The organizational powers of (digital) media

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Abstract
Digital media are pervasive, ubiquitous and mundane constituents of organization. Organized life relies on, and is propelled by, technologies that store, transmit and process data and are based on networked computation. How can we understand and explore the fundamental mediatedness of organization? This article contextualizes and introduces the special issue on 'The organizational powers of (digital) media' by staging an encounter between organization theory and media theory. In provoking investigations of the power and effects of technological mediation in its many guises, not least in regard to digital or computational media, this encounter ushers in a 'medial thought' of organization.

Keywords
Computation, digital media, media, media theory, organization, organization theory, technology

Introduction

While the hype around digital technologies and 'digitalization' continues unabated in both its main variants of uncritical affirmation and dystopian diagnoses, digital media themselves have become pervasive, ubiquitous and so utterly mundane that we barely take note of them. Today's organized world and its everyday processes of organizing rely on, and are propelled by, technologies that

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store, transmit and process data and are based on networked computation as well as the discourses, practices and institutions that shape their development and use. How can we begin to understand and explore this fundamental mediatedness of organization and its consequences? Arguably, extant approaches to the technological and sociomaterial constitution of organized life engage with organization's dependency on technological mediation. However, the epistemological and political challenges of such mediation to understanding organization in the age of digital reproduction have so far barely been acknowledged in organizational research.

In this article, which contextualizes and introduces the special issue on 'The organizational powers of (digital) media', we seek to identify and outline these challenges by staging an encounter between organization theory and media theory. As we will show, media theory and the study of technological media not only help us understand the power and effects of mediation in its many guises. In addition, this field of research itself entails fascinating studies of organization and organizational life that demonstrate and enable a fertile and provocative 'medial thought' of organization.

To coax out the contours of this medial thought, we move as follows. First, we revisit Karl Weick's influential organization-theoretical story about lost soldiers who make their way to safety with a false map. Yet rather than dematerializing and de-mediating the tale as being about collective sense-making, we suggest rereading (or rewriting, or 'dehumanizing') the narrative around the map in its relation to other media, which enable processes of sense-making and thus shape sensation and action. Based on this introductory scene, we then – second – relate the notion of media that is of interest here, and of media-theoretical analyses of organization, exemplifying an understanding of media of organization through Cornelia Vismann's (2008) study of *Files*. Third, we turn to the notion of the digital and digitality in order to ponder the organizational powers of digital media. While organization has been shaped by media ever since people began organizing, the rise of digital media reposes and perhaps exacerbates the question of organization's perpetual mediation. Fourth and finally, we introduce the individual contributions to this special issue.

Maps, media and sense-making

To set the scene of this special issue, we begin with a famous tale of organization theory, reappraised through a media-theoretical lens. Many readers will be familiar with Karl Weick's account of soldiers getting lost in the Alps during the Second World War. Upon getting caught in a snowstorm and close to despair, the protagonists discover a map in one of the soldiers' pockets, which reassures them, and which enables them to sit out the snow storm and return to camp (Weick, 1995: 54). While the origin, veracity and moral of the story is highly contested (Basbøll, 2012), its main clue is that the soldiers make their way back to camp even though the map on which they presumably rely is a map of the Pyrenees, not of the Alps. For Weick (1995), this 'raises the intriguing possibility that when you are lost, any old map will do' (p. 54). The tale encapsulates the notion of 'enactment' as key for organizational sense-making.

Weick (1995) emphasizes that cues, like the map in the story, 'are crucial for their capacity to evoke action', and that 'almost any old point of reference will do as a start' for this enactment (p. 54). What matters is that action takes place at all for sense-making to occur and succeed, as in the case of the soldiers, who

> were able to produce a good outcome from a bad map because they were active, they had a purpose (get back to camp), and they had an image of where they were and where they were going. They kept moving, they kept noticing cues, and they kept updating their sense of where they were. (Weick, 1995: 55)

Sense-making is thus driven by plausibility rather than accuracy. Among other things, people 'need to distort and filter, to separate signal from noise [. . .], if they are not to be overwhelmed with data [. . .]'; and the need for quick decision-making invariably requires a trade-off with accuracy (Weick, 1995: 57).

