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Digital leadership in meta-organizations? Emergence of a renewed relevance of leadership in the context of digitization

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In the face of uncontrollable complexity, the concept of a rational design of the organization is being replaced by the notion of an open future that is inherently unpredictable and unplanable. In rapidly changing environments, organizations and leaders are confronted with a constant stream of irritations and unexpected developments, that require ongoing attention. This prompts the question of whether the conceptualization of digital transformation as a paradigm shift also implies the need for new forms of leadership. The article analyzes the discourse on digital leadership and assesses the extent to which this concept relativizes leadership in the context of the evolution of leadership theory, which is characterized by a persistent process of modification and relativization of preceding concepts. Leadership concepts are not only responsive to general needs, but also vary according to specific contexts, such as non-profit leadership or leadership in social welfare organizations and meta-organizations. Results of a discourse analysis, which underscore the significance of adopting a complexity theory perspective on digital leadership, will therefore be contrasted with the initial findings of an empirical study on digitization in such meta-organizations. This allows for a discussion of the general findings on the revitalization of leadership, which will serve as a paradigmatic example of the previously developed context. The article concludes with implications for further theory development with the aim of making a specific contribution to organization-sensitive digitization research. The findings of the empirical study indicate the significance of employing informal structures and a heightened emphasis on subjectivity within meta-organizations, as opposed to the formal structures of organizations. The concept of digital leadership does not signify the obsolescence of traditional leadership; rather, it can be conceptualized as an advanced form of unheroic leadership within the context of external and internal complexity.

KEYWORDS

digital leadership, meta-organizations, emergence, digital society, complexity theory

1 Introduction

The traditional image of organizations is increasingly challenged in digital societies (Manhart and Wendt, 2022; Manhart, 2024; Lichtenstein et al., 2006). The idea of a rational design of the organization is being replaced by the idea of an open future. In rapidly changing environments, irritations and surprises emerge, that organizations and leaders must constantly manage. Theoretical emphases that focus on traits, skills, styles,

or situations as the main component and determinant of modern leadership are becoming increasingly obsolete (Weber et al., 2011, p. 12, 13), even if heroic aspects are currently being normalized or functionalized in principle (Baecker, 2015; Wendt, 2023). From a discourse analytic perspective, this can be described as an evolution from "behavioral and transformational leadership concepts toward communication and system-oriented approaches" (Gebhardt et al., 2015, p. 22, o.t.), suggesting a relativization of leadership in the development of the theory itself (Northouse, 2013). If the stable organization is a thing of the past, increasingly in need of legitimation in the face of the digital present (Manhart and Wendt, 2022), then leadership in fact may also just be a loose shell to save an outdated semantics.

This article emphasizes that leadership only remains a sustainable concept if it aligns the system with an open future, recognizes change as the only constant, and deals productively with ignorance. Management is constantly reinventing organizational structures to meet current social and economic demands. This supposed facilitation of the new actually means that leadership, as work on changing subjects instead of transforming structure (Wendt, 2021b), has to reinvent itself, or more precisely, has to find a new socially acceptable formulation, e.g., to be digital and complex at the same time. Historically, organizational environments have not become complex only recently. Complexity cannot be attributed to digitality as a single factor and therefore is not the only qualitative difference of digital leadership. However, complex situations and contexts pose significant challenges for leadership and require new self-images. New categories of self-description can respond to changing external demands.

Organizations in the field of social welfare are traditionally described as operating in complex environments shaped by interdependence and unpredictability, dealing with complex tasks and requiring a high degree of self-organization of its members (Jolles et al., 2022). Their objective is to provide social aid, they are non-profit oriented and they represent the interests of socially disadvantaged groups in providing social services for this purpose (Boeßenecker and Vilain, 2013). In order to respond to complex environmental requirements, such as changing social needs, they must constantly create new opportunities (Schröer, 2019; Lackas and Freis, 2023). In the German social welfare sector, this complexity is increased by the predominant role of social welfare associations, which organized most of the social service delivery. We understand these types of organizations as multi-layered organizations or meta-organizations (Ahrne and Brunsson, 2005, 2008), which can be distinguished from "individual-based organizations" (Ahrne and Brunsson, 2005, p. 429) and are characterized by a high degree of internal complexity. In recent years, the use of big data and algorithms in the field of child protection (Coulthard et al., 2020; Gillingham, 2016), or experiments to use AI in anamnesis for therapy and counseling (Wittke, 2023) reconfigure the professional scope of social workers in German social welfare organizations (Kutscher and Seelmeyer, 2017; Kutscher et al., 2020; Helbig et al., 2021). The observable increase in the use of AI in areas that were previously exclusive domains for creative and unpredictable interactions between professionals and clients, might result in the replacement of professional interaction with formal organizational structures, which reflect the decidable decision premises (Luhmann, 2000, p. 222) that could also be replaced by algorithms. The question arises as to whether digitization will lead to the replacement of the inner core of organizations (management and decision making) or whether it will even strengthen standardization and organizational structure over autonomy, creativity and informality. To what extent do these developments affect the leadership of an organization (Kirchner, 2019) whose reference point are subjective changes? Should the success of informational structural automation result in the establishment of a "subtle [social service] organization" (Manhart and Wendt, 2022, p. 21) which renders the organization as a stable social form increasingly superfluous (Manhart, 2019), it would be reasonable to conclude that the social form of (digital) leadership would become obsolete.

This paper addresses the question of whether the conceptualization of digital transformation as a paradigm shift also implies the need for new forms of leadership. The second chapter of the article delineates the discourse on digital leadership and examines the extent to which this concept relativizes leadership in the context of the evolution of leadership theory, which is characterized by a persistent process of modification and relativization of preceding concepts (Wendt, 2023). Different (theoretical) leadership concepts not only respond to general needs, but also differ according to specific contexts, such as non-profit leadership (Schröer, 2009, 2011) or leadership in social welfare organizations (Boeßenecker and Vilain, 2013) and meta-organizations. The third chapter therefore contrasts the results of the discourse analysis with the initial findings of an empirical study on digitization in such meta-organizations. This facilitates a discussion of the general findings on the revitalization of leadership, which will serve as a paradigmatic example of the previously developed context. The article concludes with implications for further theory development in an outlook to make a specific contribution to organization-sensitive digitization research.

2 From obsolence to relevance: the concept of leadership in the digital leadership discourse

Digital information and communication technologies and their transformation over time shape modern everyday life (Muster and Büchner, 2018). This digital transformation is the context in which organizations operate. Characteristics used to describe the new environment of organizations are volatility, uncertainty, complexity and ambiguity, abbreviated as "VUCA" environment (Dörr et al., 2018). From this perspective, digital transformation requires new leadership logics. The discourse on digital leadership suggests a paradigm shift. In the new paradigm, leadership is expected to address contemporary challenges. The hierarchical image of organizations as stable social entities with a predictable future is being increasingly challenged (Lichtenstein et al., 2006). This is because the concept of a rational organizational design seems incongruous in the context of uncontrollable complexity (Kauffman, 1995) and the notion of an open future (Luhmann, 1990a,b). More recent organization theories imply ideas of the future that are neither predictable nor plannable, as well

as emergence, which represents a constant confrontation of organizations and leadership with irritations and surprises arising from an ever more rapidly changing (environmental) world.

Debates about digital phenomena seem to be the "central mirrors [...] through which society currently [...] observes, problematizes and reflects itself" (Süssenguth, 2015, p. 8, o.t.). The way society observes itself also changes the way organizations observe and present themselves. In this discourse, the term digitization is understood as the process of transforming analog values into digital forms that can be processed by information technology and in a broader sense refers to the trend toward the proliferation of digital technologies in society, with an increasing penetration into areas of individual life (Süssenguth, 2015, p. 7). Considering this observation, we differentiate between the process of digitization, which entails a transformation from analog to digital structures and the concept digitality as a fact. The term digitality is used to describe the current state of everyday culture and established practices that are already shaped by digital technology. In the extant discourse, the term digitality is predominantly employed to denote a transformation in social and cultural practices: Based on his observations regarding the diffusion of the internet, Stalder (2016) argues that upon the widespread adoption of digital technology as medium for communication and publication of information, a cultural shift occurs, whereby a culture of digitality emerges. The culture of digitality is founded upon three fundamental categories of referentiality (i.e., the attribution of meaning to objects through sharing with other individuals), communality (i.e., the functioning of social networks) and algorithmicity (i.e., the sorting and filtering of information by machines and programs). Conversely, the term digitization is employed to delineate technological transformations and developments. Upon reconsidering this distinction, we understand digitization to signify the process of an organization's adoption and implementation of digital technology, like software, algorithms, AI, and big data technologies (a concept also referred to as digital transformation by certain authors, e.g., Kretschmer and Khashabi, 2020). In contrast, the term digitality pertains to the organizational state that has already been influenced by digital technology. The application of codes, memories and algorithms is likely to alter not only an organization's culture and routines, but also organizational decision-making processes and consequently organizational structures (Schröer, 2023).

