

Risks and Benefits of Technologies for Organizational Change Enablement - A Role Theory Perspective

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Abstract

As organizational change is omnipresent yet often challenging, organizations increasingly employ information technology (IT) to support and improve their change management. We refer to these technologies as change management mediation technologies (CMMTs). Despite their increasing relevance in practice, little is known about their successful implementation and usage as well as potential risks and benefits they encompass. To this end, we present findings from a multi-case study on two companies that utilize a CMMT to enable their employees for ongoing and future change projects, focusing especially on the digital transformation. We use role theory to describe and explain how CMMT usage can change employees' roles and how this is connected to different risks and benefits for individuals and organizations. Thereby, we add to the growing literature on CMMTs and showcase a novel application of role theory in IS. Moreover, practical implications and opportunities for further research are discussed.

Keywords: Organizational change, information technology, digital transformation, role theory, case study.

1. Introduction

The relationship between information technology (IT), organizational change, and change management has been a subject of IS research for decades (Lyytinen & Newman, 2008; Markus, 2004; Orlikowski, 2000; Vial, 2019). There, the perspective is usually determined by the way IT and the implementation of IT specifically, affects organizations by requiring or inducing organizational change and how change management can facilitate these changes successfully. IT-enabled organizational transformation and digital transformation are only two examples of this perspective where change management is seen as a means to support the successful implementation and usage

of IT in organizations (Wessel et al., 2020).¹ In contrast to this, we investigate the phenomenon of organizations increasingly using IT to support and mediate change management itself. To capture this phenomenon, we define change management mediation technologies (CMMTs) as IT that is used by organizations to facilitate change implementation and management. Thereby, we adapt Kanitz and Gonzalez's management focused definition of technology-mediated change management (2021) to an IS perspective. Here, a variety of technologies is available, including, e.g., communication platforms to plan and initiate change projects (Tavakoli et al., 2017), IT-supported personalized change communication campaigns (DiLeonardo et al., 2020), nudging- or boosting-based systems to support behavior change, training and learning platforms to enable and prepare users for new challenges, as well data-driven change analytics and monitoring applications (Wolf et al., 2023). For a detailed review of technology usage in change management, see Hasreiter (2023). Despite IT-enabled organizational transformation and digital transformation being highly important examples, CMMTs can also be used for various types of change in many other domains such as cultural change or organizational restructuring. While CMMTs bear opportunities to improve the adaptiveness, personalization, or openness of change processes, due to their novelty, insights on their successful implementation, design, or usage are limited (Hasreiter, 2023). Furthermore, the danger of vendors, suppliers, and consultants of such technologies neglecting potential risks, exists (Kanitz & Gonzalez, 2021). To fill this gap, we follow Kanitz and Gonzalez's call for research on risks and benefits of CMMTs (2021). Specifically, we use a multi-case study approach to explore and investigate the effects of an IT-based digital mindset development program that aims at

¹We use change and transformation interchangeably, referring to a "difference in form, quality, or state over time in an organizational entity" (de Ven & Poole, 1995, p. 512).

enabling employees for digital and organizational transformation initiatives. Enablement is the process of equipping individuals or groups with the necessary resources, skills, and support to achieve a particular goal effectively. As a result of our grounded analysis, we employ role theory to understand and explain how individuals and organizations are affected by CMMT usage, and which risks and benefits exist. Accordingly, we answer the following research question.

RQ: *How can the usage of CMMTs for organizational change enablement lead to the emergence of role-related risks and benefits?*

In the remainder of this paper we first offer a short introduction into role theory which serves as the foundation for our discussion. After this we describe our method and cases. Then, we present our case study findings and a discussion thereof, including theoretical and practical contributions, limitations, as well as opportunities for further research. We end with a summary of the paper and some concluding remarks.