What does this story have to do with media? First of all, note how thoroughly mediated the situation the soldiers find themselves in is, and how this mediation fundamentally conditions sense-making. In *Understanding Media*, Marshall McLuhan (1994) noted how the 'effects of technology do not occur at the level of opinions or concepts, but alter sense ratios or patterns of perception' (p. 18). The situation of the soldiers would be very different if there were no map to alter their patterns of perception. We may also wonder whether there are other media at hand in the story, such as compasses, clocks or field glasses, which would thus shape the soldiers' practices of sense-making with regard to time and the urgency of their action, their sense of direction and their ability to orient themselves in relation to distant objects. Arguably, such entanglement of different media shape our organizational scene; its human practices of sense-making are predicated on the ways that 'media links' (Kittler, 1999: 2) condition what can be sensed.

To trace our scene's media links could then be expanded to include the media devices of cosmology and cartography. Consider for example the advent of the telescope. As Joseph Vogl argues in his analysis of Galileo and his telescope, the latter became a medium since it enabled Galileo to reflect on the process and function of vision itself. For Vogl (2007), the telescope thus 'creates the senses anew: it defines the meaning of vision and sensory perception, turning any and all visible facts into constructed and calculated data' (p. 17). The sense-making of the soldiers is already conditioned by this recrafting of the sense of vision. Although Weick presents their plight in the forest as a kind of primal scene, bereft of any media or technologies other than a false map, the story points to different and nested layers of mediation reaching into the past.

Let us dwell on the map a little longer. It represents the territory that surrounds the soldiers and constitutes the soldiers as subjects of the map. As media theorist Bernhard Siegert (2011) notes, maps are 'media that are themselves agents of subject constitution': the maps and their inscriptions refer to 'epistemic orders and their struggles for dominance over other epistemic orders, in the course of which marks and things enter a new play of signs'; these 'cartographic operations produce a subject, which correlates to them' (pp. 131–134). The representation of space in the form of a map or a grid precedes action within that space by allowing this action's modelling and simulation and by creating a subject skilled to this end (Siegert, 2015: 97–98). Siegert might concur with Weick that the accuracy of the representation of space is not of the essence here. Rather, practices of representation are ways of intervening into the world and shaping it. The key property of these maps is 'not to be "objective," as a naive definition of realism often claims', but to provide 'optical consistency', or simply 'a regular avenue through space' (Latour, 1990: 27, 31).

Could we imagine that the soldiers' map of the Pyrenees provided 'optical consistency' for orienting themselves in the Alps? What kind of optical plausibility (to mesh Latour and Weick's terms) could a map of a different terrain afford? How exactly would it allow the soldiers to 'distort and filter, to separate signal from noise' (Weick, 1995: 57)? These are important questions since Weick deploys the story of the soldiers and the map in different contexts in order to derive lessons for scholarly or managerial practice (Basbøll, 2012; Gelman and Basbøll, 2014). These issues point to the ways in which a media thinking not only complicates the tale of the soldiers in the Alps (and the story of organizational sense-making) but also of how the map as medium conditions the situation that precedes sense-making, and of the kinds of knowledges, practices and affects the map affords. In our reading, then, Weick's tale calls for a more thorough consideration of how media shape knowledge practices, affect our senses and impact the ways in which we make sense (Beyes, 2019).

These are fundamentally organizational questions (which in our soldiers' tale would also touch upon the way in which cartography is a key requisite for a territorial war). The medial gaze invites us to focus on the conditions of how organization takes place, which 'involve the materiality of media in the broadest sense, including their technicality, discourse networks, cultural techniques and formations of knowledge' (Siegert, 2011: 15). This is all the more urgent today considering the reliance of organized life on a whole other set of (digital) 'locative media' (e.g. Wilken and Goggin, 2015). Thrift (2005: 222) suggests to understand the 'content' of these media as 'a prepersonal substrate of guaranteed correlations, assured encounters, and therefore unconsidered anticipations'. Such unconsidered anticipations come to the fore in the contemporary anecdotes of drivers getting lost in forests or in deserts because the wrong global positioning system (GPS) signal has been transmitted to Google Maps.