In the context of this electronic age, it is possible to propose the existence of a novel form of media change. This assertion is consistent with the seminal observation made by McLuhan, who posited that "the medium is the message" (McLuhan, 1994, p. 7). It can be argued that the prevailing type of media has the potential to influence the way individuals perceive and interact with their surroundings. McLuhan (1953) posits that the medium is not a neutral transmitter, but rather a producer of cognitive reality. In this sense, digital technologies are also to be regarded as introducing new modes of perception and communication, thereby fundamentally altering social realities and social relations as well as people's lives and cognition.

However, the effects of digitization extend beyond individual actors to encompass organizational actors as well. These organizational actors in their capacity as "societal data drivers" (Wendt, 2021a, p. 301, o.t.) play a pivotal role in shaping the scale at which digitization occurs. Büchner (2018a) analyzes the relationship between organization and digitization from the perspective of sociological systems theory. She challenges the notion of organizational neutrality with regard to digitization, demonstrating how organizations and digitization mutually influence one another. As social systems, organizations exert influence over the process of digitization in a non-uniform manner and have an impact on relevant structural specifics. Concurrently, digitization exerts influence on organizations with respect to their foundational regulatory frameworks, especially with regard to the formal structure of the organization (ibid.). However, in the context of digital transformation, the prevailing discourse on digital leadership underscores the necessity for a shift in the classical understanding of organizational leadership and management (Krug et al., 2018; Preusser and Bruch, 2014; Dörr et al., 2018; Gebhardt et al., 2015).

As early as 1990, Nachreiner and Strasmann inquired whether "intelligent technology [would] render leadership obsolete" (Nachreiner and Strasmann, 1990, p. 257, o.t.). They concluded that the answer to this question is contingent upon the "manner in which it is used" (Nachreiner and Strasmann, 1990, p. 267, o.t.) in the organization. They reject the notion of technological determinism and acknowledge the potential for flexibility in the organizational and managerial handling of technology. In the present era, when digitization and the utilization of intelligent technologies have progressed at a remarkable pace, the significance of this topic remains undiminished. Conversely, the question of what leadership might entail in the context of the digital transformation of organizations and society is receiving increasing attention (Tigre et al., 2023; Reeves and Whitaker, 2021; Franco, 2020; Schwarzmüller et al., 2018; Gebhardt et al., 2015; Hofmann, 2013). The discourse on digital leadership addresses the extent to which leadership in the digital modern age can facilitate and implement necessary changes in organizations. In many cases, an active approach in the sense of co-designing digital change processes is emphasized (Krug et al., 2018). This implies changes in strategies and processes on the one hand, and cultural change on the other. However, the primary goal seems to be to maintain the competitiveness of the organization (Krug et al., 2018), which is to be achieved not only on a structural level, but also through informal social forms of competitiveness.

Digital leadership is defined as leadership that focuses on participation, trust, openness and agility, i.e., leadership that promotes partnership and the involvement of employees. At the same time, digital leaders assume the "role of strategist, initiator and visionary" (Krug et al., 2018, p. 51, o.t.), to provide appropriate environments, spaces and frameworks for the new forms of media and communication and the associated changes in employees' cognitive realities. This suggests that it is primarily about changes in informal aspects and subjective sensitivities and perceptions.

For example, Schwarzmüller et al. (2018) identify important issues related to the requisite changes in the face of digitization trends that organizations and their leadership must address in the areas of work and health, the use of changing technologies, or in relation to hierarchical structures. Similarly, Tigre et al. (2023) portray digitization and new technologies as a disruption for

organizational structures that shifts existing boundaries, establishes new networks, automates complex decision-making processes and increasingly replaces human activities (Schwarzmüller et al., 2018, p. 115), it also changes communication structures and forms of collaboration. In this sense, Reeves and Whitaker (2021) describe "the company of the future" (Reeves and Whitaker, 2021, p. 51) that must not be average, but must develop an exceptional state of mind. Regarding the "autonomization" (Reeves and Whitaker, 2021, p. 14) of the organization and the design of "effective human-machine interfaces" (Reeves and Whitaker, 2021, p. 18), it is imperative for companies of the future to cultivate a culture of continuous learning and simultaneous development at various levels.

In examining the discourse on digital leadership, a number of points emerge as key areas of convergence: First, the majority of authors argue that a transformation in the conceptualization and the understanding of leadership is imperative in light of the ongoing shifts in societal dynamics. The increased use of technology and the increasingly networked world are seen as linked to changing forms of interaction and communication in which predictability and control are of less and less value. The central leadership challenge in organizations where the importance of social media and digital technology is increasing is the growing complexity (Preusser and Bruch, 2014). In addition to the emphasis on agility and flexibility, participation, dialogue, collaboration and the establishment of direct feedback cultures emerge as central requirements for organization and leadership in the digital modern age (Preusser and Bruch, 2014). Today, leadership continues to play a pivotal role within organizations. However, the advent of digital structural automation has necessitated a transformation in the way leaders perceive and approach their role. They must now embody a new self-image characterized by attributes such as driving force, inspiration, mediation, or change agentry. This shift in leadership identity demands for enhanced individual skills, e.g., to promote trust. These tasks entail working on subjective elements that are pivotal in shaping the organizational culture of an organization, particularly in the context of relativizing and distributing control claims (Preusser and Bruch, 2014, p. 46). These roles and functions may involve promoting the responsible use of AI or new media. However, their overarching objective is to prevent humans from becoming further alienated in the face of the contingencies of their existence (Rustemeyer, 2020).

The development of leadership theory is increasingly relativized, as are the leadership processes themselves. A growing skepticism toward the concept of leadership is becoming evident. The emphasis on leaders as persons or individuals is gradually being superseded, rendering an exclusively trait-theoretical approach obsolete (Weber et al., 2011, p. 12). A complexity theory of leadership represents an attempt to overcome the limitations of traditional leadership models (e.g., Bandte, 2007; Zippel, 2005; Anderson, 1999; Waldrop, 1992; Stacey, 1995, 1997). By characterizing organizations and leadership as complex entities with an open future, leadership assumes a systemic quality and is no longer confined to individuals, but rather expanded. The focus is on the inherent dynamics of systems, which present a challenge to direct controllability (Ashby, 1958). A complexity theory perspective on leadership elucidates the dynamics of complex adaptive systems (Schneider and Somers, 2006) within organizations, thereby facilitating framework conditions that enable emergence. Complexity theory provides a theoretical framework for understanding leadership as a crucial factor in the process of self-organization (Knowles, 2001; von Foerster, 1993). According to this perspective, leaders serve as context setters and designers of learning experiences (Brown and Eisenhardt, 1997; Pascale, 1999). Patterns of behavior in complex systems are not constant, because when a system's environment changes, so does the behavior of its agents, and, as a result, so does the behavior of the system as a whole. But although the system is constantly adapting to the conditions around it, complex systems also demonstrate elements of self-similarity, as they exhibit invariance under a change of scale (Morel and Ramanujam, 1999; Manhart, 2018). This requires the application of a non-linear logic in decision-making. Overall, the application of complexity theory to organizations stresses that understanding the emergence of new configurations helps organizations to identify new opportunities (Mitleton-Kelly, 2003, p. 7). Leadership is supposed to keep the complexity of the organization in view at all levels, but at the same time, it becomes visible as an emergent dynamic and thus incomprehensible in its entirety (and thus unassailable). It thus ventures the balancing act between the different organizational sides (structure vs. subject; formal vs. informal structures; or the use of what already exists as opposed to exploring something new; Weibler and Keller, 2015), disposing between self-logical systems (and here mainly: communication and technology) in terms of the overall system.

Accordingly, the complexity theory perspective appears to offer a suitable descriptive framework for the concept of digital leadership: One connection between the complexity theory perspective and the phenomenon of digital leadership lies in the fact that digitization and datafication create significant differences for individuals and organizations: Descriptions of organization and leadership as complex generally resonate with a certain skepticism about control, because a context is described as complex precisely when it is neither transparent nor controllable from the outside. Under this premise, autopoietic systems come into view, which generate their self-components through the unity of the system itself. Direct controllability of the system becomes impossible under the conditions of the autopoietic figure of thought. In this model, complex leadership can only guide a complex organization, of which it is itself a part, through contextual control to enable self-organization (Maturana and Varela, 2015). It can work to bring the system into an in-between of order and chaos, to facilitate the making of connections (Levy, 1994), and to create diversity for the system rather than discourse. The goal is to emphasize the importance of complexity in enabling creativity, innovation, and learning (Geer-Frazier, 2014, p. 113). But it is precisely this possibility that is important, because causal relationships must remain unclear if the complex theoretical figures are to be taken seriously. At the same time, a description of how to deal with complexity can also be an illusion of competence; the external presentation can be used as a facade strategy (Kühl, 2020), which also offers insights into the functioning of leadership. According to Baecker, this requires self-presentation competencies in the transition from heroic to post-heroic leadership (Baecker, 2005, 2015, 2018). For

the individual, the use of social media and novel technologies within organizations can result in the formation of novel cognitive realities, which may be characterized as complex in accordance with the conceptualization proposed by McLuhan (1994). For the organization, too, the current changes are mainly based on digitization and datafication trends. Nevertheless, organizations themselves are also pivotal data generators within society (Wendt, 2020), and the emerging form of leadership must be capable of reflecting this. Concurrently, in the context of digital modernity, organizations are compelled to enhance their competitiveness. This necessitates strategic action and structural changes. This is achieved by monitoring what the actions of competitors and by adapting to societal demands, including structural change (management) and changes in the social form of the organization (leadership). This entails, for instance, establishing role models in regard to the responsible use of new technologies and providing a stimulus for changing cognitive realities and perceptions.