2. Foundations of Role Theory

Role theory is a sociological concept that focuses on the study of characteristic behavior patterns, known as roles, which are fundamental to social life (Biddle, 1979). It is expressed metaphorically in Shakespeare's quote "the world is a play" conveying the idea that human behavior is akin to a theatrical performance where individuals have roles and perform accordingly on the stage of life (Anglin et al., 2022). Role theory suggests that individuals hold expectations for their own behavior and the behavior of others based on their social positions and roles (Heckman & Galletta, 1988). While there are terminological differences, role theorists generally agree on the fundamental concepts of roles, positions, and expectations. However, disagreements arise, e.g., regarding the nature of expectations, which can be viewed as norms, beliefs, or preferences (Biddle, 1986). For the sake of brevity, we only consider two schools of thought, the structural-functional perspective and the symbolic-interactionist perspective (Anglin et al., 2022). For an in depth comparison of different perspectives of role theory, see Biddle (1986). The macro-oriented structural-functional perspective views roles as "rules" that govern larger social systems or societies. These rules impose behavioral expectations on individuals occupying specific roles, where the occupants typically cannot change or escape the influence of these rules (Vandenberghe et al., 2014). In contrast, the micro-oriented symbolic-interactionist perspective focuses on how individuals interpret their experiences within and beyond their roles, and views

roles as flexible and negotiated (Ashforth et al., 2000; Sluss et al., 2011). In this study, we try to combine insights from both perspectives by incorporating individual micro-level interpretations and their influence on an organizational macro-level. Furthermore, we view the level of determinism of roles on occupants as dependent on the specific role, occupant, and situation.

Next, we present central concepts of role theory that serve as a basis for the discussion of our case study:

- **Position** A position refers to a specific location within a social structure and is connected to appointed rights and responsibilities (Bates, 1956; Heckman & Galletta, 1988).
- **Role** A role represents a component of a position that entails essential tasks. Specifically, a role is an abstract representation of the expected and consistent behavior, social actors exhibit in their position (Biddle, 1986; Heckman & Galletta, 1988). These behavioral expectations are inherent to the role itself and are used to evaluate the suitability of behavior (Anglin et al., 2022).
- **Role Ambiguity** Role ambiguity occurs when individuals lack clarity regarding the boundaries of their roles and is often observed in individuals occupying roles with unclear expectations (Kahn et al., 1964; Rizzo et al., 1970).
- **Role Change** Role change encompasses a shift in the shared understanding of a role. It can include the creation or dissolution of roles, changes in duties or rights, or changes in the importance or interpretation of a role's elements. As roles are interconnected within a system, change in one role necessitates complementary changes in related roles (Turner, 1990).
- **Role Conflict** Kahn et al. identifies five forms of role conflict (1964): In an *intersender conflict* the expectations of two persons about a role differ, whereas in an *intrasender conflict* the role demands of one person are self-contradictory. *Interrole conflict* occurs when the demands of two roles collide. *Person-role conflict* arises when expectations associated with a role go against an individual's moral, ethical beliefs, or self-concept. Last, *role overload* ensues when an individual cannot handle time-consuming and broad expectations for a role (Kahn et al., 1964).
- **Role Consensus** Role consensus is a collective agreement regarding the expectations of a role (Biddle, 1986). This is essential, as shared

expectations among a group of individuals, e.g., in an organization, are necessary for a role to effectively influence behavior (Anglin et al., 2022) and to avoid misunderstandings.

3. Method

3.1. Case Description

This study is based on an exploratory multi-case study of BankA and SupplierB that both use VendorC's change enablement tool, DigiMind. To protect the privacy of interviewees and organizations, all names of companies and systems were changed. DigiMind aims at developing employees' digital mindset which VendorC defines as multiple attitudes and beliefs, such as customer-centricity or the ability to deal with failures, that it believes to benefit digital transformation efforts. It consists of two technical components. First, the mindset analyzer (MA), a web-based survey tool that evaluates the digital mindset by measuring the aforementioned dimensions. The second component is the mindset developer (MD), an e-learning platform that bundles text, audio, and video content into modules to develop the different mindset dimensions. These modules are selected based on the results of the MA and contain materials on various aspects relevant for the digital transformation such as explanations of technologies, theories and models about change, digitalization as well as examples of successful and unsuccessful digital transformations. Due to the rigidity of mindset, VendorC recommends using the MD for at least half a year until differences in the digital mindset can be achieved. In the scope of this study, we view DigiMind as an example of a CMMT for change enablement, as it is supposed to develop its users skills and attitudes for (digital) transformation endeavors.