Media organize

How might we come to terms with the kind of media thinking that is at work in our introductory example? As Friedrich Kittler (1999) notoriously put it, '[m]edia determine our situation' (p. xxxix). They need to be understood as the 'infrastructures of being, the habitats and materials through which we act and are' (Peters, 2015: 15). Or, as Reinhold Martin (2003: 15, 2019) paraphrased Kittler, encapsulating what we are proposing in this special issue: 'Media organize'. Media thus have organizational powers; they configure and shape organizational relations. They do this by conditioning (to use Kittler's radical term) how organization takes place. To address media thus calls for investigation of the operations, effects and affects of mediating devices and forms in an organized world.

This understanding of media differs significantly from what might come to one's mind upon hearing the word 'media': mass media and entertainment, say, or telecommunication and globalization, or the uses and abuses of contemporary social media. The idea of media as organizational powers relates to a different field of discourse within the humanities and the humanities-inflected social sciences. Here, the term 'media' points to a fundamental technical form, a 'technoanthropological universal that has structured the history of humanity from its very origin (the tool-using and inventing primate)' (Mitchell and Hansen, 2010: ix). Broadly put, the concept serves to reflect on the material and technological conditioning and structuring of experience, agency and interaction. Thinking such mediation is thus not concerned with questions of what is represented ('in the media'); it seeks to investigate the very material and technological conditions of what is given to sense perception, of what is visible, sayable and representable (Vogl, 2007). As media scholar John Durham Peters (2015) has recently argued, this 'expanded sense of the media concept' comprehends media as 'vessels and environments, containers of possibility that anchor our existence and make what we are doing possible' (pp. 1–2).

Peters ascribes the development of this *organizational* concept of media to scholars like Lewis Mumford, James Carey, Harold Innis, Marshall McLuhan, André Leroi-Gourhan, Friedrich Kittler and Bruno Latour (Conrad, 2019; Peters, 2015: 18). Not all of them considered media to be their object of research. Rather, it could be argued that they were actually interested in matters of organization – at least organization in the sense of the creation of centres, hubs, discourse networks, assemblages or clusters. This led them to explore media as 'civilizational ordering devices' (Peters, 2015: 5) or 'materials to manage time, space and power' (Peters, 2015: 20). Among their objects of research were the railroad, power grids, the alphabet, typewriters, clocks, calendars, the postal system and speed bumps. While searching for the 'fundamental constituents of organization' (Peters, 2015: 19), they stumbled across things that organize. It is the label 'media' that has come to stand for this approach.

Over the past decades, a scholarly community has formed around this organizational concept of media. The often historical scholarship produced by this community provides rich stories about

organization and organizing, even about proper organizations. While we find traces of such media thinking in organization-theoretical work on information systems and communication processes (Yates, 1993; see Hoof and Boell, 2019), on the sociomaterial constitution of organization (e.g. Carlile et al., 2013; Leonardi et al., 2012; Orlikowski and Scott, 2008), or in the cybernetic reframing of organization as 'cyborganization' (Parker and Cooper, 2016), the field of organization studies has so far skirted these studies, and the field of media theory in general terms. This special issue seeks to help redress this situation (see also Beyes et al. (2019), for a related attempt to fuse media and organization theory through identifying and examining a whole range of media of organization).

Since a review of the media-theoretical and media-historical investigations of organized life is beyond the scope of this article,[1] we briefly point to an exemplary media-theoretical account on organization and organizing: Cornelia Vismann's (2008) study *Files: Law and Media Technology*. Vismann (2008) is explicitly 'not concerned with the content of the files' (p. xii) but with files themselves. Files, after all, are operational, they are processed – in other words, they organize. Wondering how files have shaped and contributed to 'their largest area of application, the law' (p. xii), Vismann draws attention to their materiality:

> files pile up on desks, accumulate in offices, and fill attics and basements. Though registered, their order collapses time and again; though collected, quashed, dispatched, sold, shredded, or destroyed in some other way, they keep mushrooming. Their incessant proliferation seems a natural phenomenon. (Vismann, 2008: xi)

Conceptualizing files as the quintessential and at the same time obstinate *means* of administration, she assumes files and the law to be definable only in relation to each other. The law is 'a repository of forms of authoritarian and administrative acts that assume concrete shape in files' and files – varying in their historical concretions – are 'that which generates a certain type of law' (Vismann, 2008: xii–xiii). Files and the law are concurrent as they 'mutually determine each other' (Vismann, 2008: xiii).

