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## Effects of Technology-Enabled Flexible Work Arrangements on Employee Voice: Toward a Nuanced Understanding\*\*

### Abstract

Flexible work arrangements that are enabled by digital technologies, such as telecommuting and virtual teams, are proposed to increase employees', teams', and organisations' ability to accomplish their aims in dynamic and ambiguous environments. Effective communication is essential in such work arrangements. Distribution of work across time and space and reliance on technology-mediation may interfere with employees' willingness and ability to address critical issues (i.e., employee voice), such as providing ideas for improvement, raising inefficacy and safety concerns, and reporting errors and unethical practices. Addressing this concern, we first elaborate on potential models of the relationship between technology-enabled flexible work arrangements and voice. Specifically, we describe an evolution from overly social or technical deterministic approaches that propose direct effects of digital technologies or flexible work arrangements on voice to a socio-material approach. The latter allows considering how affordances and constraints of digital technologies and user goals and capabilities form flexible work arrangements, which, in turn, relate to motivators and inhibitors of employee voice. While evolving toward a nuanced understanding, we draw from a process model of voice and develop exemplary propositions for how technologically-enabled work arrangements relate to voice success factors when employees pass through the stages of this process.

**Keywords:** Digitalization, Voice, Flexible Work Arrangements, Virtual teams, Information and communication technology  
(JEL: D23, D83, D91, M54, O3)

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Michael Knoll's time working on this article was supported by the German Federal Ministry of Labour and Social Affairs, the European Social Fund, and the Federal State of Saxony within the project Zukunftscentren ("Transformation hubs").

\*\* Date submitted: October 31, 2020.

Date accepted after double-blind review: January 4, 2022.

## Introduction

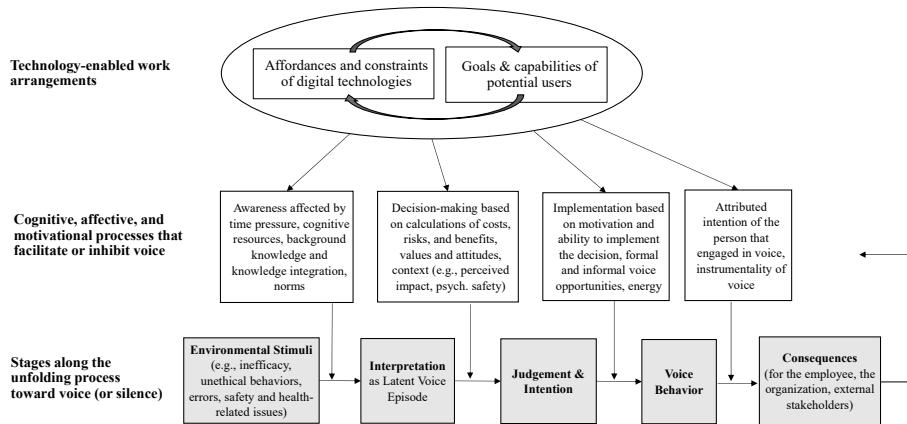
Digitalisation entails the transformation of societies based on the use of data and the application of information and communication technology. It entwines the physical and the virtual space, thereby increasing the flexibility, density, and velocity of the way people work and live (Cascio & Montealegre, 2016; Castells, 1996). In the digital era, communication has become essential to complete increasingly inter-dependent work tasks and is a central precondition to improving and identifying shortcomings under conditions of an ever-accelerating speed and information load (Griffin et al., 2007). With respect to communication, two aspects of digitalisation seem particularly important (Raghuram et al., 2019). First, communication is increasingly mediated through computer and network technology (e.g., via e-mail, video conferences, chat). Second, digitalisation allows for (and increasingly requires) greater flexibility in work arrangements (Spreitzer et al., 2017). Employees work from places other than the traditional office (e.g., telecommuting/telework at home, client office, shared office space) and teams comprised of members who are distributed geographically and work asynchronous (e.g., in virtual teams). These changes give organisations access to a broader range of resources because organisations can leverage knowledge and ideas irrespective of employees' location and allow for greater flexibility of individual and collective work.

The potential advantages of using digital information and communication technologies and subsequently emerging flexible work arrangements will only manifest if the employees who apply them are able and willing to contribute their knowledge, particularly their ideas, questions and concerns that potentially challenge and thus further develop the status quo (i.e., employee voice; Hirschman, 1970; van Dyne et al., 1995). While technology mediation and flexible work arrangements are likely to affect team processes and communication patterns, estimating whether they facilitate or inhibit voice is difficult. Empirical findings are inconsistent, and explanations differ according to the theories that researchers and interpreters rely upon. For example, some research traditions suggest that technology-mediated communication and local dispersion of employees interfere with voice antecedents, such as trust, identification, psychological safety, problem awareness and integration, and support (Daft & Lengel, 1984; Rosen et al., 2007; Short et al., 1976; Valkenburg et al., 2016). Others suggest that technology-enabled flexible work arrangements overcome traditional barriers to voice, such as centralised decision-making and rigid responsibilities, which, in turn, encourage employees to develop a more proactive and confident approach and leaders to provide employees with more discretion and build trusting relationships (Schwarzmueller et al., 2018; Spreitzer et al., 2017).

The goal of this article, therefore, is to develop a conceptual framework that helps to understand how technology-enabled flexible work arrangements (i.e., work arrangements in which employees are flexible in terms of where and when they work;

Cascio & Montealegre, 2016; Spreitzer et al., 2017) affect employees' tendency to engage in voice. We set out from the idea that inconsistent findings and assumptions regarding the effects of digitalisation stem from narrow and deterministic views of technology, flexible work arrangements, and voice. Proceeding stepwise, we then introduce a more nuanced understanding of (a) voice as a process and (b) elaborate on how work arrangements emerge from the affordances and constraints (Leonardi & Vaast, 2017) of digital devices such as e-mail, videoconferencing, or social media, and (c) develop propositions regarding how technology-enabled work arrangements affect voice success factors (e.g., attention, psychological safety, identification) which eventually facilitate or inhibit voice. Figure 1 shows our process view of voice and illustrates how technological, social, organisational, and psychological factors entangle into specific practices that affect voice success factors (i.e., motivators and inhibitors of voice) along the stages of this process.

**Figure 1. A sociomaterial approach to how technology-enabled flexible work arrangements affect the process leading to voice or silence as mediated through their influence on cognitive, affective, and motivational processes that inhibit or facilitate voice. Feedback loops between technology-enabled work arrangements and voice are omitted for reasons of clarity. Details on the voice success factors are presented in Table 1.**



This article contributes to theory development in the field of management in at least two ways. First, we apply current theories regarding the entanglement of technology and social work arrangements (Landers & Marin, 2021; Leonardi, 2012; Orlikowski & Scott, 2008) to advance theorising on the effects of digitalisation at work. Previous theory and research on the effects of digitalisation at work have focused on valuable outcomes such as job satisfaction, well-being, and task performance but neglected other outcomes, including proactive voice behaviour (Parker, 2014; Parker & Grote, 2020). We develop theory on the mechanisms and boundary conditions that transmit the effects of information and communication technologies and flexible work arrangements on voice. Second, we extend theoris-

ing on voice, which has hitherto focused on social and psychological antecedents but dedicated less attention to material and technological characteristics of the workplace (Chamberlin et al., 2017; Morrison, 2014). As digital technologies have become integral features of workplaces, it is crucial for theorising, empirical research, and managerial practice dedicated to voice to consider how technology and voice relate. Moreover, it is necessary to understand the intertwined relationships of technology with motivators and inhibitors of voice, including individual differences, management, team and organisational climate, and work design. We present a number of propositions in the hope of inspiring future research on these intertwined relationships and summarise our reasoning in a synoptic table.