BankA is a large German regional bank with over 2000 employees, focused on traditional banking and financial consulting, and hoping to support its digitalization process through DigiMind. SupplierB is an internationally leading food supplier which has a German headquarter with roughly 150 employees and multiple subsidiaries around the world. It wants to enable its employees for its ongoing business transformation including digitalization and IT implementation efforts. We selected these cases because we believe that they are revelatory due to the relative novelty of the phenomenon of CMMTs. Further, we were granted thorough access to employees for interviews, to reach deep understandings of both cases, allowing us to compare findings between cases. Last, we believe the organizations' urge to (digitally) transform

and connected internal struggles are typical (Fitzgerald et al., 2014), thereby improving the generalizability and applicability of our findings. Nevertheless, this case selection has limitations which we discuss later.

3.2. Data Collection and Analysis

The data collection followed the grounded theory methodology of iteratively collecting and analyzing data (Corbin & Strauss, 2008). The primary source of data was a total of 14 interviews with users of DigiMind and human resource (HR) managers responsible for implementing and overseeing DigiMind. The interviews were conducted in person or online and lasted from 35 minutes to 2 hours, see Table 1, depending on the interviewee's experience with DigiMind. Additionally, VendorC gave us access to use DigiMind. We used theoretical sampling to select interviewees based on their connection to the MA and MD, and continued interviews until we reached theoretical saturation (Corbin & Strauss, 2008).

Id.	Position	Duration
B1	Head of Consulting	58 min.
B2	HR Developer	120 min.
B3	Head of HR Development	36 min.
B4	Head of Private Banking	45 min.
B5	HR Developer	95 min.
B6	Head of Service Center	46 min.
B7	Head of Sales Marketing	40 min.
Sum BankA		440 min.
S1	Recruiting Manager	116 min.
S2	HR Developer	79 min.
S3	HR Manager	81 min.
S4	Customer Relationship Manager	60 min.
S5	Head of Investment Management	52 min.
S6	Digital Marketing Manager	54 min.
S7	Event Manager	47 min.
Sum SupplierB		489 min.

Table 1. Interview Overview

For each interview, we ensured consent and promised confidentiality to motivate informants to be open and honest. Semi-structured interviews were used to give interviewers some guidance without restricting interviewees and allowing their impressions and interpretations of DigiMind to emerge. In line with the grounded theory methodology, we conducted the transcribing and first round open coding throughout the data collection process to inform our sampling procedure (Corbin & Strauss, 2008). Based on Berente and Yoo (2012), we follow an interpretive approach which included continually cross-checking among different data sources as well as assessing,

interpreting, and comparing theoretical constructs with our data. Throughout the interviews, role theory emerged, as is evident in many of the quotations in this study. It proved itself as a valuable lens to understand the effects that the introduction and usage of DigiMind had on the organizations and their members by providing concepts and mechanisms to capture the changing situations of our cases. For the final analysis, we iterated between open, axial, and selective coding (Urquhart et al., 2010), utilizing our empirical data and literature on role theory, resulting in structuring our data around the core category of "role change".