In the description of digital leadership, the concept of ambidextrous leadership (Buhse, 2012, 2014) and the term "collective intelligence of the company" (Dörr et al., 2018, p. 41, o.t.) are invoked. In this sense, the new mental model of leadership posits a shift in focus from a hierarchical approach to one that is more oriented toward mediating positions. Emphasized elements as a source of inspiration, emotional intelligence or establishing a culture of failure represent a changing self-image of leadership (Dörr et al., 2018, p. 57). A significant distinction can be drawn between this approach and complexity theory (Lichtenstein et al., 2006), with the former placing greater emphasis on the systemic nature of leadership and organization. In their interaction dynamics and collaborative movement, as well as in the description of organizations and leadership as complex, leadership, or at least its theory, becomes aware of the limitations of its control. Such claims of control are therefore limited to the framework conditions of evolutionary processes. Furthermore, leadership is conceptualized as a mediating structure that bridges disparate complexities, exemplified by the interplay between communicative and technological inherent logics (Uhl-Bien et al., 2007). In accordance with the tenets of complexity theory, leadership cannot be regarded as a visionary in the sense of anticipating the future if it is to be regarded as a viable concept in its capacity for openness. Visionary power may pertain to the visualization of alternative scenarios, but not to the prediction of actual situations. This implies a method of addressing the mounting intricacy that appears to accompany the advent of digitization. It entails the visualization of prospective scenarios and the formulation of alternative, enhanced future scenarios, which in turn inform the present. From a neo-institutionalist perspective (Walgenbach, 2014), it can be argued that the vocabulary of the digital leadership concept provides new legitimacy formulas that enable organizations and leadership to be prepared from the outside in in a manner that allows them to withstand the demands of a changing society. But achieving this would also constitute successful leadership.

Leadership can be a sustainable concept if it aligns the system with an open future. This requires recognition of change as the only constant and the cultivation of a productive approach to ignorance. The enabling of the new is typically already accomplished when the organization is seemingly constantly reinvented by leadership in terms of current societal demands. In essence, this implies a reinvention of leadership (Schumacher, 2013), or more specifically, the identification of a new socially acceptable formulation. This link is developed and discussed in greater detail below using an empirical case study from the welfare sector. The case study describes such elements in meta-organizations (Ahrne and Brunsson, 2005), which, due to their internal and external complexity, are particularly suitable from a complexity-theoretical perspective and can consequently be regarded as paradigmatic for this purpose.

3 Digital (meta-)organizations. Digital transformation in welfare organizations

To this end, the underlying understanding of meta-organizations is first developed (3.1). In a second step, the empirical results of the case study are presented (3.2), which are then discussed in the context of the previous theoretization of digital leadership (3.3).

3.1 Welfare organizations as meta-organizations

Meta-organizations can be distinguished from "individual-based organizations" (Ahrne and Brunsson, 2005, p. 429). Ahrne and Brunsson use different groups of members as the primary difference of these organizations, which determines all further decisions and consequences for the different structure of the organization types: While the members of individual-based or membership organizations are natural persons, the members of meta-organizations are exclusively organizations. In a more recent definition, the contrast between human and organizational members is no longer used as a guiding distinction but is latently present. Accordingly, meta-organizations are understood as "(1) decided social orders; (2) organizing organizations rather than individuals; and (3) associative, in that they constitute a voluntary association of members" (Berkowitz et al., 2022, p. 2). The functions of meta-organizations are defined as co-management and governance of member organizations, representation and external advocacy, construction of collective identity through boundary management, and provision of services to member organizations (Berkowitz et al., 2022, p. 3–4; Spillman, 2018). From a complexity perspective, meta-organizations not only adapt to external conditions, they offer a high degree of internal complexity. Based on their layered structure, member organizations play two crucial roles for the meta-organization: They represent member interests and are a relevant environment of the meta-structure. What adds to the internal complexity is their relatively weak power to enforce the implementation of decisions.

Therefore, sensemaking processes are particularly relevant in meta-organizations. Due to the different sense constructions of member and meta-organizations, the meta-organization is particularly required to provide integration services in order to bind the member organizations to a collective strategy (Eberl et al., 2011), an aspect that is equally important for leadership

issues. At the same time, meta-organizations, similar to school organizations, are weak organizations (Drepper and Tacke, 2012). They are limited in their decision-making autonomy when fulfilling these functions. In contrast to member organizations, which recruit their employees, meta-organizations do not recruit their members on the basis of qualifications, career or competence, but rather with regard to their specific organizational identity (Schütz and Bull, 2017, p. 6). In doing so, meta-organizations show a tendency toward monopoly: For their legitimacy as the representation of organizational interests of a certain category, it is crucial to include all organizations of this spectrum. Therefore, members cannot be replaced easily: Exclusion from the meta-organization is the ultimate sanction and thus enforcing membership conditions is weakened substantially. Accordingly, due to their lack of or partial decision-making autonomy, meta-organizations function primarily as regulators in the sense of international meta-organizations such as the United Nations (Berkowitz et al., 2022, p. 4–5), which formulate rules and standards for their member organizations without being able to enforce compliance hierarchically. As a result, any conflicts are resolved through negotiations and not through authoritarian top-down decisions (Ahrne and Brunsson, 2005, p. 442). This aspect is of paramount importance for an accurate comprehension of leadership in these organizations that must demonstrate their capabilities in the digital society.

As meta-organizations, welfare organizations strive to ensure commonalities between member organizations in order to maintain a collective identity and thus their functionality, especially in the case of organizational change. This includes, for example, common procedures, organizational structures and jointly proclaimed mission statements (Ahrne and Brunsson, 2005, p. 440). While theory has so far mainly described meta-organizations with homogeneous member organizations (f.e., supranational organizations), as limited in their decision-making autonomy, the question arises as to the governance possibilities of heterogeneous meta-organizations, such as welfare associations, with their legally and financially largely independent member organizations, which differ greatly in their range of services.

The functions of meta-organizations include co-management and steering of member organizations, representation and advocacy to the outside world, construction of a collective identity through boundary management, and provision of services to member organizations (Berkowitz et al., 2022, p. 3–4). However, as noted above, this type of organization requires special governance arrangements in order to perform these functions. Due to the special structure of meta-organizations, the distinction between organization and environment is less clear than in simple member organizations. Therefore, according to Weick (1995), we do not start from a supposedly objectively perceived environment, but from an enacted environment. Accordingly, there are different environmental constructions in meta-organizations (Weick, 1988, p. 30–32.). The environment is shaped by interpretation and the creation of meaning: The organization responds to this constructed environment by organizing (creating order) and sensemaking (creating contexts of meaning). Organizing and sensemaking are interrelated as well as leadership as the "legitimation of doubt" (Weick, 2001, p. 91) and sensemaking are intertwined. In the following, the design and the results of the empirical case study are presented.

3.2 Design and results of the empirical study

The empirical study design was developed in the context of a broader research project on (doing) digitality in social work organizations, with a particular focus on welfare associations, which we conceptualize as meta-organizations.

3.2.1 Study design

As part of the case study, guided informational interviews were conducted with representatives of two welfare associations (one faith-based, one non-faith-based) at the federal, state, and local levels ($n = 10$; federal level: $n = 3$, state level: $n = 3$, local level: $n = 4$). The survey period was from November 2023 to February 2024. Additional interviewees were recruited through recommendations of exemplary practices within their own association by the interviewees. The evaluation of the data was based on the methodological approach of qualitative content analysis (Mayring, 2020, 2022) through consensual coding and the inductive and deductive development of a category system (Hopf and Schmidt, 1993). For the purposes of this article, we have focused on the following codes: "conceptualization of digitization," "control," "formal structures," and "informal structures." For each of these codes, superordinate categories with associated subcategories were formed. Each of these categories is briefly described below, with only a few of the categories that are particularly relevant for this topic being described in detail and illustrated with examples.

3.2.2 Conceptualization of digitization in social welfare organizations

The understanding of digitization in the surveyed organizations refers primarily to the controlled introduction of digital tools into the organization, with some organizations also integrating digital tools into the actual provision of social services (Seelmeyer et al., 2022; Seelmeyer and Ley, 2018). The gradual, subcutaneous use of digital tools plays a rather subordinate role in the considerations of these organizations. The concept of a digital organization seems to be extremely underdeveloped.