In a media-archaeological manner, presenting key historical moments from antiquity to the middle ages and the present, *Files* offers a fascinating account of the inextricable entanglement between the rise of bureaucratic ordering and files, its fundamental tool. Vismann thus rewrites the history of the advance of bureaucratic organization as one that is predicated on the media technology of files, which not only shape the processes of administrative documenting, circulation and archiving. In materializing Max Weber's (1978) key insight that 'all types of modern organized action' rely on 'the combination of written documents and a continuous operation by officials' (p. 219), the bureaucratic principle at the heart of modern organization, its technical superiority, becomes 'a bureau-technological one': 'It was the technological superiority of files and their ordering systems that inaugurated and secured the reign of the office [. . .]' (Vismann, 2008: 129). Conditioning the sociotechnical processes of modern organization implies shaping its subjects, too. These fundamental media of organization were the training ground for administrative routine and its 'subordination to a filing system that automatically generates order' (Vismann, 2008: 138). In this sense, the bureaucratic ethos might itself be seen less as a personal trait than as a habit induced by the organizational power of files.

There are other studies on media and organization which offer a complementary focus to that of Vismann's on files. Ben Kafka (2012), for example, in his study of *The Demon of Writing: Powers and Failures of Paperwork* provides an account of the centrality of paper (and the work that comes with it) to the constitution of the modern state after the French revolution. Kafka eloquently demonstrates that the material constitution of paper, its sluggishness, its capacity to burn or to dissolve in water, are intimately related to the operations, to the successes and failures of the bureaucracy

of the French state. (Today, it is still paperwork which the computer promises to get rid of in the 'paperless office'; Sellen and Harper, 2001) Or consider Markus Krajewski's (2011) *Paper Machines: About Cards and Catalogues, 1548-1929*, which provides a media history of index cards and card catalogues as 'paper machines' – organizational devices which precede and in many ways pre-empt the computer, by promising to satisfy its basic operations: 'storing, processing and transferring data' (Krajewski, 2011: 3).

Vismann's (2008) *Files* also points to a prehistory of 'controlling administrative algorithms' (p. 122) that have arguably influenced the present age of 'digital organization'. Before the advent of digital technologies, processing the 'automobility of files' (p. 138) was already tied to lists and programmes that determined the chains and circulation of organizational communication. It is no surprise, then, that computer interfaces and computerized practices came to update the look, language and habits of file processing:

> At the interface of computer and user, material files turn into icons, which a mouse, replacing the hand, 'opens' and 'closes' with a click. The very terminology of computer surfaces is designed to remind users seated before screens of the familiar world of files. The menu tab offering options like 'list', 'format', 'thesaurus', 'table' and the instructions copy, delete, save turn users into virtual chanceries or chancellors. By condensing an entire administrative office, the computer implements the basic law of bureaucracy according to which administrative techniques are transferred from the state to the individual: from the specialized governmental practices of early modern chanceries to the 'common style', from absolutist administrative centers to individual work desks, from the first mainframe computers in defense ministries to the desktop at home. (Vismann, 2008: 163)

The digital

Vismann's insight on file processing is one example of what Jay David Bolter and Richard Grusin (1999) call 'remediation': 'old' media reassert themselves when 'new', 'digital' media come to the fore. It is a story very familiar to organization studies, where explorations of technological development account for the ways in which older organizational processes and technological arrangements impose themselves on new technologies, as for example in the case of enterprise resource planning software (Conrad, 2017; Pollock and Williams, 2012). To give another example: if we look at executive dashboards today (Beverungen, 2020), we also note how these contain (to use McLuhan's term) earlier media such as graphs, charts and tables prevalent as decision support devices in earlier organizations (Hoof, 2016; Yates, 1993). What Bolter and Grusin refer to as the 'double logic of *remediation*' also explains why the media of organization so often disappear from sight: our 'culture', Bolter and Grusin (1999) write – and we might add: our organizations – 'wants both to multiply its media and to erase all traces of mediation'; it is marked by 'the twin logics of immediacy and hypermediacy' (p. 5). So while organization today, much like the situation of the soldiers in the forest, is permeated with old media, new media and everything in between, these media often disappear from the senses.