## **Toward a Nuanced Understanding of Digitalization, Flexible Work Arrangements, and Employee Voice**

The diffusion of digital technologies into today's workplaces raises questions regarding the benefits and threats that digital technologies and the work arrangements that they enable and facilitate may cause for the productivity and well-being of organisations, teams, and employees (Cascio & Montealegre, 2016; Parker & Grote, 2020). Relatively less research attention has been paid to questions concerning how the use of digital technologies and the application of flexible work arrangements affect employees' tendency to express ideas, questions, and concerns that potentially challenge the status quo (i.e., employee voice; Hirschman, 1970; van Dyne et al., 1995). This gap in research attention is notable for at least two reasons.

The first reason is that voice is a central precondition for (flexible) work arrangements to function and develop. By addressing issues (e.g., inefficacy, ethical and safety concerns) and providing ideas for change, employees can initiate re-adjustment of their working conditions, making the latter more efficient and less demanding (Knoll et al., 2016; Morrison, 2014). These potential advantages of voice, however, do not come easily. Voice challenges the authority and judgment of others (e.g., supervisors, colleagues), disrupts routines and the smooth operation of teams and potentially threatens relationships and group harmony (Perlow & Repenning, 2009; van Dyne et al., 1995). Due to these potential costs and the uncertain outcomes of voice, employees often choose to remain silent (Morrison & Milliken, 2000). We thus need to understand how current developments in the design and organisation of work affect this important behaviour. Second, the lack of systematic research on the links between technology, flexible work arrangements, and silence is also notable as it seems very likely that technology-mediated communication and greater flexibility and distribution of work across time and space may affect employees' willingness and ability to engage in voice (Holland et al., 2016; Wilkinson et al., 2021).

## A Reductionistic and Deterministic View

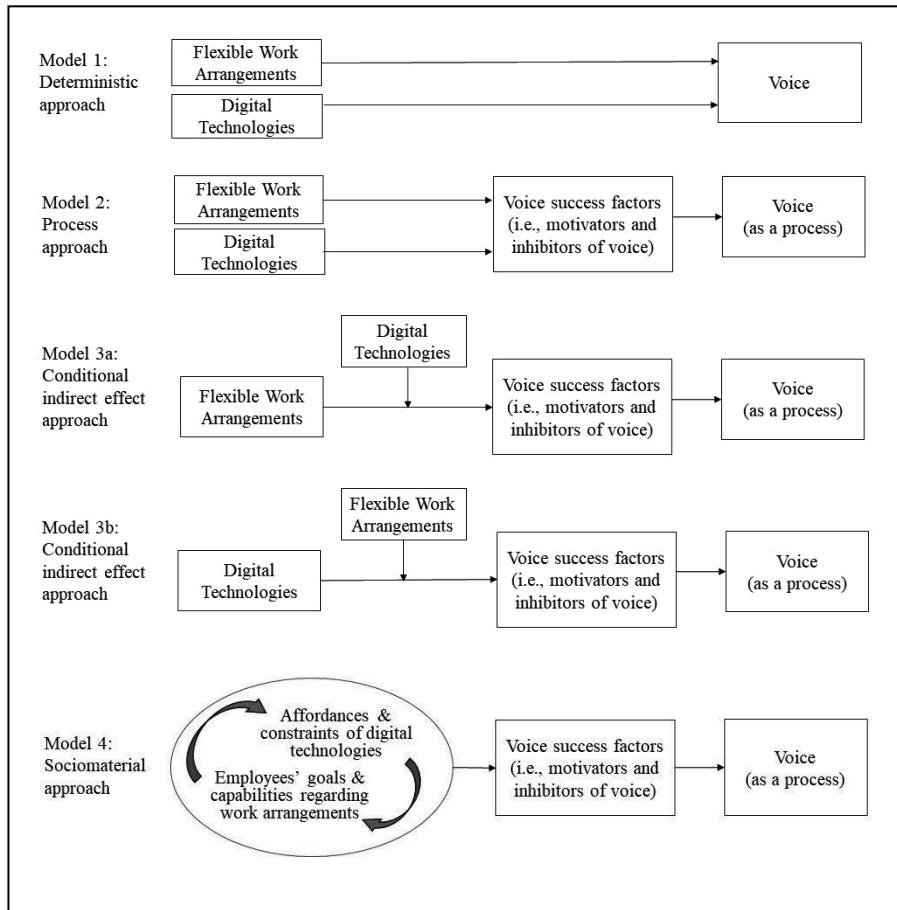
Attempts to understand the relationships between flexible work arrangements and digital technologies with voice may fall prey to overly deterministic and narrow approaches that dominated the early discussion on the understanding of technology and work arrangements on work outcomes (see Boell et al., 2016; Landers & Marin, 2021). One such approach, called technical determinism (Orlikowski, 1992), suggests that technological innovation forces organisations and particularly management, to apply technologies to increase efficacy and cut costs. Human labour is, according to this perspective, forced to fit into technical requirements and is often problematised because it limits the opportunities that technology offers. Examples of technical determinism span from organising human labour along assembly lines to requesting employees to share their knowledge on platforms so that everyone has access. Another deterministic approach, called social constructivism (Orlikowski & Scott, 2008), conceptualises technology as a pre-given instrument or tool that organisations introduce and individuals use according to their social and task requirements. This approach is deterministic to the extent that it suggests that individuals' and teams' requirements are pre-given (e.g., specific work arrangements such as telecommuting) and that technology (e.g., videoconferencing software) is a mere tool to fulfil these requirements.

Model 1 in Figure 2 applies these deterministic and reductionistic views to our research question. As visible in simplistic questions that are discussed in the media – like "Does telecommuting reduce stress?" or "Are meetings that are held via video-conferencing technologies less productive than meetings that are held face-to-face?" – observers and interpreters seem tempted to expect direct effects of the use of digital technologies such as e-mail and video-technologies and/or flexible work-arrangements on voice. Drawing upon more recent approaches to the relationship of technology with organisational behaviour, in the following, we move from such deterministic views towards a more nuanced understanding of these relationships. Figure 2 illustrates our evolution from the deterministic and reductionistic Model 1 toward more nuanced approaches (Models 2-4).