The categories that have been formed to understand digitization within the surveyed organizations are based on a range of different aspects. The complexity of the process (D1) of digitization, particularly when conceptualized as an organizational transformation process, is a central anchor point of (not) understanding. The perception of digitization as an extensive and potentially limitless process, coupled with the recognition that the topic is inherently more nuanced and complex than what can be conveyed through simple linguistic expressions, contributes to this phenomenon. Furthermore, the assumption of a correlation between organizational learning and readiness for digital transformation (D2) also plays a role in this context:

> "Digitization is [. . .] about converting analog into digital, so to speak, but it is not just about that, it is really about new approaches, new ideas, new processes and so on. But I often have the feeling that the word is already so big that (laughing), I don't know, it is often better to just call it digitization. (.) And it has less of this change character in it. Because [. . .] perhaps we also need to develop or cause resistance when it comes to, okay, now we also have to change everything else." (Interview, O1, regional level, Tn1, o.t.).
>
> "We are big fans of milestone plans. And I think it is such a long way from (.) the typewriter and the Stone Age, as my colleague always says, to the paperless office." (Interview, O2, local level, Tn2, o.t.).

The issue of determining the best approach to integrating the technology and new media into the future of the organization (D4: top-down implementation as a challenge) represents a strategic and classic decision problem. At the time of the decision, it is not clear what challenges the technology and media will present in the future, including how employees will deal with it. In this sense, top-down implementation is described as an important current challenge.

> "It's not just, 'We are going to implement a system', but we have to look at it, or we have to know for ourselves, what do we want out of this system? How do we want to integrate it into our organization? What does it look like at the organizational level? And not 'we will implement it now and then we will do it this way' and then a lot of problems and mistakes arise just because a system was bought that we did not really look at in the beginning. Is it even the system we need and want now?" (Interview, O1, local level, Tn4, o.t.).

However, the unpredictability of the future is not a new problem for organizations, as it is not feasible to anticipate the future behavior of new hires. The digitization of processes requires the development of new ways of dealing with uncertainty and anticipating future problems and challenges, including those of a societal nature. Accordingly, a more nuanced approach to potential future scenarios is regarded as a crucial element of strategic processes. In the context of anticipating the future (D5), there is a particular need for informality in order to try new solutions and forms of collaboration that will enable the effective transition to a digital organization. This appears to be based on the observation that the introduction of formal rules can discourage dealing with them (D6). If formalization (i.e., the fixing of digitality as a given state) is to provoke protests, people tend to rely on informal implementation structures that are not fundamentally decided upon. This is exemplified by the following quote from an interview at the local level: "So everyone is glued to Instagram and Facebook all day, and when we have our own Facebook-style tool, somehow no one wants to participate in protest. If I have to, I won't" (Interview, O2, local level, Tn2, o.t.).

The operationalization of digitization in organizations is often understood as a question of strategy (D3). A digitization strategy formulates expectations in the context of membership. This can refer to formal or informal structures, depending on which reference point is chosen.

> "How much social does digital need? And how much digital does social need? And that is a question that of course we are addressing in our specific strategy, with the implementation of an IT change and so on, that is something that does not find a place there, but that is exactly what is happening at this level, but the things are connected" (Interview, O1, regional level, Tn3, o.t.).
>
> "So, of course, we have/this is strategically defined for us, i.e., it is a strategic field of the O1, just as care now has its own strategic field or QM. So of course, there are a number of goals that we want to achieve in the next 5 years. (...) And we have (...) (sighs), I think, summarized it under the slogan, we are positioning ourselves digitally in such a way that we can implement the needs of the customers, but also of the employees and the organization, so to speak, and also adapt to the times" (Interview, O1, local level, Tn4, o.t.).

Based on these observations, the role of leadership in the introduction of digital tools into the organization is of particular importance. Furthermore, it is essential to decide whether formal or informal structures are more conducive to the implementation of digital tools. The fact that these are decision problems that must be negotiated at the leadership or management level also indicates that people's uncertainties about technology and new media can result in a shift in the boundaries of the organization (D7). The introduction of new media and technologies happens on the side of the formal structure by penetrating the organization's decision-making network. This process is accompanied by the observation of the surrounding environment (best practice examples), which can, however, also result in the postponement of decisions, if members are not ready to use digital tools. It is therefore crucial to anticipate the potential benefits of utilizing digital solutions (D8) within the context of the organization's conceptualization of digitization. This entails integrating digital solutions in a work context that allows people to experience these benefits, with the objective of creating meaning and sense, in this case the sense of value added by digital solutions, which makes the troubles of introducing digital tools worthwhile:

> "Just digitizing something to make it digital, (...) that's no good. I have to add value. And the added value has to be recognizable, and it has to convince people to do it. Because if I tell them that they have to scan in a piece of paper every day, or type it in, or take a picture of it so that it is digital, or email it to me every day, and they don't get any added value from it, no relief or nothing, then we have all gained nothing. Then it is just a picture floating around in the world, it is no good" (Interview, O2, local level, Tn5, o.t.).

In a broad understanding, digital transformation signifies a shift from an analog to a digital address, to a digital organization. From this perspective, it also becomes evident that digital transformation is linked to the preservation of the organization's appearance. Responding to new cognitive realities can thus provide opportunities to modify certain aspects of the organization's environment and to implement further operations:

> "How can we actually be reached? How can we be found? Through digital communication. In other words, we don't see the analog and the digital as so separate, it's just the new world we live in. (...) There is also the digital space. So I think I would see everything a little bit more holistically" (Interview O2, federal level, o.t.).

The process of digitization is perceived as a complex endeavor, with one significant challenge being the layered structure of meta-organizations, which makes it difficult to introduce digital tools in a process that relies on top-down decisions and hierarchical implementation. These layers can also result in an indirect and delayed experience of the potential benefits of introducing digital tools. In response to these perceived challenges, leaders are developing strategies to overcome the perceived obstacles and elucidate the prospective advantages of digitization.

3.2.3 Digital leadership as strategic use of networks and organizational informality

In light of the preceding findings, it is essential that the leadership in meta-organizations devise strategies to engage those who are willing to embrace change in a goal-oriented manner. In order to facilitate change in a context of internal and external complexity, leaders employ a range of techniques, including the use of images, exemplary practices, sense making processes and informal networks. These techniques are sometimes deployed in contravention of the established norms of meta-organizational hierarchies. Due to the absence of hierarchical authority to enforce decisions, leaders utilize sensemaking, which involves combining certain aspects of external developments in the organization's environment with internal reference frames, to facilitate digitization within the federal association (national level). As one leader stated:

> "We have to provide arguments as to why it is useful and why it is good to proceed as we do, i.e., explain, explain, explain. (...) Sometimes we also have to—this is a little difficult to formulate—scare people a little. Well, we are the ones who have to push, and I do that with a benefit argument, but also with the topic, (.) if we don't do it, we are sure that we will also get problems, especially financial ones" (Interview, O2, federal level, Tn 7, o.t.).

One key challenge is to reframe the necessity to use digital tools and solutions, by developing cues about the external conditions, so that it is accepted by a majority of members of the meta-organization:

> "It is about framing the issue. To present the political implications. In other words, to verbalize the environmental conditions rather than the actual vision. (.) At the moment I am more inclined to say that we are going to use good examples, which we can also promote, which can be part of a vision, but I am not trying so hard to present the big vision. Because then it quickly becomes so generic that everyone rallies behind it and nobody stands behind it anymore. (.) So, as I said, I am more interested in concrete projects, in networks, (.) in things like that than in this vision/we also have a strategy, a digital strategy" (Interview, O2, federal level, Tn 7, o.t.).

Another strategy that is used to persuade members of the advantages of digital tools is to use compelling examples or tangible projects. As a leadership practice, one interview partner asserted, that addressing resistance would be most effective by communicating the benefits of digitization at all levels and described as: "talk, talk, talk" (Interview, O2, federal level, Tn 7, o.t.). Concurrently, leaders at the national level exercise caution to avoid overwhelming or overburdening employees and to facilitate change in incremental steps.

> "Connection between skills shortage and digitization. (.) And I play on this very strongly, I also play on this interface very strongly in lectures, in impulses, throughout the association. We are also doing this a little more systematically because we say that one answer to the skills shortage can be investment in digitization" (Interview, O2, federal level, Tn 7 o.t.).

It is evident that in the event of an unsuccessful or incomplete formal introduction of digitality-that is a decision cannot or will not be made -, the formation of coalitions of the willing is necessary in order to respond to the observed need for digital transformation.

From a control perspective, it appears that an internal (softer) form of leadership (C2), such as argumentative persuasion on the part of the leaders, is necessary to restore the external pressure. In the context of the organizational structure, the undecided decision premises (Luhmann, 2000) appear to be of particular significance. For instance, technical translation and communication skills (C3) are considered necessary for this. Additionally, there is a prevailing sense of skepticism about the introduction of digital solutions (C5) among organization members and a perceived lack of immediacy of experiences (C4) in dealing with technologies or new media due to the organization's meta-structure. Because of this mediated nature, the effects of structural changes are experienced at a later point in time than in conventional member organizations.

The perception of the complexity of the digitization phenomenon (C7) requires the establishment of coordination points that are integrated into the structure of the organization. Furthermore, it appears that formal structure may be susceptible to collapse when external constraints or normative pressures are removed:

> "During the pandemic, I think we had three hackathons. That actually worked quite well. Across all the charities. But since the pandemic kind of ended, nobody wants to hear about hackathons or any other formats. (...) Then, well, sure, open calls that worked once, but I think that is it" (Interview, O2, state level, Tn6, o.t.).

