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Visibility Management: New Managerial Work in Digitalized Organizations

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Abstract

Visibility management is becoming an important task in organizations as work is increasingly made visible by digital technologies, but the consequences of increased visibility for management are still underexplored. Based on a qualitative study in heavily digitalized public organizations, the paper investigates managers' experiences with visibility and control. New concerns arise relating to the risk of employee prying, increase in visualizations of workflow deviations, and the explosion in performance indications. These concerns entail new types of managerial work that we refer to as visibility management, consisting of technological mediation work, relation work, and compensation work. By identifying these types of work, the study challenges the assumption that more visibility, understood as increased ease of access to information, automatically eases control tasks for managers. The paper offers a vocabulary that can help practitioners describe and better understand new types of otherwise often invisible managerial work in digitalized organizations.

Keywords: *Visibility*; *Visibility management*; *Digitalization*; *Digital technologies*; *Control*; *Managerial work*; *Invisible work*

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Digital technologies are currently changing many aspects of organizations and thereby also the conditions for managerial work. One important change is the emergence of new types of visibility (Flyverbom et al., 2016; Flyverbom, 2022; Leonardi & Treem, 2020, p. 1602). Digital systems, platforms, and tracking devices make employee behavior and their performance visible to managers at all times, which enables continuous and instant performance measurements (Manley & Williams, 2022; Newlands, 2021). Digital technologies allow employees to be dispersed in space, as in telework (Sewell & Taskin, 2015; Taskin & Edwards, 2007), which leads to new forms of online visibility and control. Organizations are also becoming increasingly visible to external stakeholders through exposure on social media and internet sites such as Tripadvisor (Scott & Orlikowski, 2012) or similar valuation devices (Kornberger et al., 2017). As a consequence, '[w]e are increasingly observed and observing at work', as Bernstein (2017, p. 217) puts it. This raises questions about how increased visibility affects organizations and how visibilities are managed. We are interested in a particular kind of visibility that is mediated by digital technologies and the data they produce (cf. Flyverbom et al., 2016; Leonardi & Treem, 2020, p. 1602), and we understand visibility not just as an informational phenomenon, but also as being sociomaterial and performative in practice (Leonardi & Treem, 2020, p. 1602).

Much research on organizational visibility builds on the assumption that increased visibility enhances surveillance and control. Foucault's (1977) work has played a major role in establishing this connection, and few metaphors have had a greater impact on the theorization of visibility, surveillance, and control than Foucault's paradigmatic description of the panopticon and its mechanisms (e.g., Bardon & Josserand, 2018; Brivot & Gendron, 2011; Hafermalz, 2021; De La Robertie & Lebrument, 2019; Lyon, 2006; Raffnsøe et al., 2019; Weiskopf, 2023). Numerous studies have examined how the increased visibility induced by digital technologies affects employees who become subjected to an unprecedented level of control and surveillance when, for instance, their every movement is tracked, monitored, and measured in real time (Manley & Williams, 2022). Employees may react to this enhanced visibility and control with increased self-surveillance and anxiety (Kellogg et al., 2020; Manley & Williams, 2022; Veen et al., 2020), but also resistance (e.g., Hafermalz, 2021; Newlands, 2021) such as 'the development of new games of visibility involving the purposeful self-disclosure of one's work' (Brivot & Gendron, 2011, p. 152).

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However, regarding the management level, only scant attention has been paid to the new managerial tasks, concerns, and dilemmas arising from new forms of visibility induced by digital technologies. Control is often described as a central function of managers' role and identity (de Vaujany et al., 2021; Mintzberg, 1983). However, studies on enhanced visibility and intensified control in digitalized organizations (Brivot & Gendron, 2011; Manley & Williams, 2022) tend to black box everyday managerial work by implying that increased management control follows from increased visibility, and by focusing on the consequences for employees and their reactions. Often, it seems to be assumed that managers are in control because they can see everything, but we learn little about how real managers experience and handle what is often overwhelming visibility in digitalized organizations. To address this question, this paper zooms in on managers' experiences and accounts of how new visibilities provided and mediated by bundles of digital technologies and datafication (Leonardi & Treem, 2020, p. 1602) entail new concerns, tasks, and dilemmas that managers need to handle in their everyday practice.

We cultivate the concept of visibility management to address this changing management condition. In the field of management and organization studies, the concept has been developed to account for how organizational entities such as Facebook and Google have experienced demands for greater transparency and have had to develop transparency policies (Flyverbom, 2015). In this type of visibility management (Flyverbom, 2019; Flyverbom et al., 2016), management is understood as ordering rather than managing in the practical sense of the word, and the actors are organizations rather than managers. Attention has been paid to how organizations develop strategies for handling visibility, for instance, by making decisions about what to make visible and what to hide vis-à-vis stakeholders (Zyglidopoulos & Fleming, 2011), or how employees manage their increased visibility in the workplace (Leonardi & Treem, 2020, p. 1602). Against this backdrop, we argue that more attention should also be paid to the management of visibility as tasks carried out by managers in practice. We expand the notion of visibility management to account for organizational situations in which digital technologies make work visible to an unprecedented degree, and where managers as agents in everyday practices play an important role in handling the new concerns resulting from increased visibility in their organizations.

Based on interviews with 34 managers in the highly digitalized Danish public sector, we propose that increased and simplified managerial control does not follow automatically from increased visibility. In some respects, managerial work becomes more complex because classic managerial concerns and dilemmas related to visibility and control are exacerbated in digitalized organizations when seen from the managers' perspective. Our analysis is structured around three managerial concerns voiced by managers. We refer to them as prying, workflow deviance, and indications of low performance. These concerns give rise to new management tasks. Based on our findings, we develop a typology of three kinds of visibility management, thereby offering a vocabulary to describe the otherwise often invisible work of everyday visibility management.

The paper is motivated by a desire to better understand the extensification of managerial work (Hassard & Morris, 2022) in the digital age and it makes a twofold contribution. First, it sheds light on the practical aspects of visibility management. Inspired by Zuboff (1988) and her insight that often-overwhelming visibilities follow from digitalization, we contribute to organizational research on visibility management (Flyverbom et al., 2016; Flyverbom, 2019) by expanding its scope and considering the new managerial concerns brought about by the visibility affordances of digital technologies, which entail new types of work with visibility management.

