steps - again tendered via platforms - to "on-demand" service-providing workers. The regional location of a sub-contractor receiving orders in this way could even prove to be an advantage due to other factors, such as the level of rent, if the work can be carried out in the home office or in the existing production infrastructure.

involved in acquiring and maintaining digital infrastructures. It is therefore right that the corresponding pilot projects and experimental spaces are supported with state funding. However, the scope and duration of such funding is often far too limited. In addition, regulations of competition and state aid law often make continuous support with public funds difficult, as private companies operating in competition are still the preferred form of organisation. As in the context of climate policy, where the European Union's Green Deal is reviewing the relevant regulations, it would also be necessary in the context of digitisation to ask where a new demarcation line could be drawn between public or publicly funded and private sector activities.[9]

Interestingly, the European Union is already playing an important role in promoting such approaches, both at local and at national and supranational level (see inter alia Bria, 2015). For example, the EU programme CAPS (Collective Awareness Platforms for Sustainability and Social Innovation) promotes initiatives in areas such as "Open Democracy", "Open Policy Making, "Collaborative Economy", "Collaborativetive Making", "Collaborative Consumption" and "Environmental action" (Passani et al., 2016). Equally welcome is the recent intensive discussion on possible forms of a European digital path (WBGU, 2019), with its strong emphasis on restoring the sovereignty and autonomy of the individual and democratically legitimized communities. In particular, the call to continue the European tradition of public infrastructure services and to establish providers of large-scale digital services with state support should be discussed openly and not dismissed rashly.

5. Conclusion

Progressive digitisation does not necessarily lead to a divergent development between rural and urban regions. New technologies offer development impulses especially for rural regions close to conurbations, but in principle also shorten the distance between outer peripheries and centres. In addition to classic spillover effects and the development of interregional forward and backward links, corresponding innovation potential is increasingly being transmitted via property prices. Moreover, digital technologies can help when regional players want to network with each other. Digitally supported, intelligent integration into supra-regional and supra-national value creation structures can also make sense under certain conditions and need not necessarily fall victim to the globalisation logic of the new platform capitalism. Therefore, many municipalities and counties are rightly concerned with the development of strategies with digital change at their core.

The focus is often on questions of physical infrastructure, the digital transformation of existing companies and the establishment of new ones. From the perspective of the new agglomeration theories, these aspects are important, but should be increasingly supplemented with measures for the formation and settlement of digitally competent human capital. It could even be argued that the focus of corresponding strategies should lie here. It is therefore to be welcomed that this is increasingly recognised (see e.g. Böheim et al, 2018, and Korn, 2019) and that more and

[9] Another example is the fact that, for lack of alternatives, innovative players do not seldom have to resort to digital infrastructures controlled by the major internet groups. Under the heading of digital sovereignty, the extent to which the relevant services can be transferred to public hands is therefore rightly being discussed at present.

more local and regional initiatives are being formed to address the issue (Sczogiel and Opitz 2019).

However, even these positive approaches cannot hide the fact that the real challenge lies in a departure from the current development direction of digital ecology. The findings of recent research on the logic of platform and surveillance capitalism show that it is just as unsustainable in social terms as industrial capitalism is in ecological terms.[10] A conclusive strategy for digital development would therefore have to think beyond the obvious necessities of an efficient technical infrastructure, the efficient use of energy, water and transport networks, the establishment of new companies and the further development of existing ones, as well as the need for training and further education. In concrete terms, the aim must be to promote the accumulation of digitally competent human capital in small and medium-sized enterprises (SMEs) and at the same time to push forward alternative concepts for the organisation of the digital society and economy. However, this would require radical and substantial ("transformative") steps, which would require the end of digital capitalism. Since these steps are in direct contradiction to the logic of modernisation (Kaltwasser and Klüh 2019), which is still predominant in Germany, there is little hope of improvement in the foreseeable future.

Nonetheless, there are signs of hope, in particular on the European level. On February 19, 2020, the European Commission released a series of documents, reflecting its vision for the Union's digital transformation. In conjunction with the Green Deal, this "digital strategy" is an attempt to re-start the integration process. Its stated objective is to make digitalization "work for people, businesses and the planet, in line with EU values". After years of focusing on defensive policies to counteract the centrifugal forces resulting from conflicts on monetary and fiscal policies, the new Commission appears to be committed to go on the offensive and claim policy issues that are centripetal and forward-looking.

