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Digital organising

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Abstract: The digital is pervasive, forming and transforming the ways individual and collective actors organise. We posit digital organising as a key concept that enables researchers and practitioners alike to capture novel forms of organising. Digital organising refers to the collective purposeful alignment and distributed action fostered through digital technologies. We discuss its core processes, datafication and connectification, and how both amplify centralised and decentralised organising. Based on these conceptualisations, we discuss the paradoxical nature of digital organising and offer an outlook for future inquiries.

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Introduction

The multitude of digital tools and technologies such as artificial intelligence (AI), blockchain, Internet of Things (IoT), big data, open-source, and digital platforms have supported the emergence of new forms of organising. These forms are diverse ranging from the use of data for AI-powered organisational decision-making (Stark & Pais, 2020; von Krogh, 2018), real-time, global coordination of manifold actors to organise climate action (Bennett & Segerberg, 2011), to open source initiatives across locations (Majchrzak, Malhotra, & Zaggl, 2021).

In short, scholars argue that these new forms of digital organising are based on a *datafication (of everything)* (Mayer-Schönberger & Cukier, 2013) and a *connectification (of everyone)* (Kolb, 2008; Kolb, Dery, Huysman, & Metiu, 2020). These processes are transforming at an unprecedented pace the way we organise, in two ways. On the one hand, technologies such as AI-based systems are being used to centralise and automate organisational decision-making processes, for instance for finding the best candidates or to develop and execute market entry strategies (Kiron & Schrage, 2019). On the other hand, digital technologies alleviate and enable linking and coordinating across boundaries. For instance, protests around the World Climate Summit can be organised decentrally in the digital global space; supporters are sought and coordinated online, tasks are distributed via social media, and strategies are openly developed and discussed (Cao, 2022; Leong, Faik, Tan, Tan, & Khoo, 2020). Thus, digital organising captures empirical phenomena where digital technologies simultaneously centralise and decentralise decision-making and coordination in our societies.

This apparently opposing nature of digital organising draws attention to the need to unravel the concept theoretically, which is the aim of this article. We detail the digital organising concept as follows. First, we explain how organising is shaped by digitalisation and elaborate on the processes of digital organising, namely datafication and connectification. Second, we highlight how digital organising amplifies both centralisation and decentralisation. Third, we zoom in on its paradoxical nature. We close with suggestions for future research.

Organising and the digital

We spend most of our lives as members of various organisations from clubs, companies, NGOs, social movements, to political parties, universities, various informal associations and online collectives. This empirical fact has been extensively reflected by scholars in sociology and psychology to economics and political science (e.g. Weick, 1979; March, 1994). As relevant as organisations are for our daily lives, organising is central to the function of all organisations and collective actors. By using the term organising, we refer to Weick (1979) and Czarniawska (2008) who emphasise processes of collective action within but also outside of organisations. Hence, organising describes “what people do when they act collectively in order to achieve something” (Czarniawska, 2008, p. 5). The process of organising is not arbitrary, but intentional and a purposive collective activity (Holt & den Hond, 2013). Thus, organising is about problem-solving and decision-making processes (March, 1994; Puranam, Alexy, & Reitzig, 2014) which is connected to the reduction of uncertainty, with the aim to make good decisions (Weick, 1979).

Dealing with uncertainty is of central interest for organising and is a challenging task. The more complex the tasks and the related context, “the greater the amount of information that must be processed among decision-makers during task execution in order to achieve a given level of performance” (Galbraith, 1974, p. 28). To handle such tasks, division of labour and coordination is necessary, often bound by extensive formal and informal rules that organisations establish and live by. However, the individual actor still has a central role in this process. While they are coordinated and restricted by formal structures, actors remain the crucial instance of decision-making and problem-solving (March, 1994; Puranam et al., 2014; Weick, 1979). They act according to their individual set of “attitudes, values, and goals” (March & Simon, 1958, p. 6), which yields creativity, flexibility and also unpredictability (see also: Scott & Davis, 2000).