## A Process View on Voice and Voice Success Factors

As shown in Figure 2, Model 2 advances the deterministic Model 1 by introducing a process approach to understanding voice and the factors that might be responsible for the relationship between digital technologies and flexible work arrangements on the one hand and voice on the other. Integrating process models that were introduced to explain voice (Morrison, 2011) and ethical behaviour (Moore & Gino, 2015; Rest, 1986; Trevino, 1986), we suggest that voice results from an unfolding process that an employee passes through after noticing that change is indicated (for a detailed illustration of the stages of this process, see Figure 1, for a detailed description, see Knoll, 2021). Knowledge of the nature of this process and its stages makes it easier to

**Figure 2. Evolution of approaches linking technology-enabled flexible work arrangements with employee voice**



identify and examine factors that motivate or inhibit voice (i.e. voice success factors). Based on such a nuanced understanding, we can then examine the extent to which technology and flexible work arrangements affect voice success factors.

As shown in Figure 1, the process starts when an environmental stimulus is interpreted in a way that change is induced and voice is an option (i.e., a latent voice episode; Detert & Edmondson, 2011). This stimulus may be an extraordinary event, such as experiencing or observing unethical behaviour, or it may be a rather ordinary event, such as perceiving a work process as inefficient or disagreeing with proposals made by colleagues or one's manager. Perceiving the stimulus as a latent voice episode requires that employees are aware and able to notice that something is wrong or could be improved. Critical factors (i.e., voice success factors) in this stage

are situational (e.g., exposure time and information load), personal (e.g., having the cognitive resources available and the knowledge and skills to recognise an issue), social (e.g., knowledge integration and sharing), and organisational (e.g., norms).

If employees interpret the situation as a latent voice episode, they elaborate on potential response options and form the intention to engage in voice or remain silent. At this stage, employees calculate potential costs, risks, and benefits of voice and silence (e.g., additional workload, disturbing relationships, career advancement, status gain or loss). They also consider their values and attitudes (e.g., identification with the organisation and team, job satisfaction, felt responsibility) and the characteristics of their environment (e.g., managerial responsiveness, team psychological safety).

Even if employees decide that voice is the appropriate response in a particular situation, this does not mean that their intention manifests in voice behaviour. Implementation depends on the opportunities employees have to show voice, the barriers they face, and their energy and motivation to overcome barriers and search for opportunities. At this stage, critical factors are frequency of contacts, the existence of and access to formal and informal voice mechanisms, situational cues such as time pressure, competing aims and threats, engagement vs exhaustion, and quality of relationships, particularly with superiors.

If voice is shown, consequences for employees and their context will follow. The kind of consequences that follow depend in part on the intentions that are attributed to voice (e.g., an employee's intention to benefit the organisation or to avoid workload) and on the outcome (e.g., did voice trigger change, were relationships harmed or strengthened). The social consequences and instrumentality, in turn, will affect how future voice processes will unfold (Bashshur, & Oc, 2015; Brykman & Raver, 2021; Burris, 2012).

### Indirect Effects of Flexible Work Arrangements and Digital Technologies on Voice via Voice Success Factors

Based on this process view, we now specify which of the motivators and inhibitors of voice that influence how employees advance through the four stages of the process are likely to be affected by flexible work arrangements and the use of digital technologies. Tables A1 and A2 in the Appendix show the reviews and meta-analyses on voice success factors and the intersection of technology, flexible work arrangements, and organisational behaviour that we drew upon to illustrate our approach. A systematic review of the research in this domain is beyond the scope of this article, but the framework that we present may be useful to structure such an endeavour. To show how our reasoning might manifest into research, we develop exemplary propositions for each stage of the process. Following current approaches in management and organisational behaviour research, we conceptualise the propositions as indirect effects (Model 2 in Figure 2). Table 1 summarises our key findings and propositions.

**Table 1. Affordances and constraints of technologically-enable work arrangements as facilitating and inhibiting effects of on voice success factors**

Voice success factor	Affordances (Potential facilitating effects on voice)	Constraints (Potential inhibiting effects on voice)	Exemplary Proposition
Awareness	Knowledge sharing and integration	Limited shared awareness and knowledge integration when team members work dispersed	Proposition 1:1a: Flexible work arrangements reduce knowledge sharing which makes it less likely that employees become aware of latent voice episodes.
		Limited shared awareness and knowledge integration when communication relies on digital technologies	Proposition 1:1b: Communicating via digital technologies reduces knowledge sharing which makes it less likely that employees become aware of latent voice episodes.
	Dispersion of employees can increase heterogeneity of potential input	Online communities may develop into echo chambers where people with similar backgrounds exchange similar information	Proposition 1:2a: Flexible work arrangements increase diversity in available knowledge which makes it more likely that employees become aware of latent voice episodes.
Decision-making	Availables of digital technologies (e.g., platform technologies) can increase heterogeneity of potential input		Proposition 1:2b: Using platform technologies increases diversity in available knowledge which makes it more likely that employees become aware of latent voice episodes.
	Perceived impact	Spatial distance makes it more difficult for managers to establish perceptions of responsiveness in their subordinates	Proposition 2:1: Flexible work arrangements reduce perceived managerial responsiveness and thus perceived impact which, in turn, makes a decision for voice less likely.
Image concerns	Image concerns and career opportunities and risks	Virtual workers perceive inferior career opportunities, but enterprise social network activities (e.g., contributions in online discussions) provide opportunities to build reputation and engaging in voice behavior that is appreciated by superiors (e.g., promotive voice) is an opportunity to increase visibility and thus gain status	Proposition 2:2a: Flexible work arrangements relate to feelings of reduced career opportunities and image concerns which, in turn, makes it more likely that employees decide to engage in promotive voice.

Voice success factor	Affordances (Potential facilitating effects on voice)	Constraints (Potential inhibiting effects on voice)	Exemplary Proposition
Psychological safety		<p>Virtual worker's perceived feelings of inferior career opportunities and lacking opportunities to explain voice intentions increase perceived risks of forms of voice that are less appreciated by superiors (e.g., voice that is particularly challenging)</p> <p>Lack of social cues and physical presence makes it harder to establish psychological safety (e.g., less prior exchange of personal information, less trust building opportunities)</p>	<p>Proposition 2.2b: Flexible work arrangements that disperse employees lead to feelings of reduced career opportunities and image concerns which, in turn, makes it less likely that employees decide to engage in prohibitive voice.</p> <p>Proposition 2.3a: Flexible work arrangements relate to lower relationship quality and experiences of psychological safety which, in turn, makes decisions for voice less likely.</p> <p>Proposition 2.3b: Reliance on technology-mediated communication (vs. face-to-face interaction) relates to lower relationship quality and experiences of psychological safety which, in turn, makes decisions for voice less likely.</p>
Implementation			
Shared purpose		<p>Lack of closeness and informal contacts and increased ingroup/outgroup thinking reduces trust and mutual understanding which reduces prosocial motivation necessary for knowledge</p>	<p>Proposition 3.1: Flexible work arrangements relate to lower levels of cohesion, shared purpose, identification, and prosocial motivation which makes voice implementation less likely</p>
Relationship quality with managers		<p>Lack of closeness and informal contacts and managers' experiences of lacking control in flexible work arrangements hamper building high-quality leader-member relationships</p>	<p>Proposition 3.2: Flexible work arrangements relate to lower relationship quality between managers and subordinates which makes the implementation of voice less likely</p>
Felt responsibility		<p>Distance due to remote work and deindividuation due to computer-mediated lead to diffusion of responsibility and moral disengagement</p>	<p>Proposition 3.3a: Flexible work arrangements reduce felt responsibility which, in turn, makes the implementation of voice less likely</p> <p>Proposition 3.3b: Reliance on technology-mediated communication reduces felt responsibility which, in turn, makes the implementation of voice less likely</p>