4. Case Study

4.1. The Case of BankA

BankA's Situation BankA is a long-standing, well-established, and traditional financial institution that highly values its employee relations, resulting in comparably low fluctuation rates and long careers within the company. Compared to many competitors, BankA is often viewed as more conservative and rigid, traits that served it well over its 200 year history but are also perceived as hindering it in an increasingly fast-paced world. Facing rising pressure to cut costs due to continually low interest rates, increasing competition from online-only banks, and growing customer demand for digital products and services, BankA expanded its digital strategy, aiming to digitalize many parts of its business and processes. To support this transformation and simultaneously further modernize its training and education offers, BankA implemented DigiMind in 2021, as an option within its mandatory management training program. There, participants would first use the MA to evaluate their digital mindset and then develop it further by completing selected modules in the MD, over the course of a year. Additionally, this individual program was accompanied by monthly group meetings with three to five participants each, that were formed at the beginning of the program, based on participants' schedules. The goal of these group meetings was to share and reflect what was learned by the different members, and discuss certain topics or questions.

BankA's DigiMind Users Users regularly stated a general interest and desire to learn more about current developments in technology and business as their motivation to enroll in the program. Further, they valued the flexibility of the MD, allowing them to integrate it with their jobs, often using it at home or while commuting, both in- and outside their working hours. Noticeably, multiple participants accredited

the group meetings with motivating them to keep up throughout the program, especially after the initial interest decreased, as B1 described:

And I must also say, us meeting again and again was the key for me to always keep up with it. Because after the initial curiosity and "Let's do that now!" came this effect where one still has other things to do. [...] but the inner bad conscience said: "Man, you should have a look at it again." [...] After one to two months I noticed that already. (Head of Consulting, B1)

Another effect of the group meetings were new roles and responsibilities, such as moderating and timekeeping, that had to be managed by the participants independently, as pointed out by B7:

I also paid a bit of attention to moderation in the beginning, to timeboxing. [...] It was important to me that [...] everyone took turns on the role of moderator, etc., and then prepared themselves accordingly, so that the effort was shared. And that worked out well. (Head of Sales Marketing, B7)

After the program had finished, multiple participants reported feeling a general sense of confirmation and reinforcement regarding their views and attitudes while also appreciating having learned about new concepts and examples from other organizations. Additionally, participants commonly valued their newly formed relationships and network that persisted beyond DigiMind and the group meetings. As B7 detailed:

We have continued this regular exchange even now, although DigiMind is now long behind us. And this group has also helped me in terms of a kind of collegial advice for other challenges that I had in this context. (Head of Sales Marketing, B7)

Furthermore, interviewees repeatedly mentioned how they adapted certain behaviors of consuming educational content, such as listening to podcasts or following content creators, that the MD introduced to them, on social media. This was another goal of introducing DigiMind, as explained by B5:

And that was actually the approach to teach them how to learn in a new way. Because managers and employees still tend to play the role of "consumers" rather than "producers".² (HR Developer, B5)

Regarding the MA, some users voiced difficulties understanding and interpreting its initial results and many also described limited measurable changes at the end of the program which lead some to question its purpose, as voiced by B3:

But doing the same test again did not bring the big more effect or added value for us. ... It offered no new

²Consumer and producer are not meant literally here, as the full quote explains that the consumer passively consumes served content while the producer actively searches for suitable content.

breakthrough knowledge and neither did it validate me. (Head of HR Development, B3)

Yet, the overall feedback regarding the program was positive and almost all interviewees stated they do not regret participating in it and would do so again.

BankA's DigiMind Managers Though the HR developers, responsible for managing DigiMind and supporting its users, did not use the MA or MD themselves, they described how implementing and managing it changed the requirements and tasks connected to their job positions and roles. B2 explained:

But yes, this is of course also an issue for us in HR development, because our role naturally changes as a result, because we also have a much more accompanying role for people, we have to be much more attentive with this topic [DigiMind] than we do in a classic seminar. (HR Developer, B2)

More generally, B5 who was in charge of the managerial education and training program at BankA, and initiated and oversaw the implementation of DigiMind, noted changing responsibilities connected to their job. While the role used to be dominated by administrative tasks such as organizing or booking seminars, it has become more complex requiring a "deathlete" (HR Developer, B5) to manage all of its different aspects. These can include, researching, testing, and evaluating tools, developing use cases and business cases, moderating between stakeholders, securing funding, coordinating the implementation, and supporting users. While this change was not exclusively due to DigiMind, it was further amplified by it.