Second, the paper extends the critique of the panopticon metaphor and its limitations in the context of digitalization (e.g., Brivot & Gendron, 2011; Hafermalz, 2021; Leclercq-Vandelannoitte et al., 2014). By focusing on managers' experiences, we challenge the assumption that greater visibility almost automatically enhances managerial control. Latour's (2005) oligopticon metaphor invites us to focus on the partiality of any view and specifically on how continuous work and visibility management are required to handle digital technologies as viewing devices (Boll, 2014) in practice. The specific focus on managers supplements post-panoptic research on digitalization, visibility, and control, which has predominately focused on the employee level.

Organizational visibility, control, and management in the digitalized organization

According to Treem and Leonardi (2013, p. 150), 'visibility is tied to the amount of effort people must expend to locate information'. They argue that, for instance, social media technologies 'enable people to easily and effortlessly see information about someone else' (Treem & Leonardi, 2013, p. 150). This assumed ease of access to information has relevance for our understanding of control in digitalized organizations since control is also commonly assumed to be easier whenever more work processes are made visible. As Leonardi and Treem (2020, p. 1602) remark, digitization, digitalization and datafication imply that 'visibility is increasing at a speed and scale that is dramatically changing how we think of what it means to see others and to be seen by them', and this gives rise to complex organizational dynamics where individuals must relate to behavioral visibility and develop strategies to manage it (Leonardi & Treem, 2020, p. 1602). This implies that visibility is mediated by digital technologies and datafication

and is always more than 'informational'. Visibilities are formatted (Leonardi & Treem, 2020, p. 1602) and performative of organizational realities, which has consequences for managerial work and control.

Visibility, management, and control beyond the panopticon

The connection between visibility and control has been a sustained topic of interest in management and organization studies with Foucault's (1977) work on the panopticon being highly influential. A Foucauldian approach has established the widely held assumption that increased visibility leads to increased control. Foucault's (1977) analysis of Bentham's panopticon prison outline and its power mechanisms is so well known that it hardly bears repeating at length (cf. Hafermalz, 2021). The panopticon imagery crystallizes Foucault's path-breaking analysis of power and subjectification. The trick that makes the panopticon extremely powerful is that while the prisoners may be observed at any time, the inspector's invisibility implies that the prisoners never know whether they are being observed or when. The inmates internalize norms and control, and, in that sense, the soul becomes the real prison (Foucault, 1977, p. 30). Foucault (1977, p. 201) writes, 'Hence the major effect of the Panopticon: to induce in the inmate a state of conscious and *permanent visibility* that assures the *automatic* functioning of power' (emphasis added). In the context of management and organization, this 'automatic functioning' apparently makes the managerial task simpler because it implies that the panopticon relieves managers of much of their work. Managers do not even need to be present. Instead, the 'permanent' visibility does the job by disciplining its subjects, even though resistance is always also a part of the power constellation. From this perspective, visibility ensures control. Although Foucault's own perspective is much more sophisticated and nuanced than this brief account suggests, much research builds on precisely this way of linking control, visibility, and management.

While the panopticon metaphor may seem more relevant than ever in an 'overlit' (Flyverbom, 2022) digitalized organizational context, scholars have highlighted its limitations in precisely this context. Two overall lines of critique can be found in the literature. First, a post-panoptic line of research focuses on how both visibility and control become radically decentered in the digitalized organization, breaking the spatial and temporal boundaries assumed in the panoptic imagery (Brivot & Gendron, 2011; Hafermalz, 2021; Leclercq-Vandelannoitte et al., 2014). Second, an ANT-inspired critique, drawing on Latour's work (1986, 2005), focuses attention on the partiality of any visibility and discusses how the incompleteness of specific viewing devices (Boll, 2014) are supplemented by actors who add to and translate the visibilities (Bürkland & Zachariassen, 2014).

Post-panoptic researchers build on the Foucauldian visibility-control connection, but they consider the panopticon figure too static, bounded, and hierarchical to account for increasingly sophisticated visibility and control mechanisms, not least in highly digitalized contexts (e.g., Leclercq-Vandelannoitte et al., 2014). As digital technologies increase visibility, control may be extensified as well as intensified (Weiskopf, 2023). The gaze becomes multi-directional (Zuboff, 1988), and digital technologies expand boundaries of control as they enable managers to 'see' employees who are dispersed in space and time. This is, for instance, a consequence of the increased use of telework (Sewell & Taskin, 2015; Taskin & Edwards, 2007) and tracking devices (Elmholdt et al., 2021). In their study of performance monitoring in a rugby club, Manley and Williams (2022) argue that the ubiquity of digital tracking of the players' behavior enhanced visibility, eased the circulation of performance data, and thereby installed a 'permanent gaze of the organization' (Manley & Williams, 2022, p. 11). Bloomfield and McLean (2003, p. 78) describe how professionals and patients 'beyond the walls of the asylum' were rendered visible through information technologies and how 'visibility in this context acts as a condition for the exercise of control'. As Martinez (2011, p. 205) puts it, many of the digital systems are about 'keeping track of the wandering employee'.

While this line of research sheds light on how digitalization increases visibility beyond the boundaries of the organization and thereby changes the conditions for control, it tells us less about the managerial concerns and managerial work that follow from the increased visibility. The major focus in post-panoptic studies is on the consequences for employees and their reactions such as anxiety, self-surveillance (Manley & Williams, 2022), or attempts to resist (Brivot & Gendron, 2011). Often, it seems to be assumed that managers are increasingly in control because digitalization and datafication make more aspects of work visible. We learn little about how real managers experience and *manage the visibility* that follows the sometimes overwhelming amount of data available in digitalized organizations.

Partial views and incomplete visibility

A second line of research, inspired by actor-network theory (Latour, 1986, 2005), emphasizes the partiality of any view and the additional and continuous efforts required to make things visible (Dechow & Mouritsen, 2005; Quattrone & Hopper, 2006). Technologies never act on their own; instead, they are always in concert with human actors, who translate and add to the technologies in specific ways (Latour, 1986). Latour and colleagues developed the metaphor of the oligopticon (Latour, 2005; Latour & Hermant, 2006) as an explicit alternative to the panopticon. Etymologically, 'oligo' means few, and in contrast to 'pan', which means 'all', it emphasizes partiality. Few organization

scholars have drawn directly on the oligopticon metaphor, but one example is Boll's (2014) study of tax audits, in which she supplements the panopticon with the oligopticon as an analytical concept. Her study demonstrates how tax auditors strive to have an all-seeing eye, but more realistically, they see few things very clearly based on specific viewing devices (oligoptica) with much potentially relevant economic activity remaining out of sight.