However, thinking about organising and organisations were historically less about flexibility and creativity, but rather about the implementation of hierarchies, discipline and command structures, for example, to centralise power in authority systems, to control tightly organised armies or to skilfully share knowledge without spillovers in mediaeval guilds (Foucault 1977/1995; Kieser, 1989). Foucault, for instance, argued on the example of prisons in the 18th century that forms of disciplining can be found in many modern institutions, not only to coordinate national states but also in factories or schools, which he described as an “organization in depth of surveillance and control” (Foucault, 1977/1995, p. 198)¹. The focus on structures, rules and control can also be found in the work of modern bureaucratic

and scientific management in the 19th and 20th century (Weber, 1946; Taylor, 1911). However, this literature follows a different perspective and focuses in particular on the optimisation of workflows and processes based on leading, planning, controlling, and coordinating. In order to fulfil these tasks, the organisation served as a scaffold. To do so, the core idea was to use a large amount of data on workers and work not only to improve the organisation but above all to maximise efficiency (Taylor, 1911). It is in the modern organising literature that the role of individuals becomes more prominent and pertinent, initially through the focus on precarious labour conditions, and the emergence of trade unions – which organised as social movements – and more recently with the emphasis on individual skills and competencies, which are seen as a central asset of modern organising (Czarniawska, 2008).

At present, however, the development and deployment of digital technologies is challenging and changing the core elements of organising. This can be seen, for example, in the work on increasingly autonomous systems and AI-supported organisations, i.e. organisations with few people and much code (de Laat, 2018; Hasan & De Filippi, 2021; Katzenbach & Ulbricht, 2019). As digitisation has triggered a fundamental societal transformation (e.g. Bodrožić & Adler, 2021; Vial, 2019), this also had profound consequences for the way we organise societies, businesses, and politics. Zooming in on the implications of digitalisation for organising, we argue that digital organising entails two processes that are two sides of the same coin: datafication and connectification.

First, *datafication* fosters the idea of automation and augmentation of organisational processes as in the case of algorithmic management and AI-powered decision-making (Stark & Pais, 2020; von Krogh, 2018). Mayer-Schönberger and Cukier (2013) argue that almost all domains of social life can be made analysable through observation, measurement, and collecting data points. This data is the basis for further analysis and predictions, thereby “constitute[s] the building blocks from which information and knowledge are created” (Kitchin, 2014, p. 1). Thus, datafication highlights that digital technologies equip organisations and individuals with the ability to create or collect and rapidly process data (Leonardi & Treem, 2020; Mejias & Couldry, 2019). For instance, platforms such as Amazon and Twitter benefit from users leaving data traces with every click (Kornberger, Pflueger, & Mouritsen, 2017). Another example driven by datafication is AI-based decision-making that ranges from assistance systems to the idea of a full human-to-AI dele-

1. For a more detailed historical discussion on surveillance, power and social practices in the context of digitalisation, see the Concepts article Surveillance by David Lyon (2022).

gation, as in the case of interaction allocation based on ratings and rankings on digital platforms (Shrestha, Ben-Menahem, & von Krogh, 2019).

Second, *connectification* emphasises the role of digital technologies in connecting and networking both within and across organisational boundaries. Connectification “link[s] individuals and collectives (e.g. groups, organizations, cultures, societies) by facilitating material, informational and/or social exchange” (Kolb, 2008, p. 128). This allows individual and collective actors alike to integrate the creativity, skills, and expertise of the global pool of diverse and differently educated people to achieve common goals (Fjeldstad et al., 2012). Digital technologies like social media or open-source platforms make it possible to connect in real-time and virtually worldwide (Bennett & Segerberg, 2011), while at the same time making all kinds of organising, behaviours, and activities visible to the world (Gümüşay et al., 2022; Leonardi & Treem, 2020). Organisations further use platforms to crowdsource ideas and problems to online communities, e.g. Wikimedia (Dobusch et al., 2019), or to transparently communicate their strategy (Reischauer & Ringel, 2023). For instance, many global activist networks organise climate action via Twitter, Instagram, or other social media platforms (Brünker et al., 2019; Segerberg & Bennett, 2011); likewise, several thousands of people work together in hackathons on projects to tackle crises across country boundaries (Bertello et al., 2022; Mair & Gegenhuber, 2021). However, it is not only crises that are addressed by networks of actors, but also open-source projects, which have shown how the “chaos of communities” and diversity of actors, projects, and ideas can be orchestrated through principles such as openness and transparency (Dobusch et al., 2019; Shaikh & Henfridsson, 2017). For instance, there are open forums of coordination, in which tasks are broken down into small parts, worked on in parallel, and put back together again, whereby new ideas emerge and different actors come together repeatedly.