A focus on remediation and on the histories of media of organization already protects us from the 'rupture talk' (Haigh, 2014) and the 'tyranny of the epochal' (du Gay, 2003) so often associated with digital media technologies, and all too familiar to both media studies and organization studies. So, what exactly do we mean when we are speaking of *digital* media to mark if not a rupture or epochal change, then a technological development? To start, 'the digital' is a way of processing information as discrete values and within the binary numeral system. This way of storing and processing information has been the necessary condition for mechanical and eventually electronic computers to develop, such as Charles Babbage's Analytical Engine (1837), Konrad Zuse's Z3 (1941) or ENIAC (1945). Today, this basic principle still underlies any technological development

now associated with the 'digital revolution' (Beyes et al., 2017). 'Digital' refers today to computers, even if it is a rather arbitrary replacement term for 'computerized' (Haigh, 2019: 2). There are many cultural techniques and technologies which were digital prior to the advent of electronic, programmable computers, such as punch cards first used in looms (Schneider, 2015), and the history of the term itself is currently being rewritten in the history of computing (Haigh, 2018, 2019).

'The computer' is by no means a stable category, either. According to Thomas Haigh (2018), 'the computer' – the historian of computing uses the word in quotation marks only – is 'a uniquely flexible technology' constantly becoming something different (p. 1). He points to the astonishing range of phenomena associated with it: mainframe computers, personal computers, databases, electronic data processing, computer aided design (CAD), GPS, enterprise resource planning software (ERP), video games, digital photography, the World Wide Web, open source software, online commerce, social media networks, smartphones, instant messaging, on-demand streaming, cloud computing, algorithmic trading, mobile payment, clickwork or cyberattacks. Haigh emphasizes that what 'the computer' becomes depends on whether it exists in the world of science, business, entertainment, publicity, traffic, military or art. Not only does the technology develop rapidly over time, but it also travels to diverse places and communities, with management and organization taking up a prominent place. Each of them creates different computers or *computings*, as Mahoney (2005: 127) has put it. Digital media's object of reference, then, is changing significantly over time and across places.

At first, from the beginnings of modern computing in the 1940s all the way up to the early 2000s, the 'computer' 'was a fairly robust category' (Haigh, 2018: 4). Throughout that period, the computer was an identifiable and self-contained entity that acted upon its settings of use in a rather clear and traceable way. For instance, it could automate and thus speed up procedures that were previously done 'by hand' (or rather by hands and minds in collaboration with mechanical appliances). Accordingly, the stories being told about computing revolved around the *effects* of the computer as one among different variables that structure a certain situation (e.g. MacKenzie and Wajcman, 1999). Yet over the last 20 years, this kind of computer has disappeared while at the same time 'there are more computers around than ever' (Haigh, 2018: 4). Today, computers and computing are embedded and infrastructural. We don't recognize them when we are navigating around town, taking pictures, listening to music, watching the news, adjusting the heating, giving a presentation, checking the weather forecast or our calendar or the bus schedule. The stories we are telling now revolve around terms like 'reconfiguration', 'entanglement' and 'always already interrelated, reiterated sociomaterial practices' (Suchman, 2006: 257). We talk about not knowing where technology begins and where it ends using terms like cyborg and ubiquity (Haraway, 1991; Weiser, 1991).

So, what organizational powers do these digital media, these computers and computings, possess? The advance of digital media actualizes and perhaps aggravates the question of how, and to what effects, 'media organize'. To begin, we again emphasize that *digital* media in particular 'traffic less in content, programs, and opinions than in organization, power, and calculation' (Peters, 2015: 7). Ben Peters (2016) suggests that digital media perform three key operations: they count the symbolic, they index the real and they manipulate the social: 'Once rendered symbolically interoperable, digits combine computational and referential powers in ways that allow the stewards of digital systems to manipulate elements of that social reality' (p. 94). A premise of digital computation, as mentioned above, is that whatever 'one wants to describe . . . can be expressed in the irreducibly countable alphabet of that one binary difference, 0 or 1'. (Peters, 2016: 95). Once this logic is pointed at the world, it becomes operable and develops its organizational powers: When reality is indexed by a digital machine, the resultant data are processed and fed back into the world as a set of observations or instructions.