The difficulties inherent in a multi-layered organization, the complexity of digitality, and the lack of immediacy in experiencing the benefits of digital tools frequently persuade leadership to utilize informality, such as informal communication channels and informal networks across various hierarchical levels of the organization

with shared responsibilities to facilitate the process of digitization.

3.2.4 Digitization and digitality and its relation to formal and informal structure

Büchner (2018a) argues that digital tools strengthen the formal structure in organizations. The example of the introduction of case software in social work shows that standardized processes and unifying logics are increasingly influencing case processing. As a result, the scope of action of professional social workers is redefined or restricted. Although prevalent in the discourse on digitization in social work (Gillingham, 2016), we find little evidence that this is a primary concern in the investigated organizations. One attempt to support digitization is to establish new formal structures by negotiating responsibilities:

> "I don't even know if I would see it as a task for us. (...) Because in the end, it is a bit [...] digitization has to come from the associations themselves. And as the regional management, we see ourselves a bit as (.) consultants, as service providers for our district associations. (.) If they come to us with a need, (.) then we can offer something" (Interview, O2, state level, Tn 6 o.t.).

As a result of such negotiations, new structures or positions are established, such as the role of "digitization officers" and their internal communication within the association. Nevertheless, the creation of digitization-specific communication channels has the unintended consequence of excluding some members, as not all member associations have a digitization officer.

The introduction of digital tools and technologies, including the introduction of support structures to enhance organizational capacity to use digital tools, as well as new forms of cooperation and integration of digital components into service delivery in the meta-organizations studied, relies primarily on informal communication channels. We assume that this is due to the "weak" organizational structure of meta-organizations, which presents significant challenges to implementation through hierarchical structures. Consequently, the success of digitization efforts hinges on the formation of "coalitions of the willing," comprised of individuals and groups willing to collaborate and to advance digitization. These networks transverse across the associations, bridging the gaps between the levels of the meta-organization. In light of these observations, we identified a notable and unanticipated pattern of digitization that gives rise to organizational informality.

The following quotes illustrate the use of informality in the context of digitization. It is important to note that informal structures must bridge and facilitate communication across federal, state and local levels, a process that is not always entirely effective. The underlying premise, as evidenced in both associations, is that the introduction of digital tools (digitization) is primarily achieved through the networking of member organizations via diverse channels (at all levels, both formalized and informal). Through these networks, good practices and knowledge are disseminated vertically from one level to another or horizontally within levels.

In this regard, it became evident that established communication channels are no longer adequate to meet the needs of members who have undergone changes as a result of digitization and that associations are looking for alternative platforms. The multiplicity of communication channels (committee, working group, forum, mailing list, face-to-face events, and virtual events) exemplifies the central challenge, namely the legal autonomy of the individual member organizations. Consequently, meta-organizations are contingent upon the willingness of the member organizations to engage in these communication initiatives.

Leaders on different levels of meta-organizations experience digitization-related informal structures in conflict with existing formal structures. One such example is the structural regulation and restriction of communication channels: "For instance, I am not permitted to communicate with local associations at state association level. The district associations have to do that. (.) But of course I can post something on my private profile" (Interview, O2, state level, Tn6, o.t.). The employees therefore often use their private profile to disseminate information: "And I also use my personal LinkedIn profile" (Interview, O2, federal level Tn7, o.t.). Informal structures might even break up established structures:

> "Then we founded [an innovation network], where all [O2] employees, voluntary and full-time, can participate across hierarchies, so to speak. We did this once via an online platform, via MS teams, but there are also real meetings such as barcamps, where best practice is shared" (Interview, O2, federal level, Tn7, o.t.).

In addition, we discovered that informal participation in formal structures was occurring surreptitiously. As one leader told us "I am actually a bit wrong at the local level, but there is also a higher-level team group from [O2], [...] which deals with the digital agenda. (.) I am actually in there, yes, informally, so that I can read up on anything new" (Interview, O2, local level, Tn8, o.t.). In sum, these quotes show how digitization breaks down hierarchical communication structures and enables exchange across all levels.

With regard to the formality, there appears to be an intention to alter the existing structure (F1). Generating new cognitive realities by employees is perceived as a challenge. Consequently, dealing with new media is an inherently uncertain and unpredictable process that cannot be readily controlled: "But the will to do something was great, money was tight. (.) And there was no idea" (Interview, O2, local level, Tn9, o.t.).

It is evident that digitization is permeating the organizational structure as a pivotal decision-making premise (F3), yet the decision-making network has not yet been expanded in this regard. The process is fundamentally contingent upon the social form of the organization, which is inextricably linked to human uncertainty. An increase in information (F4) frequently results in individuals, being unable to cope with this influx as it exceeds their limited cognitive capacity.

> "In the past, there was one rule of communication and that was the letter. You wrote a letter to your superior, who always needed his time, and in the form of digitization we have enormous/a shortened time. Therefore, the information that I send by mail today may not interest anyone anymore. And waiting for meetings, which some people do, saying, 'I will bundle the information and then when I have a monthly

> meeting or a discussion, as it is sometimes so nicely put, I will pass it on', is just too late for some information" (Interview, O2, local level, Tn5, o.t.).

The expansion of communication channels (F5) thus seems to open the door to unmanageable complexity for the social form of organization. In response, fixation can be observed as a structure that makes complexity manageable (F6). For example, efforts are being made to regulate the use of new media in order to counteract the chaotic nature of the organization.

> "We have said, no, we need to look at what level we are going to go to together. And that reduces stress, simplifies the whole thing, and that is exactly the rules of the game that we are making very simple. What we have developed, for example, are communication guidelines for our employees that we communicate to the outside world. How do we treat each other, how do we communicate with each other?" (Interview, O2, local level, Tn5, o.t.).

While decisions regarding job creation are made on the formal level, the process of digitization itself primarily occurs at the informal level. The reflection on potential and meaningful forms of communication and cooperation in the future crystallizes as a strategic process. To this end, also informal rules of use (F7) are established, which, as undecided decision premises, offer a way of dealing with the dilemma of formalizability and contribute to maintaining the organization's flexibility, creativity, and responsiveness.

3.2.5 Overall results

The data from our exploratory study of both cases appears to present a paradoxical process. While studies on the introduction of software solutions in social work (Büchner, 2018b) indicate that their effect is often a stronger formal structuring of work (e.g., the user interface of the case software determines how professional social workers process and document cases), the process of introducing digital solutions in meta-organizations is essentially dependent on new, spontaneous or existing informal structures (Luhmann, 2016). In the absence of a hierarchy and the lack of opportunities to enforce decisions made, the associations rely on informal communication channels, networks (Kappelhoff, 2000, 2002), and the so-called "coalition of the willing." However, this paradox is resolved when a distinction is made between digitization as a process of change from analog to digital structures and digitality as a fact. Digitality refers to the everyday culture, structure and practices that have already been shaped by digital technology. While digitization in meta-organizations is significantly influenced by informal structures, it remains to be determined to what extent the practice in organizations that are already shaped by digitality is more strongly influenced by formal structures.

A tendency toward a strengthening of the organizational structure in the meta-organizations is observed, accompanied by a narrowing of the individual scope of action through the use of new digital software. In contrast, it is noteworthy that the introduction of digital technologies, forms of cooperation and the integration of digital components into service provision in the meta-organizations under study relies primarily on informal communication channels. This is simply due to the "weak" organizational structure of the meta-organizations, which hardly allows implementation through hierarchical structures. Consequently, digitization efforts depend on coalitions of the willing, on networks within the associations and between the association levels. This enables decisions to be replaced with calculations, and the use of AI, for example, also changes professional action. The digital transformation therefore has an impact on professionalism, while at the same time new logics of action are emerging within the organization.

4 Discussion: dismissing leadership as an obsolete concept in the face of digitization?

The advent of the digital society has introduced a new set of hurdles and challenges that require attention of a range of actors. In particular, the focus currently appears to be shifting to future issues from a temporal perspective, specifically those pertaining to the future and the appropriate management of uncontrollability and complexity (e.g., in relation to technology, AI, etc.). On the one hand, organizations are key drivers of digitization. However, in their mutual interdependence, they are also compelled to address a range of questions and challenges related to the transformation into a "digital organization" (Büchner, 2018a). This gives rise to new requirements for organizations to adapt to their environment, including the cognitive realities and subjective sensitivities (e.g., skepticism toward new technologies, fear, uncertainty, etc.) of the organization's employees.

The question of how structures (management) and issues (leadership) can be designed and shaped is of central importance to the digital transformation of organizations. In order to remain responsive to societal change, management and leadership must be continuously evolving and must also facilitate the stabilization of change as a constant. In the field of leadership theory, this is reflected in the overcoming of the classical reduction of leadership and in the expansion and relativization of these rather strong approaches to communication- and system-oriented models. A complexity-theoretical perspective on leadership offers particular advantages for understanding these dynamics in bringing system dynamics into view, which focus on dealing with complex adaptive systems in order to create framework conditions that enable emergence. Leadership uses the construct of an open future and, in this sense, reveals and reflects the transformation of contingency inherent in all decision-making processes. To this end, it seems increasingly necessary to begin at the subjective level and to rescue the social form of the organization from its proclaimed superfluousness, thereby making it central. The question of whether the success of informational structural automation leads to the establishment of a subtle social service organization (Manhart and Wendt, 2022) that renders the organization increasingly superfluous as a stable social form can be answered with regard to the meta-organizations under study. Here, the meta-organization seems to be far removed from informational structural automation, even though changes are introduced in the formal structure

that accompany the digital transformation of the organization. In contrast, our findings indicate that the growth of informal structures has become a significant factor in these cases. While this presents a considerable challenge for digital leadership, it ultimately does not undermine the ability to maintain the social form of the organization.