All of these examples of organising involve the interplay of datafication and connectification, because it is datafication that enables connectification and vice versa. Against that background, we argue next that the reciprocal relationship of datafication and connectification amplifies both, the centralisation and decentralisation of organising at the same time.

Digital organising as amplifier of (de-)centralisation

Digital organising presents an umbrella concept, that is, a broad concept used to encompass and account for a diverse set of phenomena (Hirsch & Levin, 1999). Based on the classical organising literature (March, 1994; March & Simon, 1958;

Weick, 1979) combined with the recent interest in the digital (Leong et al., 2020; Plesner & Husted, 2020; Puranam et al., 2014), we define digital organising as *collective purposeful alignment and distributed action fostered through digital technologies*. This view delineates the scope of the concept and encompasses two key features, purposeful alignment and distributed action, while datafication and connectification are processes enabling these simultaneous possibilities (see Table 1). Whereas datafication enhances the centralising and controlling nature of digital organising, connectification boosts the decentralising and diversifying nature of digital organising. Next, we detail each implication and elaborate on how purposeful alignment and distributed action based on digital technologies differ from non-digital ways of organising. Importantly, these are potentialities – not certainties.

Table 1: Scope of digital organising

	DIGITAL ORGANISING	
DEFINITIONAL ELEMENTS	Purposeful alignment	Distributed action
	Fostered through digital technologies	
LINK TO CORE TOPICS OF ORGANISING	Integration of labour	Division of labour
PROCESSES	Datafication	Connectification
AMPLIFIES	Centralisation	Decentralisation
POTENTIALITIES VIS-À-VIS NON-DIGITAL WAYS OF ORGANISING	<ul style="list-style-type: none"> - Condensing decisions to fewer actors or locales - Faster decision-making - Both more transparent or opaque - Extensive and hidden forms of control of decision-making and information provision 	<ul style="list-style-type: none"> - Making decisions in distributed fashion - Coordination and inclusion across organisational boundaries - From dispersed to globalised (“glocal”) action - Coordination and communication beyond hierarchical levels

Centralisation revolves around condensing decisions to fewer actors or locales. Digital organising is characterised by centralisation inasmuch as digital infrastructures allow for more uniform structuring. Therefore they provide opportunities to increase centralisation as classical hierarchies with several management levels are broken down (or not even created) and certain forms of coordination via managers are taken over by digital technologies, in particular AI (Gümüşay et al., 2023). Consider further platform businesses such as Uber and, even more centralised, the innovation platforms businesses such as iOS or Android. Behind each platform are a few or even a single AI-based technologies and few community managers who decide who can use and access the platform and determine its development. The pronounced centralising, converging, and controlling of organising is the result of datafication, and differs from non-digital ways of organising in multiple ways.

First, digital organising has the potentiality to be faster than organising without digital means. This is due to the use and combination of massive datasets – often captured with terms such as ‘data analytics’ or ‘big data’ – and through integrating more information in all organising processes (Shrestha et al., 2019). Likewise, digital devices and platforms enable platform workers to organise anywhere anytime – a fact that they can leverage to find work or gigs across the country or even abroad.

A second difference of the central nature of digital organising is that it is potentially more transparent. In principle, every step of every member of an organisation or collective could be made transparent, i.e. accessible by anyone over the web (Leonardi & Treem, 2020). For instance, the Pirate party followed this idea, showcasing mixed results in terms of electoral success (Reischauer & Ringel, 2023). At the same time, the central storage and provision of data can drive opacity as those accessing and trying to make sense with data might be overwhelmed with the richness and sheer size of information (‘information overload’).