Voice success factor	Affordances (Potential facilitating effects on voice)	Constraints (Potential inhibiting effects on voice)	Exemplary Proposition
Situational cues	Lack of physical proximity and increased feelings of anonymity reduce automated processes related to fear	Lack of social cues and contextual knowledge reduce automated processes that could encourage voice	Proposition 3.4a: Flexible work arrangements reduce automatic silencing effects which, in turn, increases voice implementation. Proposition 3.4b: Technology-mediated communication reduces automatic silencing effects which, in turn, increases voice implementation.
Opportunities		Reduced opportunities to speak up for dispersed workers (e.g., lack of informal meetings)	Proposition 3.5a: Flexible work arrangements reduce opportunities to address critical issues and thus make voice implementation less likely
	Enterprise social media may provide access to people who could effect change which are not accessible in person, and provide forums to align problem-provider with experts		Proposition 3.5b: Digital technologies such as organizational social networks increase opportunities to address critical issues and thus make voice implementation more likely
Intention perceived by the target			
Reputation		Reduced social presence of remote workers makes them appear less identified and respected members	Proposition 4.1a: Flexible work arrangements relate to subordinates being rated less loyal and prosocially motivated than employees working in traditional settings which, in turn, leads to more negative attributions of their voice behavior.
	Social media activities provide opportunities to build reputation as constructive and prosocial contributor		Proposition 4.2: Digital technologies such as social networks provide opportunities to gain status and build a reputation as prosocial which, in turn, increases positive attributions of superiors.

### Stage Transition 1: *Interpreting an Environmental Stimulus as a Latent Voice Episode*

*Knowledge sharing and integration* are essential for becoming aware that a situation would require voice. Experimental research on the hidden profile paradigm, posthoc analyses of misdetection of errors, and review articles on knowledge sharing in organisations have shown that if only a few members of a group or organisation have access to or awareness of critical knowledge, it is less likely that this knowledge is spread and acted upon (Argote & Fahrenkopf, 2016; Lu et al., 2012). Working remotely or in virtual teams can impair processes that are important for knowledge sharing and integration (Allen et al., 2015). For example, employees tend to exchange information less frequently when they do not work office-based (Fonner & Roloff, 2010), which results in fewer opportunities for knowledge sharing. Specifically, in their review of research on teleconferencing, Cascio and Montealegre (2016, p. 360; see also Driskell et al., 2003) summarised five communication problems of virtual teams: "team members tend not to communicate local context to others, fail to distribute the same information to all team members, have difficulty understanding and communicating the relative importance of information, access information at different speeds, and have difficulty interpreting the meaning of silence." Further, knowledge transfer is dependent on trust (Alexopoulos & Buckley, 2013), which is more likely to arise via face-to-face communication than when relying on e-mail, chat, and teleconferencing (Rocco, 1998). Based on this reasoning and following Model 2, we propose:

*Proposition 1.1a: Flexible work arrangements reduce knowledge sharing, which makes it less likely for employees to become aware of latent voice episodes.*

*Proposition 1.1b: Communicating via digital technologies reduces knowledge sharing, which makes it less likely for employees to become aware of latent voice episodes.*

*Access to heterogeneous knowledge.* Other facets of dispersed work and technology-mediated communication, specifically access to heterogeneous information and to meta-knowledge, could increase problem awareness. Research showed that geographically dispersed employees are exposed to various knowledge sources, which potentially aid team creativity and innovation (Tzabbar & Vestal, 2015). Access to diverse knowledge may break up groupthink (Janis, 1972) which shields groups from acknowledging diverging views and thus constitutes an early barrier for voice. However, the mere existence of opportunities to communicate with diverse knowledge sources is not sufficient as social media networks can develop into echo chambers "where individuals seek out and talk with people who share their same backgrounds and opinions" (Leonardi & Vaast, 2017, p. 166). To overcome such fragmentation of discourse, efforts are needed to increase employees' meta-knowledge (e.g., knowledge of "who knows what") and the formation of network ties across dispersed communities (Leonardi, 2015). Digital technologies such as shared

platforms can give dispersed team members access to diverse information and make the information available when needed (McKee et al., 2019). We expect:

*Proposition 1.2a: Flexible work arrangements increase diversity in available knowledge, which makes it more likely that employees become aware of latent voice episodes.*

*Proposition 1.2b: Using platform technologies increases diversity in available knowledge, which makes it more likely that employees become aware of latent voice episodes.*

### *Stage Transition 2: Deciding to Engage in Voice Behaviour*

As visible in Figure 1, once employees become aware that voice might be needed in a particular situation, their judgement regarding whether to engage in voice or remain silent is influenced by calculations regarding costs, risks and benefits of either option, by their values and attitudes toward their jobs, organisation and team, and by their perceived impact.

*Perceived impact* (i.e., perceiving that voice will make a difference) is one of the central determinants of voice intention (Sherf et al., 2021). Managers can increase perceived impact if they appear open and responsive to voice (Detert & Burris, 2007). Flexible work arrangements may interfere with managerial attempts to appear open and responsive. In cases of distant leadership, much less information is available about the manager (e.g., their responsiveness to voice), and members of dispersed teams have fewer opportunities to evaluate their manager's openness and responsiveness to voice. According to Napier and Ferris' (1993) conceptual model, structural distance (which includes physical distance but also control span) and psychological distance (determined by perceived similarity) affect functional distance (determined by trust, liking, and relationship satisfaction) which, in turn, results in subordinate withdrawal. According to this reasoning, we expect :

*Proposition 2.1: Flexible work arrangements reduce perceived managerial responsiveness and thus perceived impact, which, in turn, makes a decision for voice less likely.*

*Image concerns and career opportunities and risks.* Flexible work arrangements, such as telework or virtual teamwork, tend to impede employees' visibility, for instance, by reducing face-to-face interactions (Richardson & Kelliher, 2017). Therefore, remote workers often fear that their achievements and efforts may remain unseen by coworkers and supervisors, leading to fear of inferior career opportunities (Allen, 2001; Charalampous et al., 2018; McCloskey & Igbaria, 2003). Promotive and supportive voice, that is, providing suggestions which aim at improving conditions and increasing efficacy (Liang et al., 2012), can lead to status gains (Weiss & Morrison, 2019) and positive performance ratings (Burris, 2012). Remote workers

may tend to use this opportunity to become visible and thus increase their career opportunities. Regarding promotive voice, we expect:

*Proposition 2.2a: Flexible work arrangements relate to feelings of reduced career opportunities and image concerns which, in turn, makes it more likely that employees decide to engage in promotive voice.*