In Latour's (1986) work, the map is a paradigmatic example of a device that makes certain things observable but also always leaves many things out of sight. Yet, it is precisely their partiality that makes maps and similar devices so powerful. In Latour's (1986, p. 29) words, 'The "great man" [*sic*] is a little man looking at a good map'. As a viewing device, the map enhances opportunities for control because it draws elements together and presents them synoptically (Latour, 1986, p. 29). This implies that the partiality of viewing devices is not a limitation on control but is instead that which makes them so powerful. Following this line of thought, Bürkland and Zachariassen (2014) examined how the incompleteness of an Enterprise Resource Planning system in a manufacturing firm is handled by continuously adding more details to the system to improve the visibility it is supposed to create. Also, in this study, the focus is more on repairing incomplete visibility than on handling the managerial concerns that follow from this incompleteness.

Managing visibility in everyday work

As indicated by the sections above, it is well established in the literature that organizational visibility is always mediated by technologies and that the dynamics between visibility devices, visibility, and control are intertwined with power. However, while both the post-panoptic and the ANT-inspired literature have examined important aspects of how digital technologies induce new visibilities and how this leads to new opportunities for control, the performative aspect of these types of visibilities, that is, the emergence of everyday concerns and work for managers who need to handle these new and often overwhelming visibilities, has received less attention. Visibility management has most vocally been theorized as, 'the many ways in which organizations seek to curate and control their presence, relations, and comprehension vis-à-vis their surroundings', which, in analytical terms, addresses another level than, 'the work of a manager to regulate the actions of his or her employees' (Flyverbom et al., 2016, p. 101). This leaves room for new contributions that extend the visibility management concept by returning to the idea that management is carried out by managers who perform managerial work on an everyday basis. There is a need to better understand how the new managerial concerns brought about by the visibility affordances of digital technologies entail new types of work with visibility management. This allows us to shed light on aspects of managerial work that are otherwise invisible in the extant literature on visibility and control or visibility management.

To explore visibility management as everyday managerial work, we draw on Latour's (2005) notion of the oligopticon as a sensitizing concept that focuses our attention on additional work that managers perform when they handle the new visibilities in practice in relation to specific technologies. To get closer to managers' perspectives, we are also inspired by Zuboff's (1988) empirical sensitivity towards the managerial experience in the face of sometimes overwhelming visibility. Instead of assuming a certain link between control and visibility, we wish to explore how managers experience and deal with visibility induced by digital technologies, and to address this aspect of the extensification of managerial work in the digital age (Hassard & Morris, 2022). This is significant because 'the manager's lifeworld has been transformed consistent with the demands of technological and organizational innovations, with this often-reflecting issues of "behavioural visibility"' (Hassard & Morris, 2022, p. 2). It is important to examine this aspect, which has been largely ignored by the post-panopticon literature, because it has focused on employees, as well as by the literature on visibility management, which has been more focused on social ordering in a general sense (Flyverbom et al., 2016), or on transparency policies (Flyverbom, 2015). Through our empirical study, we wish to shed light on aspects of managerial work that are otherwise invisible in the extant literature on visibility and control or visibility management. Thereby, we are able to problematize the commonly held assumption that visibility facilitates control and managerial work.

Research context and methodology

This paper is based on a qualitative study of public sector managers' experiences and accounts of the organizational transformations that have resulted from digitalization in the Danish public sector. The public sector is an interesting context for studying digitalization and organizational changes because an all-encompassing digitalization agenda is currently transforming the public sector in many countries (Ejersbo & Greve, 2016). Digitalized organizations can be defined as organizations that rely heavily on bundles of digital technologies, which support and display work such as administrative IT systems, communication platforms, automated tracking systems, or similar technological setups. Connectivity is a key aspect which, according to Leonardi and Treem (2020, p. 1602), 'affords a massive increase in the behavioral visibility of actors', when, for instance, entire work processes take place on digital platforms, which allows continuous and real-time performance monitoring.

In Denmark, digitalization has been high on the political agenda for decades (Plesner & Justesen, 2022; Schou & Hjelholt, 2018) and a push for digitalization has changed the character of public sector organizations across otherwise very different

sectors in similar ways (Plesner et al., 2018). Our study was designed to explore cross-cutting themes and concerns arising from the massive digitalization agenda that is influencing most public organizations.

Data collection

We conducted qualitative interviews with 34 managers from different public sector organizations (see Table 1 for an overview). The organizations were included to ensure diversity among organizations and because, despite differences, they had all developed ambitious digitalization strategies and had digitalized many of their core activities. They relied on data sharing and had installed digital platforms where work processes were visualized in different ways.

All interviewees held formal management positions as top managers, middle managers, or were in management related to digitalization at the organizations. Furthermore, they were involved in the digitalization strategies of their organizations, although in different ways depending on their position. They supported the digitalization agenda and its potential to improve public sector efficiency and service. Having interviewed around 30 managers, we covered a broad range of public sector organizations and found that certain themes recurred. We began to gain an understanding of the cross-cutting concerns about digitalization in the public sector.

The interviews were semi-structured and based broadly on the overall theme of how digitalization was affecting the interviewees' organizations in terms of, for instance, changing organizational structures, professional relationships, and accountabilities (Plesner et al., 2018). Each interview lasted for about 1 h and was recorded and transcribed. All interviewees and their organizations were promised anonymity. The interviews focused on managers' experiences and accounts of the tasks and dilemmas they consider to be consequences of digitalization (cf. Zuboff, 1988). In particular, we were interested in what kinds of new managerial concerns they faced as digitalization was in the process of transforming their organizations, and how they experienced these changes. The semi-structured nature of the interviews and the overall explorative approach allowed unexpected issues to emerge and be explored during the interviews and, later, in the analysis. One such theme was the relationship between digitalization, visibility, and control.

Data analysis

The interview transcripts were thematically coded using the qualitative data analysis software, NVivo. The codes were generated by dividing the interview text into smaller components and registering the themes of each component in a coding manual (Järvinen & Mik-Meyer, 2020). The codes were then grouped into clusters with overarching themes, one of which we labeled 'control and surveillance'. Subcodes in this cluster could be grouped into themes relating to employee visibility, managerial work with visibility and control, and surveillance of citizens. We excluded material on the surveillance of citizens and chose to focus solely on intraorganizational visibilities. All the text excerpts belonging to the two new themes were assembled from the text corpus (see Table 2 for an overview). We then engaged in an iterative process of rereading the interviews from which the individual excerpts stemmed to understand them in their contexts.