Third, datafication can lead to more extensive forms of control than traditional ones. This is because all tasks, processes, and practices and even all behaviour of employees and customers can become subject to ratings and evaluation (Faraj et al., 2018). The experience of control further intensifies, because AI-based systems are learning systems that constantly evolve and make it hard to adapt to the evaluation criteria (Rahman, 2021). Such systems become an “invisible cage”, which both limits the options for action and is “also more difficult for workers to game and inflate the evaluation system than in traditional settings” (Rahman, 2021, p. 946). This development is currently most visible in the gig economy, where platforms use algorithms to manage freelancers automatically, who tend to have little or no insights into the rules used to evaluate their performance and assign work to them (Kellogg et al., 2020; Rahman, 2021). And yet, “algorithmic management” as a phenomenon is no longer limited to the gig economy, as its practices are increasingly spreading to traditional firms and even the public sector (Jarrahi et al., 2021).

Decentralisation revolves around making decisions in a distributed fashion. Digital organising is characterised by decentralisation as connectification enables the diversifying, decentralising, and dispersing of elements of organising. Consider the example of digital infrastructures but also upon per-se decentralised digital technologies such as blockchains that power decentralised autonomous organisations (DAOs) (Hassan & De Filippi, 2021; Hsieh et al., 2018). Here, actors are literally unbound in how they decide, expanding their freedom of choice. Digital decentralisation differs from traditional ways of decentralisation in multiple ways.

First, digital organising can yield more decentral coordination and decision-making across organisational boundaries. Early research observed these kinds of inclusion of actors originally external to the organisation and diverse stakeholder groups into key organising processes such as open strategy making (Whittington et al., 2011) or open innovation (West & Bogers, 2014). This has blurred the boundaries of organisations and uncovered the potential to integrate virtually anyone worldwide and, if desired, in real-time; the notion of community governance has emerged to capture this specific mechanism (Reischauer & Mair, 2018).

Second, digital organising crosses spatial boundaries, making global action more likely than traditional ways of organising. This shift from the local to the global is particularly visible when considering social movements. Many have recently emerged based on platforms such as Twitter, which have initiated social reforms and thus influenced society and politics. Examples include national digital activism like #MarchForOurLives as well as global movements such as #MeToo and Fridays4Future. From that perspective, organising as *collective action* may develop into organising as *globalised action*; which is both desirable and necessary against the backdrop of globally interrelated grand challenges such as poverty, wars, and climate change (Cao, 2022; Leong et al., 2020). In the process, global activity has been enabled by the evolution of organisational processes from one that requires the physical presence of physical activities to one that is virtual via websites, digital tools, and platforms, or even digital worlds such as Second Life or the Metaverse.

A third difference between digital organising and traditional organising is the coordination and inclusion beyond hierarchical levels. As exemplified by tech firms like Alphabet and Apple that extensively rely on various tools to organise in the digital, organisations that rely on digital organising often have rather flat hierarchies. However, this view is also criticised and tries to bring the background of flat hierarchies to the fore. Platforms tend to have a flat hierarchy not because they are organised in a particularly equal way, but because the algorithmic management takes over and centralises essential coordination functions – and making several hierarchy levels obsolete (Bodó et al., 2021; Vergne, 2020; von Richthofen & von Wangenheim, 2021). Thus, while organising on one platform may be decentrally organised, the organising across platforms is highly centralised.

Paradoxical nature of digital organising

We have shown that digital organising implies that actors organise in both a more centralised and more decentralised way. This showcases the paradoxical nature of

digital organising, i.e. the persistent presence of “contradictory yet interrelated elements” (Smith & Lewis, 2011, p. 382). In line with recent advances showcasing the paradoxical nature of digital technologies (Wimelius et al., 2021), we argue that the paradox entanglement of centralisation and decentralisation in digital organising becomes visible in at least two respects.