More challenging forms of voice, such as prohibitive voice, in contrast, denote behaviours that aim at preventing negative developments within groups and organisations (Liang et al., 2012). Raising concerns and pointing at misconduct is not associated with proactivity and loyalty in the same way promotive voice is and thus bears greater risks (Burris, 2012). Even though a meta-analysis did not find that teleworkers have detrimental career prospects in comparison to their colleagues (Gajendran & Harrison, 2007), dispersed workers often see their career development at risk and may therefore be more motivated to protect their reputation. As employees in flexible work arrangements have little face-to-face contact with their supervisors and thus fewer opportunities to present their work, they may use these rare opportunities to present themselves as proactive and loyal instead of risking their reputation by pointing at misdevelopments. We thus expect the following indirect effect:

*Proposition 2.2b: Flexible work arrangements that disperse employees lead to feelings of reduced career opportunities and image concerns which, in turn, makes it less likely that employees decide to engage in prohibitive voice.*

*Psychological safety* denotes a climate in which employees experience it as safe to take risks, show vulnerabilities, and express diverging viewpoints (Edmondson, 2019). Such a climate is built upon trustful and reliable relationships. Scholars often propose that relational aspects suffer if employees work in remote settings because they have less face-to-face contact with coworkers and rely on technology-mediated communication (e.g. Gajendran & Harrison, 2007; Spreitzer et al., 2017). A number of theories emphasise ways in which technology-mediated communication is deficient compared to face-to-face communication when it comes to establishing interpersonal relationships at work (Marlowe et al., 2017; Purvanova, 2014; Walther, 2011). Media-richness theory (Daft & Lengel, 1984), for example, states that media vary in their ability to successfully enable complex communication. Face-to-face communication is seen here as the richest medium, as it offers a wide range of verbal and nonverbal cues and immediate feedback and is often preferred when it comes to sharing more intimate information. While existing evidence suggests that technology-mediated communication is considered less rich and therefore likely to limit attempts to build psychological safety and trust, we want to add a cautionary note: Ongoing technological developments are likely to increase the potential quality of information exchange and even create new combinations

of face-to-face and technology-mediated communication (Manning, 2020). As we cannot estimate yet, how these ongoing developments might affect voice, we rely on existing knowledge and propose the following indirect effects:

*Proposition 2.3a: Flexible work arrangements relate to lower relationship quality and experiences of psychological safety, which, in turn, makes decisions for voice less likely.*

*Proposition 2.3b: Reliance on technology-mediated communication (vs face-to-face interaction) relates to lower relationship quality and experiences of psychological safety, which, in turn, makes decisions for voice less likely.*

### **Stage Transition 3: Implementing the Decision to Engage in Voice Behaviour**

Whether or not a decision to engage in voice will be implemented depends on the motivation and engagement employees have to transfer intention into action, the opportunities employees have to express their views, and the concerns and barriers that prevent them from doing so (Loudoun et al., 2020; Morrison, 2014).

*Shared purpose.* While shared knowledge and shared mental models affect whether employees become aware of a latent voice episode (see Stage transition 1), a shared purpose influences how motivated groups and their members are to act and how likely it is that they support each other (Hackman & Wageman, 2005). Employees who feel strong commitment and identify with their organisation or work team are more likely to invest resources to overcome barriers and take risks associated with voice (Knoll & van Dick, 2013; Wang et al., 2014). As remote workers do not work in the same place as their coworkers, they are at risk of feeling isolated or excluded from their work team, relevant discussions, or their organisation in general (Cooper & Kurland, 2002; Golden & Veiga, 2008; Golden & Raghuram, 2010; Morganson et al. 2010; Thatcher & Zhu, 2006; Wiesenfeld et al., 1999). As a result, teleworkers suffering from a lack of social support and feedback tend to report less engagement and organisational identification (Bartel et al., 2012; Sardeshmukh et al., 2012; Vander Elst et al., 2017). Further, due to social identity and group processes, semi-virtual teams are at risk of disuniting: Office workers may form an ingroup and therefore see their remote colleagues as the outgroup (Webster & Wong, 2008). Ingroup/outgroup separation creates a harmful ingroup/outgroup bias, influencing employees' perception and behaviour: They favour ingroup members and evaluate outgroup members in a more negative way (Ashforth & Mael, 1989), leading to decreased team identification and less trust among coworkers (Webster & Wong, 2008), more conflict, a lack of shared understanding, and more serious coordination problems (Gibson & Gibbs, 2006; Hertel et al., 2005; Hinds & Mortensen, 2005; O'Leary & Mortensen, 2010). Thus, we propose the following indirect effect:

*Proposition 3.1: Flexible work arrangements relate to lower levels of cohesion, shared purpose, identification, and prosocial motivation, which makes voice implementation less likely.*

*Relationship quality with managers.* Having a positive relationship with their manager increases subordinates' motivation to contribute ideas for improvement, as research on leader-member exchange (LMX) has shown (Duanxu & Gan, 2016; van Dyne et al., 2008). High LMX relationships are characterised by trust and relationships that go beyond the immediate instrumental exchange. More frequent interaction and spatial proximity provide managers and team members more opportunities to develop closer relationships and build trust. Managers who supervise remote workgroups, in contrast, are often concerned with losing control (Cooper & Kurland, 2002; Gajendran & Harrison, 2007; McCloskey & Igbaria, 2003). They may thus be tempted to extend monitoring, for example, in the form of electronic surveillance, which is likely to be perceived as less trusting by subordinates and will eventually lead to poorer LMX relationships (e.g. Alge, 2001; Tietze & Nadin, 2011). Thus, we propose:

*Proposition 3.2: Flexible work arrangements relate to lower relationship quality between managers and subordinates which makes the implementation of voice less likely.*

*Felt responsibility.* Feeling responsible for an issue that could be improved or is likely to cause harm increases employees' willingness to engage in voice (Chamberlin et al., 2017). Several theoretical approaches have been applied to explain that physical distance and technology mediation reduce responsibility. Examples include social individuation-deindividuation effects theory, moral disengagement theory, and social loafing theory (Alnuaimi et al., 2010; Bandura, 1999; McAvoy & Butler, 2006; Postmes et al., 1998; Walther, 2011). Studies support these arguments. For example, Gibson et al. (2011) found that characteristics of virtual work such as high electronic dependence and low feelings of copresence are related to reduced employee responsibility. Due to the potential for deindividuation and disengagement when working in flexible work arrangements and communicating via technology, we propose the following indirect effects:

*Proposition 3.3a: Flexible work arrangements reduce felt responsibility which, in turn, makes the implementation of voice less likely.*

*Proposition 3.3b: Reliance on technology-mediated communication reduces felt responsibility which, in turn, makes the implementation of voice less likely.*

*Situational cues* such as facial expressions or other nonverbal cues can influence whether employees implement their decision in specific situations such as meetings because they affect employees' emotions and perceptions of leaders (Trichas et al., 2017; Zebrowitz & Montepare, 2008). A threatening cue can reduce, and an

encouraging and supportive cue increases the likelihood that voice intentions are implemented. One factor that inhibits the implementation of voice is fear of negative consequences, including retaliation, image harm, and career risks (Edmondson, 2019; Kish-Gephhardt et al., 2009). We already mentioned that employees deliberately consider potential negative consequences when deciding how to respond to latent voice episodes (Morrison, 2014). However, fear is also a factor that influences voice implementation in the immediate situation and thus bypasses deliberate decision-making. As Kish-Gephhardt et al. (2009) described in detail, human beings are evolutionarily prepared to fear negative responses from higher-status group members. This implicit effect might be particularly strong if high-status group members are physically present. Research suggests that both dispersed work and technology-mediated communication will weaken the effects of situational cues and thus mitigate threats (see Walther, 2011). For example, drawing on social presence theory (Short et al., 1976), Ho and McLeod (2008) found participants more willing to express their opinion in computer-mediated compared to face-to-face communication. Flexible work arrangements and technology-mediated communication seem to provide fewer cues about colleagues' or supervisors' attitudes and preferences. As these cues could otherwise promote or inhibit voice, dispersed work arrangements and technology mediation thus weaken situational influences.