While rereading this material on control and surveillance, we were struck by the numerous references to 'seeing', and with inspiration from the literature on visibility and control,

Table 1. Interviewees – management levels and types of public organizations

Interviewees' management levels	Types of public organizations	Number of interviewees
Top manager	Agency/public authority/municipality	3/1/1
Head of office	Agency/municipality center/municipality association	7/1/1
Director/vice director	Agency/university	1/1
Center manager	Municipality/health research center	1/1
Deputy manager	Municipality center	1
Head of digitalization	Municipality administration	3
IT director	Agency/regional health authority	1/1
Section manager	Agency/police administration/municipality/regional health authority	2/1/1/2
Project manager	Agency	1
Innovation manager	Public broadcasting/municipality	2
Leading editorial manager	Public broadcasting	1

Table 2. Overview of the themes of the empirical material and the condensation of themes through the coding process

Analytical focus points	Managing risks of prying
	Managing employee access to data
	Managing the explosion in performance data
Subthemes Excerpts selected for analysis, based on themes	Employee visibility
	Managerial work with visibility and control
Themes Based on the Control and surveillance cluster	Exposure of employees
	More transparent work processes
	Control as steering mechanism
	Increase in management information
	Need for control of digital systems creates new work
	Surveillance ensures rightful treatment of citizens
	Surveillance of citizens to optimize service
	Surveillance of citizens versus rights to privacy
Clusters of codes Based on 90 codes stemming from an open coding of the empirical material	Digital self-service solutions
	Bureaucracy and division of work in the digitalized public sector
	Digitalization, rules and regulations
	Civil rights in digitalized public sector
	Automation and efficient work processes in digitalized organizations
	Employees and professions in digitalized organizations
	Barriers for digitalization in the public sector
	Silo organization and collaboration via digital platforms
	Automation and professional discretion
	Control and surveillance

we analyzed the material in an abductive manner (Tavory & Timmermans, 2014), now with a focus on the 'visibility' aspect of control. The analysis focused on how managers reported the visibility afforded by data sharing, digital traces, shared digital platforms, and real-time visualizations of work. We found that managers did not make any simple links between visibility and control, but they mentioned various kinds of managerial concerns. We then searched for patterns in managers' articulations of concerns, tasks, and dilemmas, which included accounts of having to manage risks of prying, managing employees' access to data, disciplining employees, as well as navigating tensions between control and a culture of trust.

We identified three concerns that recurred in the material and structured our analysis around them. We refer to them as: (1) handling the increased risk of prying; (2) handling visualized workflow deviations, and (3) handling the explosion in performance indications. These clusters of concerns point to a shared experience among managers that increased visibility does not automatically result in greater control, but rather that different types of increased visibility imply the emergence of new managerial tasks and dilemmas that managers need to handle, for instance by adding new technologies or managing employees in new ways. In the following section, we discuss how digital technologies make work visible and we analyze the cross-cutting concerns and changes in managerial tasks and concerns this gives rise to. A second level of analysis, which cuts across the managerial concerns and changing tasks, allows us to develop a typology of three kinds of visibility management.

Digitalization and new visibilities: Managerial concerns and changing tasks

Across different types of organization, public sector managers emphasized how new visibilities had emerged in their organization as a consequence of new digital technologies. Datafication is an important aspect of these new technologies (Leonardi & Treem, 2020, p. 1602), and managers repeatedly emphasized the visibility provided by data sharing as a key element in the digitalization agenda. Managers recounted how new systems had enabled front-line staff, for example, caseworkers, health professionals, and police officers to access information on all the citizens in their systems and not just 'their own' cases. Data sharing was considered to enhance coordination and break down what they referred to as 'silos'.

As employees can now look across domains, a sort of multidirectional visibility has emerged, which on one level empowers employees as it provides a more abstract, holistic view of their work (cf. Zuboff, 1988). However, digital technologies and their production and storage of data not only make citizen data visible. They also render the behavior of employees in relation to this data visible (cf. Leonardi & Treem, 2020, p. 1602) as employees leave digital traces, which allow managers – and often coworkers – to see who has been working on what cases, for how long, in what way, etc. As a head of office at a municipal center explained, 'Each and every time an employee enters a [citizen's] social security number, they leave a digital trace'. Visibility is doubled as employees are able to view more, but their viewing activities can also be watched. In many public sector organizations, entire administrative work processes now take place on digital platforms, which means that these work processes are logged in the system and can be analyzed and visualized. This massive amount of logging is not only found in organizations where administrative case work represents the core task, for example, government agencies and municipality units; it is also present in health care, education, the police, etc., where an increasing number of work processes are taking place on digital platforms.

Managers across public sector organizations also highlighted tracking technologies as another type of digital technology that leads to new visibilities. For instance, GPS technologies installed in employees' vehicles or mobile devices make it possible to see whether, for instance, garbage collectors or home care workers, who are geographically dispersed in their everyday work, are on the right route, on time, or doing the work they are supposed to. A head of digitalization at a municipal home care center explained that home care workers with mobile devices were 'documenting while on the run' for instance how 'THIS MOMENT, the citizen has been administered medicine', which potentially gives management access to better data on how work is being carried out than could be provided by analog media or asynchronously registered information. The logging and tracing of work is a foundation for the construction of viewing devices such as digital reports, alerts, and visualizations.

It has to be decided both *how* to construct viewing devices and *whether* they need to be constructed at all, given the massive amount of work data available in digitalized organizations. For instance, while IT systems have been supporting and boosting performance measurement systems for decades, the all-encompassing digitalization of organizations has added a new dimension because much performance data is a consequence of digital systems which were designed for a purpose other than performance monitoring (cf. Zuboff, 1988). Still, once it is available, the performance data makes employee performance visible and allows comparisons between employees to be made on new dimensions. In some instances, managers in our study deliberately used the available data to measure performance, whereas others were more reluctant to take this 'metric step'.

To sum up, in digitalized organizations: (1) data sharing establishes multidirectional visibility; (2) the uses of data are logged and can be made visible; (3) logging and tracing of work processes form the basis for the construction of viewing devices focusing on particular aspects of work, and (4) logging and tracing of work processes produce a surplus of data so that some viewing devices are actively avoided.