The 'data revolution' (Kitchin, 2014) is only the latest articulation of the indexical power of digital media. As Jannis Kallinikos and Constantiou (2015) have argued, drawing on Peter Wegner

(1997), computing has become a lot more interactive, in particular in the way computers collect data through sensors, interfaces, platforms and so on, which allows them to respond to their users and environments. For Kallinikos and Constantiou (2015) it is in particular social data, produced via social media platforms and digital wearables, which marks 'the far-reaching datafication of the most minute aspects of daily living and bring a new data revolution in which every pulse, as it were, of life is recorded and made the object of calculation and commercialization' (p. 72). This data revolution is prefigured in a significant way by the ways in which the powers of digital media have been deployed in organizations, for example, in the way that scientific management relied on a discretization of tasks as well as their recording by various media (Gregg, 2018); this mediated setup of control and command has recently evolved into a 'digital Taylorism' (Taska, 2017).

The organizational powers of digital media become even more pronounced once digital media are deployed to 'manipulate the social', as Peters puts it, that is, to shape the world around them in their image. Philip Agre (1994) has succinctly described how this works in comprehending 'capture' as a double logic of computation. The first aspect of capture 'refers to a computer system's (figurative) act of acquiring certain data as input, whether from a human operator or from an electronic or electromechanical device' (Agre, 1994: 107). This is what Peters described as 'indexing the real' and we discussed in relation to big data above. The second aspect of capture 'refers to a representation scheme's ability to fully, accurately, or "cleanly" express particular semantic notions or distinctions, without reference to the actual taking in of data' (Agre, 1994: 107). The computer can do so through 'grammars of action' (Agre refers to Pentland and Rueter, 1994), that is, a symbolic expression of organizational routines or procedures which can be computed. Not surprisingly, Agre's (1994) examples are taken from the organized world: accounting systems, telemarketing, user interfaces or enterprise integration systems (p. 109). The capture model describes 'the situation that results when grammars of action are imposed upon human activities, and when the newly reorganized activities are represented by computers in real time' (Agre, 1994: 110).

A more recent way of pointing to this operation of digital media in organization would be to refer to discussions around algorithms and organization (e.g. Faraj et al., 2018; Neyland, 2015). They emphasize how computational control of organization leads to a proceduralization, where bureaucratic supervision and legal rules are translated by sheer code in a kind of 'algocracy' (Aneesh, 2009). Furthermore, with interaction enabling algorithms to learn and for a kind of machine learning to be developed, robots and artificial intelligence are promising to replace human organization and labour, even if more realistically this will result in a kind of 'bounded automation' (Fleming, 2019) or 'heteromation' (Ekbia and Nardi, 2017).

Especially the debates around algorithms, however, are often very reductive, and part of the aim of this special issue is to open up a wider discussion of digital media and organization. The key aspects of digital media as calculative and symbolic, indexical and representational, as well as manipulative and operative in the world, become evident in the contributions to this issue. Yet the organizational powers of digital media express themselves differently in the different 'computings' associated with the diverse cases presented in the contributions. The distributed, mundane and mostly invisible and intransparent (Beyes and Pias, 2019; Hansen and Flyverbom, 2015) presence of digital media's organizational powers make a sustained engagement with the relation of media and organization all the more pressing. In this sense, this special issue can only be a map of beginnings – an operative one, we hope.

Contributions

In their contribution to this issue on 'Culture, technology, and process in 'media theories'', Florian Hoof and Sebastian Böll propose a shift in the understanding of media for organization studies.

They identify three prevailing uses of the term 'media' in organization studies: media are often understood as mass media, as communication channels, or in terms of computer-mediated communication. These understandings, as we noted above, also result from organization studies' neglect of media studies. Hoof and Böll propose a heuristic overview of media theories in order to open up the field for organization scholars. The three branches 'culture and power', 'technology and infrastructure' and 'process and change' offer a helpful map of media theories relevant for organization studies, and while our introduction focused largely on an organizational definition of media associated with the 'technology and infrastructure' branch, Hoof and Böll outline many other ways in which media theories may contribute to organization studies. Through the example of enterprise social media, they demonstrate how the three branches offer three different insights by allowing us to see enterprise social media as taking part in reconfigurations of power relations, as part of a wider 'media link', and as contributing to a remediation of organization.