The meta-organizations that were the subject of our study demonstrated a notable reliance on informal communication channels for the introduction of digital technologies, forms of cooperation, and the integration of digital components into service provision. This was largely attributed to the "weak" organizational structure of meta-organizations, which limited the enforcement of digitization efforts via hierarchical structures. Consequently, the success of digitization efforts within these meta-organizations was contingent upon the formation of coalitions of the willing, the establishment of networks within the associations, and the creation of networks between the association levels. This points to the importance of applying a non-linear logic to decision making. Understanding the emergence of such new configurations and dynamics also helps organizations to recognize new opportunities in this sense (Mitleton-Kelly, 2003). Leadership maintains the complexity of the organization at different levels as a point of reference, and at the same time surfaces as an emergent order. Despite the growing number of tasks (e.g., data collection and analysis for decision making) that do not necessitate leadership, the process of digitization in social welfare meta-organizations still requires leaders capable of navigating internal and external complexities, employing effective sensemaking processes, and staying aware of emerging structures, processes, and practices that align with the overarching goal of digitized meta-organizations.

Digital debates, which represent the "central mirrors" (Süssenguth, 2015, p. 8, o.t.) of society's self-problematization and self-reflection, also shape the self-observation of modern organizations, which are constantly challenged by social transformations in their own self-image. In the McLuhanian sense (McLuhan, 1994), new media shape the cognitive realities of actors and, in this sense, give rise to new models of perception and communication that help to shape the structures of organizations in the sense of structural coupling (Luhmann, 2000). The organizations formality, informality and its representation comprise three interrelated aspects (Kühl, 2020) that must be considered in conjunction with one another when undergoing a digital transformation. If the requisite conditions for transformation are not met in any of these levels, it will have an impact on the other levels.

The present study, which must be considered in its limited scope and which focuses only on a specific type of organization, indicates that leadership is not superfluous in these organizations. The empirical results demonstrate that the organization is highly dependent upon its informal use of (intelligent) new technologies and new media in its structures. A key aspect of this seems to be the willingness of the people involved to transform contingency in the decision-making process and to fix digitization-related decisions as premises (Luhmann, 2000; Wendt and Manhart, 2020). This willingness is also dependent on subjective sensitivities and is expressed in various ways in the organizations studied, primarily on an informal level. The transfer of this willingness into the form of decided decision premises takes place only very selectively.

The specific contribution to theory development to an organization-sensitive digitization research is to show that in contrast to understanding leadership as obsolete or as a superfluous shell, our study demonstrates the potential for a revised conceptualization of digital leadership, in the context of social service provision within complex meta-organizations. The diagnosis of the superfluousness of the social form of organization bears a striking resemblance to Weber's (1964) concept of dehumanization as a defining feature of a fully developed bureaucracy in the ideal type. However, informational structural automation can also be conceptualized as an ideal type, particularly when one considers the notion of the open future—a future scenario that has not yet been determined—as a point of departure. Contrary to this, our empirical material of a self-organizing meta-organization reflects a real type that presents itself differently. The concept of digital leadership is concerned with the two fundamental tasks: firstly, supporting the process of organizational digitization, and secondly, leading an organization in a digitized state. It is unsurprising that the notion of leadership in digitization bears similarities to conceptualizations of leadership in organizational education, which highlight the role of leadership in supporting organizational learning (Schröer, 2014, 2016, 2018). Based on our case studies we find that digital leadership entails:

- an awareness for emerging digital structures, processes and practices, as well as an awareness for the emergence and formation of a coalition of "the willing;"
- a range of techniques and practices to make productive use of and respond to internal and external complexities, such as sensemaking;
- finding convincing arguments to legitimize decisions across a wide variety of (internal) stakeholders, such as arguing that digitization is a way to counter the shortage of skilled workers in social service provision;
- contributing to a modified organizational identity, that is based on the perception of what is emerging and the results of sensemaking-processes.

The aforementioned tasks are characterized by the use of informal structures and a greater focus on subjectivity than on the formal structures of organizations. Consequently, the notion of digital leadership does not signify the conclusion of traditional leadership. Rather, it can be conceptualized as an advanced form of unheroic leadership (Baecker, 2015) in the context of external and internal complexity.

Data availability statement

The datasets presented in this article are not readily available because, they are described in the paper. Requests to access the datasets should be directed to: schroeer@uni-trier.de.

Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent was given by all participants to participate in the study.

Author contributions

TF: Methodology, Writing – review & editing, Formal analysis, Writing – original draft. AS: Software, Methodology, Supervision, Writing – review & editing, Investigation, Writing – original draft, Conceptualization, Validation.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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References

Ahrne, G., and Brunsson, N. (2005). Organizations and meta-organizations. *Scand. J. Manag.* 21, 429–449. doi: 10.1016/j.scaman.2005.09.005

Ahrne, G., and Brunsson, N. (2008). *Meta-organizations*. Cheltenham: Edward Elgar Publishing.

Anderson, P. (1999). Complexity theory and organization science. *Org. Sci.* 10, 216–232. doi: 10.1287/orsc.10.3.216

Ashby, W. R. (1958). Requisite Variety and its implications for the control of complex systems. *Cybernetica* 1, 83–99.

Baecker, D. (2005). Wer rechnet schon mit Führung? *Organisationsentwicklung* 24, 62–69.

Baecker, D. (2015). *Postheroische Führung. Vom Rechnen mit Komplexität.* Wiesbaden: Springer Gabler.

Baecker, D. (2018). Neue Wetten auf Komplexität. *Festival Next Level.* 2018, 1–7.

Bandte, H. (2007). *Komplexität in Organisationen. Organisationstheoretische Betrachtungen und agentbasierte Simulation.* Wiesbaden: Deutscher Universitäts-Verlag.

Berkowitz, H., Brunsson, N., Grothe-Hammer, M., Sundberg, M., and Valiorgue, B. (2022). Meta-organizations: a clarification and a way forward. *Management* 25, 1–9. doi: 10.37725/mgmt.v25.8728

Boeßenecker, K.-H., and Vilain, M. (2013). *Spitzenverbände der Freien Wohlfahrtspflege. 2. Aufl.* Weinheim: Beltz Juventa.

Brown, S. L., and Eisenhardt, K. M. (1997). The art of continuous change: linking complexity theory and time-paced evolution in relentlessly shifting organizations. *Admin. Sci. Quart.* 42, 1–34. doi: 10.2307/2393807

Büchner, S. (2018a). Zum Verhältnis von Digitalisierung und Organisation. *Zeitschrift für Soziologie* 47, 332–348. doi: 10.1515/zfsoz-2018-0121

Büchner, S. (2018b). "Fallsoftware als digitale Dokumentation—Zur Unterscheidung einer Arbeits-und Organisationsperspektive auf digitale Dokumentation," in *Bedingte Professionalität. Professionelles Handeln im Kontext von Institution und Organisation*, eds. L. Neuhaus and O. Käch (Weinheim: Beltz Juventa), 240–269.

Buhse, W. (2012). "Changing the mindset: Die Bedeutung des Digital Leadership für die Enterprise 2.0-Strategieentwicklung," in *Digitale Medien im Unternehmen*, eds. G. Lembke and N. Soyez (Berlin; Heidelberg: Springer), 237–252.

Buhse, W. (2014). *Management by Internet: Neue Führungsmodelle für Unternehmen in Zeiten der digitalen Transformation*. Kulmbach: Passen Verlag.

Coulthard, B., Mallett, J., and Taylor, B. (2020). Better decisions for children with "Big Data": can algorithms promote fairness, transparency and parental engagement? *Societies* 10:97. doi: 10.3390/soc10040097

Dörr, S., Albo, O., and Monastiridis, B. (2018). "Digital leadership—Erfolgreich führen in der digitalen Welt," in *Führungsinstrumente aus dem Silicon Valley*, eds. S. Grote and R. Goyk (Wiesbaden: Springer VS), 37–61.

Drepper, T., and Tacke, V. (2012). "Die Schule als Organisation," in *Handbuch Organisationstypen*, eds. M. Appelt and V. Tacke (Wiesbaden: Springer VS), 205–237.

Eberl, P., Jäckel, A., and Klug, C. (2011). "Sensemaking"-Prozesse von Meta-Organisationen am Beispiel eines diakonischen Landesverbandes," in *Organisation und Umwelt. Managementforschung 21*, eds. P. Conrad and J. Sydow (Wiesbaden: Gabler Verlag), 1–39.

Franco, M. (2020). *Digital Leadership: A New Leadership Style for the 21st Century*. London: BoD-Books on Demand.