Handling the increased risks of prying

The double visibility provided by shared citizen data and the logging of employee searches has led to managers becoming concerned about the risk of prying, that is, employees searching for data on citizens without a legitimate reason. This issue was mentioned by managers in the police, the health care sector, and in municipality units, where everyday work practices rely on easy access to relevant citizen data.

Platforms that facilitate the sharing of citizen data between public sector organizations were viewed by managers as being crucial for coordination as well as professionalism. For instance, a head of office at a public health agency portrayed such sharing as an essential part of good medical practice:

> It's the basic philosophy that when you meet a patient, you need to have access to relevant information, and we don't always know what is relevant in advance, so we need to have access to everything, that's the very basic philosophy.

At the same time, the data on citizens available to employees in the Danish public sector is sometimes highly sensitive. It may concern information about the citizen's health and medication (available to health professionals, as in the quote above), their financial situation, such as personal debt (available to administrative caseworkers), their criminal record (available to police officers), etc. While managers across these otherwise very different organizations agreed that the vast majority of searches for citizen data are perfectly legitimate, some entries are more dubious. The mere risk that a staff member could access a citizen's personal data without a legitimate purpose was a concern for these managers. The manager quoted above reflected on this risk:

> When we embark on digitalization and make things more easily accessible… What will follow? Will someone be tempted to cross the line? Because it's so easily accessible? Or is it possible to push a button by mistake and – boom – see something? And what do you do then?

The question of 'what to do' points to the need for visibility management. It becomes a concern that needs to be handled because prying can be made visible by the same

technologies that enabled prying in the first place. As the digital system logs every entry made, the manager can detect instances of prying. A deputy manager from a municipality center explained,

> Every time we enter a system, the activity is logged, and it's subjected to management control, like '[name], you accessed the system on [date], and you looked at this personal identification number. Did you work on a case related to that number?' This is also to ensure that you don't look up friends and family just to contribute to an entertaining dinner.

The managers who addressed prying as a growing concern agreed that it should have severe consequences for employees. It would be grounds for dismissal and even criminal charges in some cases. The manager in the police administration explained that all searches for personal information in the digital files should have a clear purpose and that employees snooping around and conducting 'random searches' would be held accountable: 'As a police officer, you have access to personal identification information and all kinds of things, but if you're just randomly searching around, you'll be confronted with the question, "Which case is your search related to?"'.

Despite agreeing that digital technologies and logging made it possible for managers to 'see' prying, this visibility still required the installment of additional control technologies as well as managerial considerations about the extent of control. Managers had to decide how to distinguish between legitimate and illegitimate entries. At the same time, they had to carefully consider when control would jeopardize trust, which they all agreed was a key aspect in the relationship between managers and employees and in the workplace culture they wanted to support. One top manager at a government agency even explained how management took care not to give the impression of looking over the shoulders of the employees, stating that, 'we do not pry on our employees, but of course, if we had a leak, we would take the liberty of checking who had obtained access to the case. And we've said that we would do so'.

A simple control technology implemented in some of the organizations consisted of drawing automatically generated log lists from the system. The manager from the health care administration explained how this worked in practice:

> If someone has been looking at your medication record, and it's not your own GP or a doctor at the hospital where you were admitted, then we'll get a list [of logging], notifying us that something is wrong here. Then we'll contact this doctor and ask him or her to explain why he or she has been looking at this person's medication record. And if we don't get a good explanation, we might end up with a report to the police.

Since the lists could be generated automatically, this initiative was, in principle, a simple technological solution. However, it still required managerial deliberation and intervention in at least two ways. First, the criteria for generating the list of suspicious searches had to be decided. Second, managers need to have a formal conversation with employees on the list, as they might have a good explanation for the entries. For instance, a doctor might search for information about a patient who had left their ward to check whether the treatment administered had been helpful. Physicians considered this as a way of learning from experience. Furthermore, a name appearing on the list could simply be caused by a human mistake, a system error, or another legitimate reason could be that a doctor had been asked to give a second opinion. The manager quoted above elaborated:

> If a doctor from the A ward has been looking at your patient record even though you were admitted to the B ward, then we'll reach out to that doctor and say, 'Excuse us, can you explain why you've been looking at this patient's record?', and 'Yes, that's because I was summoned to give a second opinion'. Ok, that sounds plausible enough. But then we sometimes have cases where people cannot explain their actions.

A supplement to automatically generated lists was random checks, which were also implemented as control technologies. The same manager explained:

> We have a small control unit. You know, we follow up with random control, and if something stands out, we handle that. It's a relatively large apparatus. *So, digitalization can simplify a lot of things, but it also entails other tasks, which have to be solved through follow up and maintenance and so on* (emphasis added).

This quote illustrates that digitalization not only simplifies and reduces managerial control work but also entails new tasks that can be conceptualized as visibility management. Part of the visibility management entails adding new technologies such as the 'relatively large apparatus' of random controls, which has an oligoptic character because it allows managers to see something 'extremely well' (Latour, 2005). Indeed, it very accurately reveals who entered what case at what time. However, the view is partial because it does not render the reasons for the entries visible, which is why 'follow-ups' and thereby additional managerial work are often required.

Drawing lists was only one added technology among several ways of conducting visibility management in practice. Some managers recounted how they had chosen to technically 're-silofy' some data to limit access to highly sensitive personal data by ensuring that they were only accessible to certain employees. This raises the question of which front line staff members should be allowed to see which kind of data and for what purposes. A section manager in the police explained that a lot of time is spent creating directories of which system rights to allocate to which employees: If you begin to work with gathering data from different databases, you must be able to

control whether a given person has the right to access them […] It raises new questions, like 'in my old function, I had access to this. I don't have that anymore [in the new digital platforms]'.

Again, deciding how to grant access instead of letting data flow freely was a part of visibility management as was spending time explaining to employees why they were denied access even if employees felt this hindered their work in some ways.

Finally, managers also exerted more normative control by actively communicating how serious a breach of the rules would be, as expressed by the deputy manager in the municipal center quoted above:

> Well, when you're hired, you'll get an introduction to the rules, and I also inform people that I do management control, and at the end of the day, if you're caught looking up your spouse or your neighbor, then it's grounds for dismissal.