4.2. The Case of SupplierB

SupplierB's Situation SupplierB looks back at a long history as a traditional family-led company, with many employees having loyally worked there for decades. While its business is primarily non-digital, SupplierB feels the need to transform itself. This is supposed to happen on one hand by modernizing and digitalizing many processes, and on the other hand by transforming its core business, as it is faced with changing customer demand patterns. Therefore, starting in 2021, SupplierB offered DigiMind to all its employees, on a voluntary basis, in order to develop their digital mindset and enable future transformations. Here, DigiMind was extended by an optional discussion and explanation of the MA results and potential avenues for development with a member of the HR team. While general business transformation is not the focus of DigiMind, SupplierB believes that the digital mindset overlaps in many parts with a general transformative mindset which it deems

necessary for its planned changes, as S3 explained:

And it was relatively clear to us that we would first have to work on the employees, who are still stuck in a relatively traditional area and mindset, before we could even set out to tackle new things. (HR Manager, S3)

Furthermore, the MA was also incorporated in the recruitment's screening process. For this, SupplierB developed four company-specific role profiles that were integrated into the MA by VendorC. During the applicant screening, role requirements of specific positions are then checked against applicants' MA results with the goal of increasing the efficiency and objectivity of the selection, while also increasing the role-person fit of potential employees.

SupplierB's DigiMind Users Despite many employees having shown an initial interest in using DigiMind, about a third of the workforce having done the MA-based assessment, and roughly half of those employees having started to use the MD, at the time of the interviews, no user had completed all modules. Interviewees commonly stated a lack of long-term motivation and missing routines as reasons for their discontinued usage. Furthermore, a significant share of employees was generally skeptical about such attempts to quantify or categorize them, which was reinforced by the unsuccessful previous efforts of typifying employees' personalities, as S3 recalled:

And even then there was always the distrust. "Why do they want to know that [test result]?" and "Do they kick me out because I'm blue [a category in the previous test] or what happens then?" (HR Manager, S3)

Therefore, despite significant efforts in advertising DigiMind by the HR department, many reservations still exist. In contrast to this, the usage in the recruiting process is working well, as it improved the hiring decisions, as highlighted by S2:

Yes, so what you can say in any case [...], that we really notice that we hire more of the right people for the job, for the requirements [role profiles] that we have, also with the help of the MA. (HR Developer, S2)

Opposed to this positive feedback from recruiters, internal and external applicants voiced mixed opinions regarding the MA's usage in the application processes as some felt their treatment to be "impersonal" (Customer Relationship Manager, S4), believing that an automated survey cannot replace the human interaction. This effect was amplified for some internal applicants as they criticized relying on the results in spite of them belonging to the organization. Overall, the recruiting department rendered a positive judgment. S1 concluded:

And the majority actually think it's good too, even people who got rejected. (Recruiting Manager, S1)

SupplierB's DigiMind Managers The HR personnel described the widened range of skills necessary to use the MA effectively and without neglecting the human component of recruiting as the key impact the usage of DigiMind had. For example, an increasingly necessary ability to analyze the results of tests such as the MA is necessary to support employees in guiding their development. On the other hand, compassion and inter-human skills are equally necessary to support employees. Meanwhile, these skills may be difficult to combine as S3 explained:

It is also clear that these two components do not necessarily go hand in hand, that one is very analytical and on the other hand a good people catcher [...] which is why I believe that HR simply needs the different types, which can then complement each other well and work together. [...] I don't believe that there are people who combine all of these qualities. (HR Manager, S3)

Additionally, HR managers across cases mentioned that the limitations of such tools, such as the ambiguity of survey questions or the results being mere snapshots of reality, should be considered for a sensible usage.