First, the paradoxical nature of digital organising becomes visible when considering the increased spectrum of what is organisationally possible, that is the “organisation-ability”. In other words, the digital extends the opportunities for organising whereby the digital has the potential to both integrate and separate further. It is this potentiality that may lead organising towards, on the one hand, extremes including extremes of transparency and collaboration – extreme decentralisation, as envisioned by advocates of the blockchain technology (Vergne, 2020). On the other hand, the possibilities can mean a high intransparency of decision-making and information-sharing and an automation of decisions (Kellogg et al., 2020; Rahman, 2021) – thus, an extreme centralisation.

Second, the paradoxical relationship is visible when it comes to access and participation in various digital platforms. As shown above, digital organising allows and limits participation and collaboration at the same time. Although the potential of globalised action is obvious, access and participation can be limited through digital gates, or even internet access can be easily restricted through paywalls or the blocking of accounts for certain user groups. This is why the debate about digital platforms as essential infrastructure and public good is of central interest (Bohn et al., 2020; Constantinides et al., 2018). Currently, however, the major infrastructure platforms are concentrated in a few private US companies commonly subsumed under the acronym GAFAM. Another example of paradoxical effects are the restrictions that apply to Decentralised Autonomous Organisations (DAOs), in which only those who own (expensive) tokens can participate (Hassan & De Filippi, 2021).

Future research and conclusion

This article elaborated on the elements and processes of digital organising, which has become a key concept to understand how our digital society, collectives, and individuals organise. Digital organising is paradoxical in nature. It can make organising more decentral and open, but is also prone to closer centralisation and thus control. Similarly, digital organising can lead to more collaboration but also to human-free action. As these mark potentialities, it is both an empirical and normative question how digital organising develops and how it should be navigated across centralised or decentralised forms. In light of the increasing ubiquity of the

digital, we need to reflect further what scope of digital organising is justified and desirable (Mueller et al., 2021). It is also conceivable that the digital as distinct phenomena is transient and that the differentiation between the conversations on organising and digital organising will become obsolete at some point, “with a separate consideration sensible at first before intellectual traditions then fuse in the future” (Mueller, 2022, p. 696). However, as long as organisations are still in the midst of the digital transformation and have yet to leverage the potential(ities) of digital technologies, a separate focus seems needed both from a theoretical and practical viewpoint.

The digital organising lens provides a promising ground for future research. One important avenue pertains to how various actors navigate the paradoxes of digital organising. For instance, do they favour leaning into one pole and ignoring unintended consequences of the other? How do they balance these paradoxes? Likewise, it is still an open question how paradoxes can be balanced over time. For instance, how can a strong centralisation of the organising of federal state tasks be balanced (with the use of technology) so that power is distributed as is usual in democratic systems? Such questions are of great relevance in a number of disciplines, from sociology to political science to law.

Second, future studies could focus on the empirical manifestation of the digital organising paradox, such as how its processes purify both decentralisation and centralisation as basic conditions. Research could engage with new forms of organising that amplify both processes. An example of this are DAOs, which are built to realise decentralised decision-making but are at the same time based on a highly centralised algorithmic management (e.g. smart contracts).

A third important route for future research is to examine the institutional differences and similarities of how digital organising is put into action. We need to unpack how the potentialities of digital organising become realised, manifested, and institutionalised. To do so, we need to account for the actors and practices that both inhibit and enable, proscribe and prescribe institutional changes resulting from and towards digital organising. We also need to consider the role of imaginaries and how possible futures become probable futures and ultimately realised presents.

A final important avenue is to further deep dive into how digital organising is beneficial and detrimental to address the grand challenges of our time, as exemplified by the sustainability development goals (Howard-Grenville et al., 2019) and increasingly captured with the digital sustainability perspective (George et al.,

2021). We have argued that digital organising can support the development of increasingly globalised action, such as global activists against climate change. However, empirical research is often rather focused on individual contexts that may be across countries, seldom continents, and very rarely global. We need to unpack further how technology and its use inhibits and enables global coordination and governance in the face of societal challenges.

To sum up, as digital organising is here to stay, there is a need to theorise and conceptualise its core processes and implications. Our article has laid the groundwork for this but we see a lot of potential to further examine the phenomenon. This includes the questions about the long term effects of how digital organising impacts the functioning of the centralising-decentralising couplet as well as the implications of its paradoxical tensions for individual, collective and societal lives.

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