Adding control technologies that can detect prying required visibility management. This is time-consuming, even though digital technologies are supposed to make some tasks simpler or faster. The added technologies are oligoptic in the sense that they always provide a partial view that needs to be supplemented by additional managerial work. For instance, while the intention is only to prevent illegitimate prying, control measures potentially signal distrust, which means that managers must assess whether staff members are becoming hesitant about looking into cases for legitimate professional purposes, and if so, whether it is occurring to such an extent that it is detrimental to professional learning. Since digital systems cannot 'see' employees' reasons for their searches, determining whether employees' use of digital information is reasonable and their explanations plausible or whether they represent clear instances of prying requires managerial intervention and judgment.

Handling visualized workflow deviations

While managers agreed that prying is a serious breach of legal, ethical, and professional norms and warranted severe sanctions, other types of deviation were also made visible by digital technologies. Across a wide range of public organizations, a managerial concern was how to react to deviance from expected workflow processes. Whereas the detection of prying required active technological and managerial intervention, deviance from expected workflows was described by our interviewees as being more readily visible. For instance, in a municipal waste management unit, real-time visualization was made possible by GPS technology installed in the fleet so that the location and movement of vehicles could be closely followed. The manager from this unit recounted how GPS was originally installed to provide data to optimize routes, but the data points on the map also made the vehicles continuously visible to managers. This visibility led to some ambivalence among the managers in the organization. While the manager stressed that the data were not used for control purposes, her description of how the GPS data were visualized on screens reveals what we might call a 'control temptation', 'I even think there is a screen in our boss's office, where he can follow the movement of the vehicles, but it is not to keep an eye on them'.

This quote highlights the tension between seeing and watching, between passive visibility and active surveillance. In an apparently panopticon-like manner, the screen with data points allows the executive manager to 'see the vehicles' at all times. Yet the purpose is not surveillance, according to the interviewee. In contrast to the active control of logging, which renders suspected illegitimate entries visible, the managerial problem in this example concerns when to close the managerial eye and look away:

> At the moment, they are anonymized in such a way that we can recognize the vehicles, but we can't see who's driving them. This is maybe more a matter of seeing how many kilometers [the vehicle] are driven daily, and if it begins to use more fuel, we can see it. And we can see how many kilometers our vehicles have traveled and so on, but I know that the drivers are anonymous. Of course, you can always figure it out if it's important, but *there is no built-in control* [emphasis added].

> Whereas managers emphasized the importance of control that could prevent and detect prying, workflow deviation generated different concerns and visibility management initiatives such as *actively* making employees anonymous to avoid the urge to control their work, as in the example above, or as a top manager in the health sector explained about only looking at aggregated performance data:

> I'm not supposed to know who the doctors are when they don't perform well. That information should go to the chief physician, who needs to act on it. I should only get the aggregated data [and look at the overall picture] […].

At a government agency, an office manager reflected on the visibility management challenges resulting from visible workflow deviations. She described how the staff members' workflows were visualized on screens in images that resembled a river. As a case traveled 'up the river', the visualizations made it possible to see deviations from expected standard procedures. The manager explained:

> It becomes easy to see. If there's a river like this, and you have – how should I put this – some tiny little tributaries doing funny things, then you can observe that something happened. Maybe it's an extraordinary case, that's possible. But you can see that we're all registered with a number that belongs to us, and then you can see if someone has switched over to another screen image. That's depicted as a small tributary.

When commenting on deviance, she explained that this occurred when, for instance, 'you use the screens in a different order, or you stay for an unusually long time with one screen rather than moving to another'.

In principle, detecting deviance in the routine workflow required little effort from the manager. The manager repeatedly used the verb 'see', as illustrated by the quotes above. She emphasized the ease with which visibility offers opportunities for control:

> It's really easy […] we haven't yet decided how often, but if you made a print of these yellow rivers for the team leader once a week, it would be really quick to see that, 'Hey, you have some unusual behavior'.

However, even though she highlights how 'it's really easy', it is again clear that visibility management was required to explain and act upon the potentially abnormal practice. There may certainly be good reasons for the deviations in case handling procedures. The manager from the waste management unit recounted how they once noticed that a vehicle was far from its route, but it turned out that it had been taken in for repair. The office manager at the government agency also emphasized that, 'some of the deviations are perfectly okay and in accordance with the instructions'.

The visualizations not only showed whether an employee had deviated from a standard workflow in terms of expected vehicle routes or standard procedures in casework, but they also revealed when employees were behind schedule. A top manager at a state department explained how digital visibility exposed the pace of the employees:

> You know, you design the workflows when you invest in the system, where, in a way the employees are exposed, in the sense that their boss can see precisely how far they've gotten. For instance, if they've requested something, if a minister is called in consultation and a speech must be made, you can see how far they've gotten, how much they've accomplished, right.

Nevertheless, the visibility provided was not only top-down as managers themselves also became more visible, as explained by the same high-level manager at the State Department:

> It was a policy decision to allow employees to follow their bosses' work, too. So, if they [a staff member] have written a memo or a speech, they can press a button and send it [up the line] to the office manager. And they can follow whether the office manager has moved it further up to the manager of the department, and then whether this manager has moved it up to me, and then eventually it ends with the minister. It's fully transparent, and all employees can follow everything. This means that conscientious, ambitious employees knock on my door to remind me that a case is awaiting my attention.

Some of the managerial dilemmas related to workflow deviations resemble the concerns that managers expressed about how to deal with prying. Managers knew that employees could easily perceive close surveillance and control of work processes as distrust. For this reason, managers had to decide how to manage the deviations exposed by the visualized workflows. Some managers considered printing visualizations from the system in a systematic way, but hesitated, as explained by an office manager in a government agency:

> We haven't decided how to use [the visualizations]. Are we going to push them out there, or do we want to keep them for ourselves? We have no intention of creating a culture of fear.

Other managers realized that visibility and control went both ways, and that they themselves were now exposed to the gaze of the employees. Yet others exerted various degrees of intervention and control over employees who were visibly behind schedule. In addition, managers also took measures to reduce their ability to control such as making employee data anonymous. All these measures reflect a general dilemma, namely the need to carefully manage what is made visible and what is not – or, how the visible practices are handled in a work climate in which not only control, but also efficiency, competence, and trust between managers and staff are valued.

Handling the explosion in performance indications

The fact that a substantial amount of work takes place on digital platforms or leaves digital traces makes it possible for managers to compare employees on a number of indicators and indications. The concern about how to handle indications of performance was raised by managers across different organizations and sectors including education, government, and health care.