Gebhardt, B., Hofmann, J., and Roehl, H. (2015). *Zukunftsfähige Führung. Die Gestaltung von Führungskompetenzen und -systemen*. Gütersloh: Bertelsmann Stiftung.

Geer-Frazier, B. (2014). Complexity Leadership generates innovation, learning, and adaptation of the organization. *Emergence* 16, 105–116.

Gillingham, P. (2016). Predictive risk modelling to prevent child maltreatment and other adverse outcomes for service users: inside the "black box" of machine learning. *Br. J. Soc. Work* 46, 1044–1058. doi: 10.1093/bjsw/bcv031

Helbig, C., Kutscher, N., and Unterkofler, U. (2021). Profession - Organisation - digitale Medien. Methodologische Überlegungen zur praxeologischen Erforschung von Phänomenen der Digitalisierung im Feld Sozialer Arbeit. *Neue Praxis* 5, 432–457.

Hofmann, J. (2013). "Führung in der virtuellen Arbeitswelt," in *Arbeitswelt 3.0*, ed. A. Schack (Wiesbaden: Frankfurter Allgemeine Buch), 216–229.

Hopf, C., and Schmidt, C. (1993). *Zum Verhältnis von innerfamilialen sozialen Erfahrungen, Persönlichkeitsentwicklung und politischen Orientierungen: Dokumentation und Erörterung des methodischen Vorgehens in einer Studie zu diesem Thema*. Hildesheim: GESIS.

Jolles, M. P., McBeath, B., Collins-Camargo, C., and Chuang, E. (2022). Organizational complexity within private child welfare agencies in the United States and impact on agency performance outlook.

Child. Youth Serv. Rev. 143:106670. doi: 10.1016/j.childyouth.2022.106670

Kappelhoff, P. (2000). "Komplexitätstheorie und Steuerung von Netzwerken," in *Steuerung von Netzwerken*, ed. J. Sydow (Wiesbaden: VS), 347–389.

Kappelhoff, P. (2002). Komplexitätstheorie: Neues Paradigma für die Managementforschung. *Managementforschung* 12, 49–101. doi: 10.1007/978-3-322-89486-1_3

Kauffman, S. (1995). *At Home in the Universe: the Search for the Laws of Self-Organization and Complexity*. Oxford: Oxford University Press.

Kirchner, S. (2019). "Digitalisierung: Reorganisieren ohne Organisation?" in *Handbuch Organisationssoziologie*, eds. M. Apelt, I. Bode, V. van Groddeck, R. Hasse, U. Meyer, M. Wilkesmann, et al. (Wiesbaden: Springer VS), 1–16.

Knowles, R. N. (2001). Self-organizing leadership: a way of seeing what is happening in organizations and a pathway to coherence. *Emergence J. Complex. Iss. Org. Manag.* 3, 112–127. doi: 10.1207/S15327000EM0304_8

Kretschmer, T., and Khashabi, P. (2020). Digital transformation and organization design. An integrated approach. *Calif. Manag. Rev.* 62, 86–104. doi: 10.1177/0008125620940296

Krug, P., Weiß, M., and Lang, J. (2018). Führung im Zuge der digitalen Transformation. *Wirtschaftsinformatik und Management* 6, 48–59. doi: 10.1007/s35764-018-0106-x

Kühl, S. (2020). *Organisationen - Eine sehr kurze Einführung*. Wiesbaden: VS.

Kutscher, N., Ley, T., Seelmeyer, U., Siller, F., Tillmann, A., and Zorn, I. (2020). *Handbuch Soziale Arbeit und Digitalisierung*. Weinheim; Basel: Beltz Juventa.

Kutscher, N., and Seelmeyer, U. (2017). "Mediatisierte Praktiken in der Sozialen Arbeit," in *Mediatisierung und Mediensozialisation*, eds. D. Hoffmann, F. Krotz, and W. Reißmann, (Wiesbaden: Springer VS), 229–224.

Lackas, M., and Freis, T. (2023). "Fähig zur Innovation: Über die stetige Erneuerungsfähigkeit deutscher Wohlfahrtsverbände," in *Soziale Innovationen in und von Organisationen*, eds. A. Schröer, B. Blättel-Mink, A. Schröder and K. Späte (Wiesbaden: Springer VS), 165–178.

Levy, D. (1994). Chaos theory and strategy, theory, application and managerial implications. *Strat. Manag. J.* 15, 167–178. doi: 10.1002/smj.4250151011

Lichtenstein, B., Uhl-Bien, M., Marion, R., Seers, A., Orton, D., and Schreiber, C. (2006). Complexity leadership theory: an interactive perspective on leading in complex adaptive systems. *Emergence* 8, 2–12.

Luhmann, N. (1990a). Die Zukunft kann nicht beginnen. Temporalstrukturen der modernen Gesellschaft. *Vor der Jahrtausendwende Berichte zur Lage der Zukunft* 1, 119–150.

Luhmann, N. (1990b). "Haltlose Komplexität," in *Soziologische Aufklärung 5: Konstruktivistische Perspektiven*, ed. N. Luhmann (Opladen: Westdeutscher Verlag), 59–76.

Luhmann, N. (2000). *Organisation und Entscheidung*. Opladen; Wiesbaden: Westdeutscher Verlag.

Luhmann, N. (2016). "Spontane Ordnungsbildungen," in *Niklas Luhmann: Der neue Chef*, ed. J. Kaube (Berlin: Suhrkamp), 43–90.

Manhart, S. (2018). "Complex learning and the significance of measurement," in *Sustainability Science*, ed. A. König (New York, NY: Routledge), 296–317.

Manhart, S. (2019). "Der Rede Wert—in Zahlen. Zur Durchsetzung der informatorischen Sinnform," in *Metapher, Medium, Methode. Theoretische und empirische Zugänge zur Bildung von Erwachsenen*, eds. O. Dörner, D. Klinge, F. Krämer and F. Endreß (Opladen: Budrich), 139–159.

Manhart, S. (2024). "Das Glück der Automatia. Arbeit, Technik und Automatisierung in der sozialen Evolution," in *Individuen in digitalen Arbeitswelten: Interdisziplinäre Perspektiven auf Individuum und Organisation*, ed. D. Busch (Wiesbaden: Springer Fachmedien), 37–67.

Manhart, S., and Wendt, T. (2022). Soziale systeme? Systemtheorie digitaler Organisation. *Soziale Systeme* 26, 21–53. doi: 10.1515/sosys-2021-0002

Maturana, H., and Varela, F. (2015). *Der Baum der Erkenntnis. Die biologischen Wurzeln menschlichen Erkennens*. Frankfurt am Main: Fischer Taschenbuch Verlag.

Mayring, P. (2020). "Qualitative Forschungsdesigns," in *Handbuch Qualitative Forschung in der Psychologie. Band 2: Designs und Verfahren*, eds. G. Mey and K. Mruck (Wiesbaden: Springer Fachmedien), 3–17.

Mayring, P. (2022). *Qualitative Inhaltsanalyse. Grundlagen und Techniken*. Weinheim; Basel: Beltz.

McLuhan, M. (1953). "Culture without literacy," in *Essential McLuhan*, eds. E. McLuhan and F. Zingrone (London: Routledge), 302–313.

McLuhan, M. (1994). *The Medium Is the Message. Understanding Media: The Extensions of Man* (Cambridge, MA: MIT Press), 7–22.

Mitleton-Kelly, E. (2003). "Introduction," in *Complex Systems and Evolutionary Perspectives on Organisations. The Application of Complexity Theory to Organisations*, ed. E. Mitleton-Kelly (Oxford: Elsevier Science), 3–20.

Morel, B., and Ramanujam, R. (1999). Through the looking glass of complexity: the dynamics of organizations as adaptive and evolving systems. *Org. Sci.* 10, 278–293. doi: 10.1287/orsc.10.3.278

Muster, J., and Büchner, S. (2018). "Datafizierung und Organisation," in *Datengesellschaft—Einsichten in die Datafizierung des Sozialen*, eds. D. Houben and B. Prietl (Bielefeld: Transcript), 253–277.

Nachreiner, F., and Strasmann, J. (1990). "Macht intelligente Technik Führung überflüssig?" in *Führung im Wandel. Neue Perspektiven für Führungsforschung und Führungspraxis*, eds. G. Wiedieck and G. Wiswide (Stuttgart: Ferdinand Enke), 257–270.

Northouse, P. (2013). *Leadership. Theory and Practice. 6th Edn*. London: SAGE.

Pascale, R. (1999). *Surfing the Edge of Chaos. Sloan Management Review, Spring 8394*. Available at: https://sloanreview.mit.edu/article/surfing-the-edge-of-chaos/

Preusser, Y., and Bruch, H. (2014). "Leadership 2.0—Führung in digitalen Zeiten: Leadership—Chancen und Herausforderungen der Digitalisierung," in *Praxis der Wirtschaftspsychologie. Themen und Fallbeispiele für Studium und Anwendung*, eds. P. Mehlich, T. Brandenburg and M. Thielsch (Münster: MV-Wissenschaft), 25–50.

Reeves, M., and Whitaker, K. (2021). *Winning the'20s: A Leadership Agenda for the Next Decade*. Berlin: de Gruyter.