*Proposition 3.4a: Flexible work arrangements reduce automatic silencing effects, which, in turn, increases voice implementation.*

*Proposition 3.4b: Technology-mediated communication reduces automatic silencing effects, which, in turn, increases voice implementation.*

*Opportunities.* Voice opportunities include formal and informal voice mechanisms but also situations in which employees may get in contact with people who are able to effect change. Working remotely could reduce opportunities to provide feedback to supervisors and colleagues in formal and informal ways because they have fewer opportunities to be involved in impromptu conversations (Raghuram et al., 2019). Members of virtual teams are often not only working at dispersed locations but may also have varying working hours or even live in different time zones (Bergiel et al., 2008). Thus, face-to-face or even video meetings, where employees might implement their voice intentions, can become rare occasions. We expect:

*Proposition 3.5a: Flexible work arrangements reduce opportunities to address critical issues and thus make voice implementation less likely.*

While concrete research on the link between intra-organizational social media use and voice is scarce (for the usage of the open cyberspace, see Lam & Harcourt, 2019), it has been suggested that organisational social networks provide opportunities to address people who have been beyond an employees' access before (Leonardi & Vaast, 2017). For example, enterprise social media (i.e., computer-mediated tools

that make it possible for every member of an organisation to create, circulate, share, and exchange information in a variety of formats and with multiple communities; Leonardi & Vaast, 2017) may provide new opportunities to implement voice. Notably, as we mentioned before, digital technologies may reduce voice at earlier stages of the proposed voice process, for example, by reducing the likelihood that employees become aware of a latent voice episode. At the current stage of the process (i.e., once a decision pro voice has been made), digital technologies may increase the likelihood that voice decisions are implemented. Thus, we propose the following indirect effect:

*Proposition 3.5b: Digital technologies such as organisational social networks increase opportunities to address critical issues and thus make voice implementation more likely.*

#### *Stage Transition 4: Consequences of Voice Behaviour*

While employees' proactive and creative contributions are emphasised as essential for organisational surviving and flourishing in today's dynamic and ambiguous economy (Griffin et al., 2007), voice is not always appreciated and may even harm employees (Burris, 2012; Seibert et al., 2001). Research identified a number of factors that affect whether voice is welcome or punished, which will, in turn, affect employees' future voice behaviour (Burris, 2012; Grant, 2013; Halbesleben et al., 2010; Harlos, 2001). One of the most important factors is how superiors interpret employees' motives for speaking up (Grant et al., 2009).

As mentioned above, the reduced social presence of remote workers (Allen et al., 2015; Raghuram et al., 2019) affects their work group and organisational identification but also makes it likely that coworkers and superiors view them as less valuable and respected organisational or team members (Bartel et al., 2012; Thatcher & Zhu, 2006). In addition to this status decreasing effect, the reduced social presence of those working 'distant from work' is associated with fewer opportunities to show one's loyalty and prosocial intentions, which, in turn, are positively related to voice appreciation (Burris, 2012; Grant et al., 2009).

*Proposition 4.1a: Flexible work arrangements relate to subordinates being rated less loyal and prosocially motivated than employees working in traditional settings, which, in turn, leads to more negative attributions of their voice behaviour.*

More recent research on organisational social media uses questions that remote workers necessarily need to be perceived as less loyal and prosocial. Specifically, employees can build a reputation and gain status by posting content and supporting colleagues via contributions to enterprise social networks (Huang et al., 2015). Thus, status in online communities depends on contributions more than on formal positions, which should favour superiors' perceptions of employees who are willing

to effect change and who build a reputation for future voice behaviour. The positive effect of employees' repeated (virtual) contributions on superiors' attribution of their behaviour is in line with Halbesleben et al.'s (2010) findings. They found that if superiors perceive employees' motives for engaging in extra-role behaviour as stable, they also attributed more prosocial motives and more organisational concern. As a consequence, we propose the following indirect effect:

*Proposition 4.1b: Digital technologies such as social networks provide opportunities to gain status and build a reputation as prosocial, which, in turn, increases positive attributions of superiors.*

### One Step Beyond – A Sociomaterial Approach Considering Affordances and Constraints of Digital Technologies

The process view on voice (Figure 1) and our propositions for the relationships between digital technologies, flexible work arrangements, and voice are based on existing research and aim at providing a basis for future research and hypotheses development. Management and psychological research that builds upon our propositions could provide explanations for issues practitioners' currently deal with – for example, whether and why sending employees into telework or creating virtual teams may reduce or increase voice behaviour. While such research would advance current knowledge and goes beyond deterministic approaches, it is still liable to fall short of representing the complexity inherent in technology-enabled flexible work arrangements. Acknowledging that more recent approaches to technology in organisations (Landers & Marin, 2021; Moura & Bispo, 2020; Orlitzki & Scott, 2008, 2016) emphasise the need for more complex models to represent the complexity of technology use, we dare to look into what could be ahead.

Models 3a and 3b (Figure 2) provide the first step toward an even more nuanced understanding of the relationships between technology-enabled flexible work arrangements and voice. Applying a socio-technical approach (Mumford, 2006), these models acknowledge that social elements of a system (e.g., the type of work arrangements) and technical elements of a system (e.g., the videoconferencing software) interact to produce results. Conditional indirect effects, as shown in Model 3, can provide explanations for mixed results that may occur when, for example, Proposition 3.5a is examined in samples from different organisations or teams. Members of two teams who both work in flexible work arrangements may report less (Team A) and more (Team B) voice opportunities, and the kind of digital technology that has been used in either team may provide an explanation for these findings. Note that, while statistically identical, a number of theoretical and research concerns suggest distinguishing between Models 3a and 3b. Model 3a may illustrate a case in which a team has found a work arrangement that suits their preferences and is looking for a digital device that may secure high levels of voice in this team. Model 3b, in turn, may illustrate a case in which digital technologies may

be predetermined due to company-wide strategies or legal restrictions, but the type of work arrangement may be subject to negotiation.

While applying a socio-technical approach as represented in Models 3a and 3b allows us to consider the likely interaction of technology and work arrangements, it falls short of representing the complexity that is in the lived experience of organisations and teams who use technology-enabled work arrangements. As emphasised by representatives of the socio-material approach to the role of technology in organisations (Moura & Bispo, 2020; Orlitzkowsk & Scott, 2008), the problem with assuming conditional indirect effects and using models such as Model 3a and 3b (in Figure 2) is that they still are based on the assumption of predetermined entities. Specifically, they still use the technology (e.g., social network software) and the work arrangement (e.g., virtual teams) as if they were given determined entities that interact in specific ways.