The vice deputy at the municipality center that provided citizen services explained how managers actively used the data provided by the digital platform to enhance caseworkers' visibility and measure their performance:

> We have detailed numbers on how long you've been logged off the phone system, how long this call has taken you, how satisfied the citizen was with your service, did you resolve the issue immediately or did you redirect the call? We record calls for training purposes when citizens agree [to be recorded]. So, I would say that digitalization gives you some transparency.

While this type of visibility is very common in the context of a call center, digital platforms also exposed groups of professionals whose practices have normally been less visible to managers such as doctors and teachers. An office manager from an education agency explained how digital learning platforms suddenly made it possible for managers to, 'look into the classroom' and also see the teachers' 'results':

> We have this learning platform, which makes it possible, you can say, to control the individual teacher. It wasn't really possible to control that before … you could have a conversation and so on, but here you can actually see what teaching is being conducted and whether the teacher achieves the desired results [emphasis added].

In a similar way, digital technologies open what a center manager in the health sector called, 'the black box of medical practice and doctors' performance'. From the account below, it becomes apparent that such visibility requires careful consideration and reactions from management:

> So, if you looked at my [surgical] complications, my patients were worse off than those of the young doctor, but that was because the young doctor was relieved of his or her responsibility. If you only looked at the raw data, you would conclude that it's better to have your surgery performed by the young doctor, because no complications or mortality are registered. But this is because they hand over the surgery [to me]. When they reach the limits of their ability, the experienced doctor takes over and tries to save the suture. So, there is some interpretation work, you can't just take these data at face value.

The point here is a well-known one. Creating a digital system that registers performance data and makes them visible is not the same as making performance visible. This is perhaps most obvious in the case of those professionals who have enjoyed extensive autonomy in their work. However, the managerial problem is that once they see something that resembles poor performance, reacting to performance indications seems to be a non-negotiable management task. However, it is impossible to react to just the few elements made visible by digital systems as contextual knowledge is required, but that cannot be provided by just adding more elements to the digital system. Again, the need for contextualization to make sense of performance data is well known, but the explosion in performance *indications* that were not designed with the express purpose of being performance *indicators* poses new questions for managers who may be overwhelmed and may now see more than they ever requested.

Managerial concerns and visibility management

Based on our findings, we identify three overall types of work related to visibility management and control in the digitalized organization.

This demonstrates that visibility management is connected with new concerns, requires different kinds of efforts and deliberation, and involves new tasks. As shown in Table 3, the managerial concerns entail: (1) technological mediation work, which includes managing viewing devices; (2) relation work, which involves the protection of work environments; and (3) compensation work, which implies establishing a contextual understanding of the visibilities afforded by the viewing devices.

Discussion

This study has examined how the new managerial concerns brought about by the visibility affordances of digital technologies entail visibility management. This allows us to better understand the extensification of managerial work (Hassard & Morris, 2022) in the digital age. The empirical study has shed light on aspects of managerial work that are otherwise invisible in the extant literature on visibility and control or visibility management, which has allowed us to cultivate a vocabulary for describing such work. By focusing on managerial work in this sense, the article contributes to the literature on visibility management (Flyverbom, 2015, 2019; Flyverbom et al., 2016), which considers management on an organizational level or in terms of broader processes of social ordering. We suggest that visibility management can be expanded to cover an extensive range of new organizational and managerial phenomena brought about by digitalization. In this way, we contribute to the understanding of how visibility provided by digitalization and datafication changes the management condition in fundamental ways (Leonardi & Treem, 2020, p. 1602). In contrast to Leonardi and Treem (2020, p. 1605), our findings suggest that this is in no way a 'minimal effort', but rather it requires deliberation and additional work.

While our study does demonstrate that digital technologies increase visibilities in organizations, our findings suggest that this does not necessarily facilitate control. Managers did not feel all-empowered by digital technologies and the visibility they provide. Instead, they found themselves facing several renewed and intensified managerial concerns and dilemmas, which had to be carefully considered and then acted upon. Echoing Zuboff's (1988, p. 348) observation, this leaves managers with a 'heightened awareness of complexity'. Therefore, our study sheds light on an aspect often overlooked by post-panoptic studies, which primarily focus on the consequences for employees (e.g., Manley & Williams, 2022) and tend to assume that increased visibility easily – and sometimes almost automatically – results in increased managerial control, thereby simplifying managerial work. Instead, our findings suggest that in some ways, visibility implies that control and managerial work become more complex. Managers need to actively 'handle visibility', that is, conduct visibility management. In this sense, control takes new forms, but continues to be a key aspect of the managerial function (de Vaujany et al., 2021; Mintzberg, 1983) in the digitalized organization, resulting in the intensification of visibility and control dilemmas.

Taking inspiration from Latour's (2005) oligopticon, our analysis highlighted how dealing with the partiality of visibility is

Table 3. Visibility management and managerial concerns with control

Managerial concerns	Types of visibility management		
	Technological mediation work	Relation work	Compensation work
Increased risk of prying	• Installation of random controls	• Inform employees about legal implications of prying	• Dialogues to determine legitimacy and legality of employee data searches
	• Installation of systematic controls	• Balance control interventions with protection of culture of trust	
	• Access controls		
Visualized workflow deviations	• Installation of real time tracking and visualization of employee activities	• React to implications of managers' own visibilities	• Closing the managerial eye in face of too much information
	• Anonymization of digital traces	• Balance surveillance with protection of culture of trust	• Dialogues to determine causes of deviations
Explosion in performance indications	• Turning unstructured performance indications into systematic performance measurements	• Balance performance culture with protection of work environment	• Establish contextual understanding of performance indications
			• Interpretation work

also a managerial task. For instance, rather than adding new elements to digital technologies to improve the visibility and thereby 'see more' (e.g., Bürkland & Zachariassen, 2014), our findings show that managers sometimes actively introduced technologies that prevented them from seeing too much, but instead allowed them to see particular actions well, to paraphrase Latour's description of the oligopticon (2005). Latour developed this metaphor in opposition to Foucault's panopticon. Latour's reading of the panopticon imagery does not really do justice to Foucault's sophisticated analysis, but it is deployed polemically by Latour as the foundation for coining his own metaphor in etymological contrast (*oligo* vs. *pan*) in a manner that captures key insights of actor-network theory. The oligopticon allows us to better understand visibility management as a *practical* endeavor and a question of managerial work.