Remarkably, the conceptual developments in media studies traced in Hoof and Böll's paper will be familiar to organization scholars; in many ways they mirror similar developments in organization studies and draw upon the same schools of thought. These related trajectories of thought point to congruences and potential alliances between organization and media studies. Readers may also note how the paper does boundary-work with regard to the term 'media' and its many different associations. Media studies (particular of the 'German media theory' variety) often refuses to define media (Horn, 2007) and is perhaps as much an 'impossible discipline' (Pias, 2016: 19) as organization studies is an 'undisciplined discipline' (Czarniawska, 2003: 432; see Conrad and Beyes, 2018). Hoof and Böll's paper makes clear how the two terms of 'media' and 'organization' and their respective research fields are in many ways implicitly intertwined, and one can readily envisage how research on (digital) media's organizational powers can take flight.

By closely engaging with medial thought, the further papers in this issue already demonstrate the fruits of such an engagement. In their respective ways, they provide important contributions to contemporary concerns of organization studies such as decision-making and cognition, space and atmosphere, affect and the organization of social movements.

In their article 'Algorithmic decision-making? The user interface and its role for human involvement in decisions supported by artificial intelligence', Verena Bader and Stephan Kaiser analyse a case of algorithmic decision-making in a call centre equipped with IBM Interact. They explore how different forms of attachment and detachment characterize the human-machine relation of the agent and the interface. Since algorithmic systems are widely deployed in organizational decision-making, their case contributes to a broad set of concerns, particularly regarding the ways in which interactions and interfaces with and between humans and algorithms are organized. The immediate context here are studies of call centre labour (e.g. Bain and Taylor, 2000; Woodcock, 2017). While workers in Bader and Kaiser's case might still find themselves in an 'electronic panopticon' (Bain and Taylor, 2000), the case also demonstrates to what extend software such as IBM Interact fulfils a double function of control and decision support, with considerable variance and scope for negotiation in the application and enforcement of its algorithmic logics. The article also adds to a set of literature that explores how humans relate to algorithms at work, whether they are managed by algorithms on platforms (e.g. Rosenblat and Stark, 2016), as part of algorithmic forms of managed automation in logistics (e.g. Zehle and Rossiter, 2015), or as managers assisted by executive decision systems (Beverungen, 2019).

Moreover, Bader and Kaiser's article demonstrates how fruitful theoretically-informed in situ research can be, in that it provides a sobering counterpoint to exaggerated stories of algorithmic capitalism and automation. Automation is clearly the goal of the IBM system, yet there is always negotiation, enactment and workarounds. The organizational powers of digital media here become apparent through a focus on the algorithmic as emphasizing the procedural logics of computation,

associated with capture as described above. Datafication, grammatization and proceduralization of organizational processes and decisions precede the implementation of the algorithmic system but are defied in daily work. The article thus also calls for complementary studies on the construction and maintenance of such algorithmic systems (e.g. Pollock et al., 2007), to see how the 'black box' itself requires all sorts of human involvement and labour (as Lilly Irani has, for example, demonstrated with regards to the role of 'massively mediated microlabor' on Amazon Mechanical Turk: Irani, 2015).

In Lydia Jørgensen and Robin Holt's paper on 'Organization, atmosphere and digital technologies: Designing sensory order', the organizational powers of computation are shown to be at work in the design of organizational space and in particular its atmospheres. In a sense similar to Bader and Kaiser's approach, their case is one of computer-aided decision-making in architectural practice. Yet the process of architectural design is much more loosely organized by the computational system and less algorithmically governed compared to the case of Bader and Kaiser, since the architectural software mainly operates on a suggestive level. The decision-making process itself is therefore less interesting than the question of how architectural software mediates design practice and allows for an articulation of organizational space as atmospheric.