Rustemeyer, D. (2020). "Leonardos Spiegel. Der sich abhanden kommende Mensch," in *Das Ende der politischen Ordnungsvorstellungen des 20. Jahrhunderts. Erziehungswissenschaftliche Beobachtungen*, eds. U. Binder and J. Oelkers (Wiesbaden: Springer Fachmedien), 283–299.

Schneider, M., and Somers, M. (2006). Organizations as complex adaptive systems: implications of complexity theory for leadership research. *Leaders. Quart.* 17, 351–365. doi: 10.1016/j.leaqua.2006.04.006

Schröer, A. (2009). "Professionalisierung und nonprofit leadership," in *Leadership in sozialen Organisationen*, eds. J. Eurich and A. Brink (Wiesbaden: VS), 141–158.

Schröer, A. (2011). "Leadership in nonprofit organisationen. Programmatische Überlegungen zur organisationspädagogischen Leadership-Forschung," in *Organisation und Führung: Beiträge der Kommission Organisationspädagogik*, eds. M. Göhlich, S. M. Weber, C. Schiersmann and A. Schröer (Wiesbaden: VS), 99–111.

Schröer, A. (2014). "Führung als organisationspädagogischer Begriff," in *Organisation. Ein pädagogischer Grundbegriff*, eds. N. Engel and I. Sausele-Bayer (Münster; New York, NY: Waxmann), 123–138.

Schröer, A. (2016). "Führung als organisationspädagogische Kategorie: Eine praxistheoretische Rekonstruktion von Führung in organisationalen Lernprozessen," in *Organisation und Theorie: Beiträge der Kommission Organisationspädagogik*, eds. A. Schröer, M. Göhlich, S. M. Weber and H. Pätzold (Wiesbaden: Springer VS), 221–234.

Schröer, A. (2018). "Führung als Gegenstand der Organisationspädagogik," in *Handbuch Organisationspädagogik*, eds. M. Göhlich, A. Schröer and S. M. Weber (Wiesbaden: Springer VS), 479–490.

Schröer, A. (2019). "Social innovation and social intrapreneurship in German welfare organizations," in *Organization and Newness*, eds. M. A. Peters and S. M. Weber (Paderbor: Brill Sense), 177–189.

Schröer, A. (2023). Digitalisierung und Organisation. Konturen einer organisationsbezogenen Digitalisierungsforschung. *Sozialmagazin* 2023, 16–23. doi: 10.3262/SM2312016

Schumacher, T. (2013). "Vorausschauende Selbsterneuerung und Führung," in *Professionalisierung als Passion. Aktualität und Zukunftsperspektiven der systemischen Organisationsberatung*, ed. T. Schumacher (Heidelberg: Carl Auer Systeme), 166–179.

Schütz, M., and Bull, F. R. (2017). *Unverstandene Union: eine organisationswissenschaftliche Analyse der EU*. Berlin: Springer-Verlag.

Schwarzmüller, T., Brosi, P., Duman, D., and Welpe, I. M. (2018). How does the digital transformation affect organizations? Key themes of change in work design and leadership. *Manag. Revue*. 29, 114–138. doi: 10.5771/0935-9915-2018-2-114

Seelmeyer, U., and Ley, T. (2018). "Informationstechnologien in der Sozialen Arbeit," in *Handbuch Soziale Arbeit*, eds. H. U. Otto, H. Thiersch and H. Ziegler (München: Ernst Reinhardt), 655–664.

Seelmeyer, U., Rink, K., Breder, H., Feldmann, E.-M., Egelhaaf, B., and Waag, P. (2022). *Abschlussbericht der wissenschaftlichen Begleitung des Bundesförderprogramms "Zukunftssicherung der freien Wohlfahrtspflege durch Digitalisierung."* Available at: https://www.hsbi.de/publikationsserver/download/4689/4690/Seelmeyer%2C%20Rink%20et%20al%202022%20-%20Abschlussbericht%20der%20wissenschaftlichen%20Begleitung.pdf (accessed July 15, 2024).

Spillman, L. (2018). Meta-organization matters. *J. Manag. Inq.* 27, 16–20. doi: 10.1177/1056492616688856

Stacey, R. (1995). The science of complexity: an alternative perspective for strategic change processes. *Strat. Manag. J.* 16, 477–495. doi: 10.1002/smj.4250160606

Stacey, R. (1997). *Unternehmen am Rande des Chaos. Komplexität und Kreativität in Organisation*. Stuttgart: Schäffer-Poeschel Verlag.

Stalder, F. (2016). *Kultur der Digitalität*. Berlin: Suhrkamp.

Süssenguth, F. (2015). "In Gesellschaft der Daten. Ein kurzer Problemaufriss," in *Die Gesellschaft der Daten. Über die digitale Transformation der sozialen Ordnung*, ed. F. Süssenguth (Bielefeld: Transcript), 7–16.

Tigre, F. B., Curado, C., and Henriques, P. L. (2023). Digital leadership: a bibliometric analysis. *J. Leadersh. Org. Stud*. 30, 40–70. doi: 10.1177/15480518221123132

Uhl-Bien, M., Marion, R., and McKelvey, B. (2007). Complexity leadership theory: shifting leadership from the industrial age to the knowledge era. *Leadersh. Quart*. 18, 298–318. doi: 10.1016/j.leaqua.2007.04.002

von Foerster, H. (1993). "Prinzipien der Selbstorganisation im sozialen und betriebswirtschaftlichen Bereich," in *Heinz von Foerster. Wissen und Gewissen—Versuch einer Brücke*, ed. S. J. Schmidt (Frankfurt am Main: Suhrkamp), 233–269.

Waldrop, M. (1992). *Complexity*. New York, NY: Simon and Schuster.

Walgenbach, P. (2014). "Neoinstitutionalistische Ansätze in der Organisationstheorie," in *Organisationstheorien*, eds. A. Kieser and M. Ebers (Stuttgart: Kohlhammer), 295–354.

Weber, M. (1964). *Wirtschaft und Gesellschaft. Grundriss der verstehenden Soziologie*. Köln; Berlin: West.

Weber, S. M., Göhlich, M., Schiersmann, C., and Schröer, A. (2011). "Organisation und Führung—organisationspädagogische Verhältnisbestimmungen," in *Organisation und Führung. Beiträge der Kommission Organisationspädagogik*, eds. S. M. Weber, M. Göhlich, C. Schiersmann and A. Schröer (Wiesbaden: Springer VS), 9–26.

Weibler, J., and Keller, T. (2015). "Führungsverhalten im Kontext von Ambidextrie," in *Trends der psychologischen Führungsforschung*, ed. J. Felfe (Göttingen: Hogrefe), 289–302.

Weick, K. E. (1988). Enacted sensemaking in crisis situations. *J. Manag. Stud*. 25, 305–317. doi: 10.1111/j.1467-6486.1988.tb00039.x

Weick, K. E. (1995). *Sensemaking in Organizations*. Thousand Oaks, CA: Sage Publications.

Weick, K. E. (2001). "Leadership as the legitimation of doubt," in *The Future of Leadership: Today's Top Leadership Thinkers Speak to Tomorrow's Leaders*, eds. T. G. Cummings, W. Bennis and G. M. Spreitzer (Weinheim: Wiley-VCH), 91–102.

Wendt, T. (2020). *Die nächste Organisation: Management auf dem Weg in die digitale Moderne, Vol. 3*. Bielefeld: transcript Verlag.

Wendt, T. (2021a). "Die Kultivierung des Zufalls. Zum Verhältnis von organisationaler Strukturautomation und Unberechenbarkeit in der digitalen Moderne," in *Organisation über Grenzen: Jahrbuch der Sektion Organisationspädagogik*, eds. A. Schröer, S. Köngeter, S. Manhart, C. Schröder and T. Wendt (Wiesbaden: Springer Fachmedien), 295–308.

Wendt, T. (2021b): "Paradoxe Möglichkeiten. Management, Führung und die Pädagogik der Organisation," in *Paradoxien (in) der Pädagogik*, eds. U. Binder and F. K. Krönig (Weinheim: Beltz Juventa), 300–312.

Wendt, T. (2023). "Außergewöhnlich normal. Heroismen der Organisation und ihre historische Transformation," in *Wem folgen? Über Sinn, Wandel und Aktualität von Vorbildern*, eds. A. Schütte and J. Nielsen-Sikora (Berlin; Heidelberg: Springer), 185–196.

Wendt, T., and Manhart, S. (2020). Digital Decision Making als Entscheidung, nicht zu entscheiden: Zur Zukunft des Entscheidens in der Digitalisierung. *Arbeit* 29, 143–160. doi: 10.1515/arbeit-2020-0011

Wittke, H. A. (2023). "Der Einsatz digitaler Plattformen und Künstlicher Intelligenz im Gesundheitswesen—eine analytische Annäherung," in *Plattformökonomie im Gesundheitswesen*, eds. C. Stummeyer, A. Raab and M. E. Behm (Wiesbaden: Springer Gabler), 285–313.

Zippel, K. (2005). *Komplexität und die Evolution von Organisationen. Eine grundlagentheoretische Erkundung*. Herrsching: Verlag Barbara Kirsch.