Our study identified several managerial strategies to tackle the explosion in visibility. Managers sometimes accept, sometimes cultivate, sometimes compensate for the partiality of their gaze, and they sometimes close the managerial eye altogether. For instance, the 'control temptation' may have to be restricted by installing mechanisms that limit managerial control in order to avoid jeopardizing trust and good employee-manager relationships; or to avoid offending employees within professions with proud traditions of expertise. Hence, visibility management is not only a question of how to see *more* to enhance control, it also involves dealing with seeing *too much* when visibility is extended (cf. Brivot & Gendron, 2011). The opportunity to see increasing amounts of data produces a need for 'strategic ignorance' (McGoey, 2012).

The visibility management identified in our study is related to a set of classic managerial dilemmas, which are intensified in the digitalized organization. One key dilemma connected to all three managerial concerns was the need to strike a balance between enhancing control and maintaining a culture of trust. The literature on digitalization and control has mainly addressed this issue from an employee perspective (e.g., Manley & Williams, 2022; Sewell & Taskin, 2015). With its focus on management, our analysis supplements these studies by illustrating how the question of control and trust was tackled in different ways, and that a variety of control mechanisms were installed depending on the specific concern at hand. The managers felt that prying was much more serious than, for instance, deviation from a standard workflow, so managers intervened more actively if they suspected that prying was taking place. However, the basic dilemma – control versus trust – was the same across the three highlighted concerns, which indicates that the amount of managerial work involved in maintaining work cultures of trust in digitalized organizations may be significant. Our findings also show that a huge amount of performance indications emerges as a consequence of systems that were never designed to provide performance indicators. This implies that the well-known performance measurement dilemmas (Cuganesan et al., 2014) are not merely design choices where risks can be decided and balanced in advance. Hence, deciding how and when to look, intervene, or when to close the managerial eye had to be carefully considered.

Implications for the management of visibilities in practice

On a practical level, our approach to visibility management as an activity carried out by managers in their daily practices allows us to offer recommendations that may help practitioners describe and better understand new types of managerial work. Based on our typology, we propose that: (1) technological mediation work requires an understanding of the performative role of digital technologies and, hence, the importance of system designs, and calls for strategies to connect visibility and control in practice in deliberate technology choices. Technological mediation work may also include the new task of managing the organization's visibility (Flyverbom et al., 2016) in daily practice; (2) relation work requires recognizing the impact of visibility and control dynamics on the work environment and implies that managers sometimes install mechanisms that curb the control potential of digital technologies to protect cultures of trust and expertise. Relation work includes reflexively dealing with employees' many strategies to handle their behavioral visibilities (Leonardi & Treem, 2020, p. 1602), and finally, (3) compensation work requires a reflexive approach to visibility and control in the sense that managers must be aware of the partiality of the gaze offered by digital technologies and take initiatives to handle this partiality. Compensation work may include the work now performed by managers because they themselves have become visible and as such new objects of control (Hassard & Morris, 2022).

We believe it has practical value for managers to develop a vocabulary for such work and to recognize that visibility management is becoming an increasingly important and demanding part of their daily management. As such, our paper also contributes to recent calls for a focus on the deliberate choices needed to handle the extensification of managerial work in the digital age (Hassard & Morris, 2022).

Limits of visibility metaphors

The paper has demonstrated how metaphors of seeing are prevalent in the literature on visibility and control as reflected in the different 'opticon metaphors' (panopticon, post-panopticon, oligopticon). As pointed out by Cornelissen (2005), metaphors are important devices in the development of theory. The various 'opticon' metaphors have been inspiring research on visibility and control dynamics for decades.

Unsurprisingly, given the nature of these metaphors, they have privileged the visibility part of the visibility-control nexus.

If we continue to apply these metaphors in analyses of digitalization, new visibilities and opportunities for control, there may be a tendency to ignore certain important aspects. First, we may overlook the complex managerial work that is often required to connect visibility and control in practice. Second, we may overlook the managerial work required to control the control devices themselves. Third, we may fail to realize that the complexity made observable by digitalization is not dealt with by seeing *more*, but by pragmatically handling situations in everyday practices. Metaphors that highlight the eye may be fruitfully supplemented by metaphors that call our attention to the *hand* (see also Kornberger, 2017; Latour, 1986) and to the craft of management in a digitalized context in which visibility and control dynamics are changing. This shift in imagery would allow us to better understand the changing nature of the management tasks and the dilemmas that need to be *handled*.

Conclusion

It may seem like a truism to say that the extensive visibility offered by digitalization facilitates control and thereby simplifies a key aspect of managerial work. However, this paper has argued that new visibilities in the digitalized organization also render managerial work more complex by creating new concerns, tasks, and dilemmas not only for employees, but also for managers. The analysis focused on public sector managers' experiences with visibility and control through their descriptions of how their tasks have changed and new concerns have arisen in connection with the digitalization of organizations. We thus contribute to the literature by analyzing new ways of conceiving visibility and control in digitalized organizations, moving the focus away from the potential of viewing devices to the managerial concerns and work with visibility management they give rise to.

In addition, we complement the many important contributions on the effects of visibility and control on employees (e.g., Manley & Williams, 2022) with a focus on how digitalization and visibility affect managers and extend their work (Hassard & Morris, 2022). This allows us to recommend that practitioners develop a language for, as well as ways of accounting for, the otherwise mostly invisible work of visibility management, highlighting compensation work, relation work, and technological mediation work. With this typology, we contribute to the theorization of 'visibility management'. While this term does contain the word management, researchers of this phenomenon (Flyverbom et al., 2016; Flyverbom, 2019) have shown little interest in the practical work conducted by actual managers in the context of the digitalized organization and increased visibility.

Despite the contribution of this study, it does have a methodological limitation in that it is based solely on interviews and, therefore, managers' own accounts. Furthermore, it builds on a relatively limited number of experiences from the specific context of the Danish public sector. Thus, we propose that future research investigates the management of visibilities in practice through the use of ethnographic studies or other relevant methods for examining visibility and control in everyday organizational settings. We also propose studying different types of workplace and managerial position since we would expect that technological affordances and thereby concerns and management tasks are dependent on situational factors. Finally, future studies could explore the concerns and practices that are emerging as a result of the increased visibility of the managers themselves in digitalized organizations. Such future research could seek to determine whether the types of managerial work with visibilities identified in our study represent a widespread phenomenon and could elaborate on and refine what is implied by technological mediation work, relation work, and compensation work in digitalized organizations.

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