For Martin (2003) architecture is media, and as media, it organizes. Jørgensen and Holt demonstrate how far we have come from the 'organizational complex' described by Martin, not just in terms of the media technologies used for architectural design, but in the way organizational spaces are conceived of atmospherically, designing moods and immersive spaces and creating scenarios congruent with client values. Here the computer does not impose its calculative logics but is deployed to offer an interactive, creative encounter – reminiscent much more of scenarios imagined by computer engineers such as Douglas Engelbart or Joseph Licklider than the rather restrictive and repetitive scenes enabled by PowerPoint perhaps more familiar to organization scholars (Pias, 2009). Future research could supplement Jørgensen and Holt's intuition about the fundamentally mediated nature of organizational space with the question of how media dissipate into space, often creating a kind of 'code/space' (Kitchin and Dodge, 2011) in which space is only operational once digital media are at work, as for example in logistical 'architectures of fulfilment' at work in Walmart's distribution centres as described by Jesse LeCavalier (2016). One may wonder to what extent this also represents a split in the medial organization of space: some of us work in organizational spaces atmospherically designed to induce creativity, others in crude, minimalist spaces in which work and operations are thoroughly grammatized and monitored.

Thomas Swann's and Andrea Ghelfi's paper 'Pink organizing: Notes on communication, self-organisation, noise and radical social movements' contributes to what Steffen Böhm calls 'repositioning organization theory' (Böhm, 2006) in relation to social movements by investigating how such movements have become fully interwoven with digital and especially social media. The authors take a close look at the organizational dynamics at play through social media networks. They do so via the concept of noise, a crucial notion of medial thought (especially in Michel Serres', *The Parasite*, 2007): Noise is where mediation shows itself. On the other hand, the movements' way of organizing via social media is often characterized as 'self-organized', which is commonly associated with the frictionless and somehow 'organic' emergence of formations. Swann and Ghelfi show, however, that noise is just as unavoidable and important here as it is in communication. Thus, they offer a differentiated look at the phenomenon of noise in communicative as well as organizational practices. Drawing on a data analysis project conducted by a Dutch activist group, they introduce different nuances of noise – white, brown and pink noise – referring to different degrees of organizational spontaneity, rigidity or autonomy.

The article relates to several ongoing discussions in the area of media and organization. First, it adds to extant research on media's interplay with social movements, advanced for example by

Geert Lovink and Ned Rossiter (2018), Rodrigo Nunes (2014) and Anna Feigenbaum (2014). Second, the article's concerns are connected to explorations of cybernetics and self-organization, such as Stafford Beer's work and the idea of applying cybernetics to a socialist, planned economy – a well-researched case in media history and history of computing (Medina, 2011; Pias, 2004). Today, ideas of (self-)organizing through constant information feedback loops are back in vogue in the form of managerial tools such as 'holacracy' and 'agile development' and their respective media infrastructures. Third, the article is an intriguing example of reappropriating data generated by social media for organization-theoretical research. Enlisting new forms of data generated through networked computing will surely be of importance for future studies of the organizational powers of digital media.

Finally, Sine Nørholm Just's paper 'An assemblage of avatars: Digital organization as affective intensification in the GamerGate controversy' pushes further the question of how digital media alter the way we need to understand and study organization by conceptualizing digital organizing as 'affective intensification'. Organization here coheres as an affectively loaded, mobile and contested assemblage of technological media and human actors. Just's contribution demonstrates how digital media expand the 'relational organizing power' of affective forces (Angerer, 2015: 115), thus confronting organization theory's minor 'affective turn' (Fotaki et al., 2017) as well as the discourse on affective economies (Ahmed, 2004) with its technological conditions – conditions that also seem to underpin the rise of the 'alt-right' and the frightening renaissance of populist politics.

Taking these conditions seriously allows Just to construct a new heuristic for studying organizational affect that entails tracing the construction of assemblages, studying the specific technological affordances involved in these constellations and investigating the agencies that result. Just's empirical setting is the gaming industry – an exemplary area of creating economic value from flows of affect – and specifically the wildly proliferating online controversy around 'GamerGate' and its gendered, economic and political reverberations. While there is no escape from affective intensification, as Just concludes, and least of all in times of pervasive and ubiquitous mediation, is there a way to organize these intensities into sociotechnical arrangements more amenable to human and non-human life?

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Note

1. Other examples of studies interrogating issues of organization via the concept of media are Bernard (2014) (on the elevator), Kafka (2012) (on paper; see below), Krajewski (2011) (on index cards and card catalogue; see below), Young (2017) (on lists), Starosielski (2015) (on undersea cables), Peters (2012) (on clocks, calendars and towers), Gitelman (2014) (on documents), Rossiter (2016) (on logistics), and Dommann (2019) (on copyrights).

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