Further developing socio-technical into socio-material approaches, recent research revealed that in their daily practice, individuals, teams, and organisations (and even branches) apply similar technology in different ways resulting in a variety of technology-enabled work arrangements (Cascio & Montealegre, 2016; Landers & Marin, 2021). It becomes evident that employees, teams, and organisations have degrees of freedom regarding their use of technology. This freedom, however, is restricted by the material features of the technology and its users' goals, capabilities, and learning history. The concept of affordance (i.e., the user-specific potential for action that technologies provide to users; Gibson, 1986; Leonardi & Vaast, 2017) allows capturing this intersection between people's goals and capabilities and a technology's material features. Affordances are not exclusively properties of employees or of technologies, but they are constituted in the relationships between employees and the respective technologies. As Jones (1998, p. 229) put it: "Rather than seeing humans with clearly-defined goals applying technologies with clearly-defined properties to achieve clearly defined organisational effects, (...), we need to understand the process of information systems development and use as an ongoing double dance of agency." Technological affordances permit certain actions, constrain others, and, thus, channel how technologies can be used (Leonardi, 2011). Model 4 in Figure 2 is our attempt to illustrate how a socio-material approach (Moura & Bispo, 2020; Orlitzkowsk & Scott, 2008) could represent the entangled nature of the relationship between technology and the psychological, social, and organisational processes that accompany its use.

In sum, our vision of how the relationship between (digital) technology-enabled work arrangements and employee voice could be conceptualised and represented points at models that consider two things. First, they need to consider the dynamic and process perspective that we introduced above. The degree of voice employees show depends on how inhibitors and motivators of voice are triggered by the features of technology-enabled work arrangements when employees pass through the

phases of this process. Second, more adequate research models need to acknowledge that technological affordances enable specific patterns of interaction that might not have been intended in the first place by either the designer of the technology nor the organisation or work group that is applying it (Latham & Sassen, 2005; Orlikowski & Scott, 2008). The model that we presented in Figure 1 allows us to consider these two requirements and enables researchers to further advance knowledge on how the affordances and constraints provided by technology-enabled flexible work arrangements and the technology-mediated communication that occurs in these arrangements affect voice success factors.

## Discussion

In this article, we call for overcoming narrow conceptualisations of digitalisation and provide ideas for moving towards conceptualisations of technology-enabled work arrangements that consider the entangled nature of technological, organisational, social, and psychological factors. We started out by extending deterministic approaches and introduced a process model of voice. Drawing upon existing research, we then developed propositions on how technology-enabled flexible work arrangements affect motivators and inhibitors of voice when employees pass through the stages of this process. The process view and the propositions are supposed to function as a basis for future research. However, we also acknowledge that more recent developments in the understanding of technology at work – the socio-material approach (Leonardi, 2011; Moura & Bispo, 2020; Orlikowski & Scott, 2008, 2016) – may require more complex research designs to adequately represent the complexity that characterises technology-enabled flexible work-arrangements. We thus closed by elaborating on the next steps toward an even more nuanced understanding of the challenges ahead. Specifically, we suggest that future research needs to consider that digital technologies provide affordances and constraints for how work is designed, organised, and eventually implemented. In the remainder of this article, we discuss the consequences of this view for understanding the digital transformation of work in general and the relationship between technology and voice in particular.

## Implications for Theory and Empirical Research

*Link voice research to broader paradigms on socio-materiality, technology, and context.* Our approach offers avenues for research that includes neglected influences on voice, namely, the technological and the (physical) work context in which voice might occur (Johns, 2006; Rousseau & Fried, 2001). We emphasised that this context should not be treated as external to the phenomenon of interest as it has been done in traditional approaches that separated technical (e.g., artefacts, techniques, media) and social (i.e., meaning, perceptions of contexts and activities) factors. Drawing on recent developments in the understanding of technology in organisation behaviour (Landers & Marin, 2021; Orlikowski & Scott, 2008, 2016),

we emphasised that the effects of technologies and work arrangements need to be understood in the context in which they manifest. As a consequence, research attempts that isolate the effects of technology, as it has been done, for example, in experimental research on computer-mediated communication (see Valkenburg et al., 2016), need to be interpreted with care because they do not consider the affordances and constraints that these technologies provide for various user groups. The same seems to be true for understanding the effects of flexible work arrangements, as Purvanova (2014) has shown for virtual teams research.

*Consider the dynamic nature of technological and social innovation.* Digitalisation causes technological and subsequent social innovations to evolve at a much faster pace than in prior industrial revolutions. The accompanying transformations in the design and organisation of work are difficult to decipher and seem to have ambiguous effects (Knoll, 2022). Research needs to represent (and explain) how changing affordances of digital technologies (e.g., increased fidelity) affect work arrangements with the eventual aim of explaining organisational behaviour and its outcomes (Knoll & Zacher, 2021). The exemplary propositions that we derived from our literature review specified how technical affordances and constraints provide opportunities and barriers for voice. Our review also revealed that to judge the value of prior findings and existing knowledge regarding the effects of technology, one needs to consider the time and space (e.g., branch, culture) in which they were generated. New cohorts of workers and new affordances of technologies can raise concerns regarding the usefulness of established knowledge. Notably, this affordance lens (Leonardi & Vaast, 2017) broadens the scope of digital technologies, which might affect patterns of interaction, communication, and voice in particular. Specifically, digital devices which are not necessarily designed for communication (e.g., server technology which allows access to information from everywhere at any time) enable new forms of working (e.g., telecommuting) and patterns of interaction (e.g., virtual teams) and thus should indirectly affect voice.

*Link voice to further facets of digitalisation.* We focused on technology-enabled work arrangements, but there might be more facets of digitalisation that affect voice. Social media and chat forums in which work and private life blur (Leonardi & Vaast, 2017) provide opportunities to overcome traditional boundaries to voice (Holland et al., 2016; Miles & Mangold, 2014). Given that organisations sometimes provide a limiting frame for expressing themselves (Barry, 2007; Knoll et al., 2016), new opportunities via social media and chats can increase worker influence and visibility. They may provide access to supporters and targets of voice that are beyond their traditional reach (e.g., CEOs) and thus potentially compensate individual employees and minority groups' powerlessness (Miles & Mangold, 2014; Schepers et al., 2011). Another feature of digitalisation which will become more relevant for voice research is combined work groups which include human members and machines or forms of artificial intelligence (e.g., decision-making systems) as members (Parker & Grote, 2020). In several areas, machines give orders, and

human members follow, fulfilling the tasks machines have defined (e.g., parcel service drivers follow the routes an algorithm suggests). Our approach can provide a framework for examining how voice (and silence) may unfold in such emerging human-machine work arrangements.