Strengthening centripetal forces becomes even more urgent as the Covid-19 pandemic evolves. But the pandemic has additional implications: In unforeseen manners, it alters views and discourses on digital technologies. The severity with which this crisis erupted accelerated the development of socio-technical systems, as well as novel experiments by state and non-state actors. Moreover, the pandemic has reinforced the trend towards de-globalization. It thus puts into question the main vanishing point of digital innovation, the ideal of global interconnectedness, and puts one of its few alternatives, a strengthening of European networks, center stage.

But under which conditions does digitalization support a unifying narrative and frame of modernization for Europe? What would constitute "cohesive digitalization"? The answers to these questions are yet be found, and the process of finding them involves large uncertainties. On the one hand, the digital strategy responds to a joint threat, the perceived comparative advantage of China and the U.S. in the platform and data economy. It offers opportunities to bring together a diverse set of interest groups and political forces. By reinvigorating the belief in a genuinely European way of shaping social and economic change, digitalization does invoke the liberal value base of the Union. On the other hand, it is highly uncertain whether digitalization can contribute to strengthening European integration. It has highly disruptive social and re-

[10] The ecological sustainability of increasing digitisation is also increasingly being questioned, and rightly so. See, for example, Klüh and Sturn (2020).

distributional implications. Its effects on processes of democratic deliberation are disputed. Member states, along with other state and non-state actors, often do not agree either on ways to digitize, or on ways to attenuate the 'disruptive' nature of digitalization. Notwithstanding its cohesive potential, taking into account these aspects will be a key challenge for policymakers.

To constitute technological change as a centripetal force, one needs to identify pre-conditions, approaches and framings for "cohesive digitalization", taking into account the specific challenges in and after the pandemic. Specifically, the following questions need to be addressed: Which set of policies can allow a large number of member states and political forces to unite behind common digital policies? Which contentious issues need to be moderated, and which framings can best attenuate centrifugal forces? Put shortly: Under which conditions can digitalization contribute to strengthening the integration process, and how does the pandemic influence these conditions?

The need to answering these question constitutes a new and important research agenda, for Europe. The EU has yet to establish credibility as a pioneer of a more humane and cohesive approach towards technological progress. With many of its policies seen to reinforce the logic of financialized capitalism, a strong commitment to deviate from the socio-economic rationale of recent decades is necessary. Research exploring ways to strengthen the centripetal potential of digitalization has to take this challenge into account, by embodying at least three distinct perspectives. First, it needs to take into account the dominant role of financial motives, cultures and ways of rationalizing and providing legitimacy to social change. It is necessary to take a critical look at the organizations and institutions linking digitalization to financialization. As the EU embarks on finding its response to digital frontrunners elsewhere, it has to define its attitude towards a highly financialized sector and towards the nexus between technology, privacy, fairness, and social inclusion. So far, the process towards such a common set of non-financialized values has been surprisingly productive. For example, the Commission's White Paper on Artificial intelligence or the proposals put forward in the context of EU NextGen have displayed a relatively high degree of common ground, coherence, and social-ecological orientation. Research can contribute to this process by providing European perspectives on concrete spheres, such as urban development, money and payments, and sustainable finance.

Second, research into the preconditions for digitalization to foster regional cohesion requires an analysis of current strategies to de-link socio-economic change from the logic of financialization. In the case of the EU, this cannot be done without taking into account the often disputed assumption that finance can be employed to achieve a more sustainable economy. While it is true that "sustainable finance" is in some way another form of financialization, it is also an attempt to re-focus actors on the necessities of the real economy and the broader society. Even those that do not believe in the fruitfulness of the approach need to accept that linking finance and sustainability is a dominant element of the policy discourse in the EU.

Third, one needs to relate changes in financial and real economic spheres to other social arenas. One exemplary way to do this would be to analyze digitalization as the struggle between different orders of worth in the sense of the Economy of Conventions (EC). This would take into account social worlds ("cités") that bring together economic and non-economic ways of social change (Scott and Pasqualoni, 2014). In the cité, persons act, coordinate and assign values and virtues to practices, based on regimes of justification. While there is no single cité but a plurality of contested ones, there are social spheres where the play between different orders of worth is

particularly visible. It is no coincidence that the city and the region are two of these spheres. They are therefore well-suited to analyze pre-conditions for enabling digitalization to enhance regional cohesion.

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