### Practical Implications

*Judge research findings in light of timely technological developments.* We suggested that cohort effects and the contingency on the affordances of the technology that has been used and examined contribute to the ambiguity in research findings on virtual and digital work. Research that compared remote work with face-to-face interaction at the office and that focused on "old" technology such as e-mail might not provide adequate advice to current managers who already use more recent technologies (Landers & Marin, 2021; Valkenburg et al., 2016; von Krogh, 2012). Video conferencing and social network and chat tools such as Slack might make issues such as isolation and lacking media richness less relevant. There is reason to assume that technologically-enabled work arrangements become more effective in terms of voice as technologies are continuously improved by their developers and adapted by users in innovative ways. Criteria for judging technological advancements may include transparency, social bandwidth, interactivity, and surveillance (Cascio & Montealegre, 2016).

*Consider the culture in which technology and work arrangements are to be embedded (but know that culture can change with technology).* Established models of organisational culture (e.g., Schein, 2017) tend to view technological and material artefacts as surface-level manifestations of deeper-level values and beliefs. Drawing on socio-material approaches and transactional approaches to media use (Leonardi, 2011; Valkenburg et al., 2016), we emphasise that technology has the potential to change cultural values and beliefs through enacted practice, potentially resulting in mutually reinforcing effects of cultural values, practices, and technology. Thus, the integration of both directions needs to be considered by managers who want to apply innovative technology and work arrangements.

### Conclusion

In this article, our aim was to direct attention to technological and material features of organisations as hitherto neglected antecedents of voice in organisations. Calling for evolution from deterministic views towards a socio-material approach, our review is based upon the assumption that technology is not merely an artefact or additional antecedent of voice but a fundamental aspect of and deeply interwoven in organisational life. Moreover, while work has always been reconfigured in relation to technology, digitalisation currently revolutionises workplaces, organisations, and entire industries at a much higher pace and in a more fundamental way. Consequently, we need to find ways to examine and theorise how technological/material

developments align with organisational and social innovations to affect organisational behaviour. We introduced a framework for such an attempt and derived exemplary propositions which hopefully inspire future research on this neglected facet of voice and silence research.

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## Appendix

**Table A-1. Recent review articles and meta-analyses dealing with the digitalisation of work, technology, and work arrangements**

Article	Aims	Central Topics
Allen et al. (2015)	Better understanding of scientific findings on telecommunication and implications thereof; create "overall sense of the status of scientific findings"	Prevalence, definitions, outcomes, and conditions of telecommuting
Cascio & Montealegre (2016).	Understand how technology changes work and organisations	Key technological breakthroughs, 4 popular technologies (electronic monitoring systems, robots, teleconferencing, and wearable computing devices)
Charalampous et al. (2018)	Deeper understanding of associations between remote work and five dimensions of well-being	Telecommuting, remote work, well-being (affective, cognitive, social, professional, and psychosomatic)
Hanelt et al. (2020)	Develop a multidimensional framework to illustrate boundary conditions for investigating digital transformation from a perspective of organisational change	Digital transformation and organisational change, two thematic patterns: digital transformation enables malleable organisational designs, digital business ecosystem as driving force for this, four perspectives on digital transformation (technology impact, compartmentalised adaptation, systemic shift, and holistic co-evolution)
Landers & Marin (2021)	Paradigmatic framework on how to explicitly model and theorise technology in organisational psychology	Identifies 4 major paradigmatic approaches in literature (technology-as-context, technology-as-causal, technology-as-instrumental, and technology-as-designed), five key domains for technology-as-design framework (personnel selection, training and development, performance management and motivation, groups and teams, leadership)
Larson & DeChurch (2020)	Understand how digital technologies affect team leadership, integrate technology into leadership research	Digital age leads to diverse forms of teams with different forms of leadership requested, 12 implications for leadership provided
Leonardi & Vaast (2017)	Explain the role of social media for organisations	Organisational processes of communication, collaboration, and knowledge sharing
Parker & Grote (2020)	Illustrate the role of work design in relation to digital technologies' effects	Digitalisation, work design, job resources, job demands, individual consequences
Raghuram et al. (2019)	Offer opportunities to connect clusters on virtual work in future research	Virtual work (mainly telecommuting, virtual teams, computer-mediated work)
Spreitzer et al. (2017)	Systematise alternative work arrangements according to flexibility since 2007	Three dimensions of flexibility in alternative work arrangements: (a) flexibility in the employment relationship, (b) flexibility in the scheduling of work, and (c) flexibility in where work is accomplished; effects of/on skill-level (high vs. low), types of alternative work arrangements including contract work, telecommuting, gig economy, precarious work
Valkenburg et al. (2016)	Review analyses trends and commonalities among theories of media effects	Identifies 5 features of media effects (selectivity of media use, media properties as predictors, indirect, conditional, and transactional media effects); describes how theories of computer-mediated-communication developed from unidirectional, receiver-oriented views to theories that recognise transactional nature of communication

**Table A-2. Recent review articles and meta-analyses dealing with the voice success factors**

Article	Aims	Central Topics
Chamberlin et al. (2017)	Meta-analytically clarify and enhance our understanding of voice and its promotive and prohibitive forms	Distinguish antecedents of voice (in 5 categories (a) dispositions, (b) job and organisational attitudes and perceptions, (c) emotions, beliefs, and schemas, (d) supervisor and leader behavior, and (e) contextual factors) according to their relationships with promotive and prohibitive voice; link voice forms to performance
Knoll et al. (2016)	Demonstrate the relevance of voice/silence for the sustainable development of individuals, organisations, and societies. Identify emerging (and enduring) issues that have not yet been adequately addressed in voice and silence research. Build a broader and more integrative approach to the nature of silence/ voice and their antecedents and effects	Distinguishing voice and silence, differentiating motives and manifestations of silence, multi-level approach to antecedents of silence, methodological challenges in examining silence and voice
Knoll (2021)	Review existing research and suggest ways to advance knowledge on silence in organisations	Multi-level and dynamic approaches to silence; different motives for remaining silent at work; unconscious processes relevant for the occurrence of silence; process model of voice and silence
Morrison (2011)	Review research focused on better understanding the motives underlying voice, individual, and situational factors that increase employee voice behavior, and the implications of voice and silence for employees, work groups, and organisations.	Conceptualisation of voice and related constructs, process model of voice, predictors and effects of voice
Morrison (2014)	Review of current state of knowledge about the factors and motivational processes that affect whether employees engage in upward voice or remain silent; review of research findings on the organisational and individual effects of voice and silence	Antecedents and outcomes of voice and silence, integrated model, motivators and inhibitors of voice
Morrison & Miliken (2000)	Introduce the concept of organisational silence and identify contextual variables that create conditions conducive to silence	Contextual antecedents of silence, collective sensemaking, consequences of silence, organisational learning and development
Sherf et al. (2021)	Provide a conceptual framework for the independence of voice and silence; meta-analytically explicate how two key antecedents—perceived impact and psychological safety—relate to voice and silence, respectively	Conceptual differences between voice and silence, psychological safety and perceived impact as antecedents of voice and silence; behavioral inhibition and activation

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Article	Aims	Central Topics
Wilkinson et al. (2021)	Encouraging a debate on the proposed transactive relationship between voice and contemporary social, economic, and technological developments	How employees deal with changes in their rights, roles, and responsibilities that follow from current developments concerning how work is approached, organised, and designed, digitalisation including new business models and flexible work-arrangements, diversification including internationalisation and marginalised and minority groups

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