5. Discussion

5.1. Risks and Benefits of CMMTs

CMMT-induced Role Change In this study, we examine the phenomenon of CMMTs, specifically their complex impact on individuals and organizations and explore associated risks and benefits from a role-theoretic perspective. Particularly, we investigate the case of DigiMind, a digital tool aimed at enabling employees to participate in digital transformation processes. A CMMT can induce role change in form of a shift within the role, the creation of new roles, or the dissolution of old roles by requiring different or new behaviors, or by replacing tasks previously completed by humans. In that sense, by "playing its own role" it affects other roles that interact with it. This can include a wide range of interactions, from implementation or direct usage to user support and organizing activities. Generally, these role changes can be planned for or unplanned and unexpected.

Our case study shows multiple examples of role change, such as the change in content consumption behavior or changing requirements and tasks for HR developers and managers. The creation of new roles can be exemplified by BankA's participants acting as peer supporters and moderators in the group meetings. Similarly, roles can disappear, as illustrated by the continually shrinking share of purely administrative roles in the HR department.

In the following sections, we will explain and illustrate how role change can lead to risks and benefits of CMMTs.

Role Related Benefits of CMMTs Potential benefits arise when occupants appreciate their role's changes as they prefer new responsibilities and tasks, e.g., when these allow for a greater level of self-realization. This can be seen in the changing roles of the HR personnel from mainly predefined and repetitive administrative to more creative and versatile tasks. Furthermore, role changes can enhance its occupant's position if their new role and responsibilities are valued more highly within an organization, as illustrated by B5:

Yes, that's a lot more demanding [now], the role of the HR manager or HR developer. I used to be told, "Oh, I'd like to have your job [...] because you have time to draw colorful flip charts." Seriously, yes, that was the attitude towards HR in the past. (HR Developer, B5)

In turn, being valued can improve employees' job satisfaction which can lead to increased individual productivity (Halkos & Bousinakis, 2010).

Furthermore, the introduction and usage of a CMMT can be a chance to create awareness for, often implicit, role conceptions, to increase role consensus, and to reduce role ambiguity among employees. For one, this can happen through a transparent discussion of role changes before or during the implementation of a CMMT where all affected roles and their possible changes are considered. Additionally, roles may be incorporated directly into the CMMT, as the inclusion of explicit role profiles in the recruiting process of SupplierB shows. By increasing the role consensus, such efforts also lower the chances of intersender conflicts caused by differing role conceptions, thereby reducing a potential for organizational conflict. Moreover, concretely communicated role expectations, e.g., in the recruiting process, can improve the person-role fit, thereby reducing the potential for person-role conflicts. Furthermore, such a selection process can also reduce role ambiguity, thereby enabling occupants to play their roles more confidently and effectively. Reducing the potential for role conflict generally benefits employee well-being and reduces organizational strain (Biddle, 1986) and may be especially beneficial during organizational changes when these roles are prone to change already.

Last, providing users with new ways of accomplishing tasks, e.g., by offering temporal or spatial flexibility, CMMTs can be an effective way to transform or alter rigid organizational processes or individual routines and establish new behaviors. One

example of this is the improved and lasting peer support as a result of the group meetings at BankA. While they are not a technological part of DigiMind, they nevertheless constitute an important social component. Another example of this are the continuing changes in the learning and content consumption behavior, as previously explained by B5 and reiterated by B2:

One hopes so, but that also surprised me to a certain extent and for me it was also a very, very positive side effect of the MD that suddenly this, this self-awareness of "How do I learn?" and "What do I expose myself to?" is already very very big. (HR Developer, B2)

In conclusion, our cases show how a CMMT can support organizational change directly and indirectly. For example, by enabling employees to participate, e.g., by fostering their ability to learn in a self-directed and independent manner. This can be a crucial skill to be able to adapt quickly to new situations, for example, the usage of new technologies in the realm of the digital transformation. Further, the reduction of potential for role conflict or role-related issues can generally enhance organizational processes and thereby improve the chances of success of organizational change.

Role Related Risks of CMMTs Naturally, role changes also bear risks. First, changing roles can lead to role ambiguity and reduced role consensus if they are not understood and communicated clearly with role occupants and partners. This can give rise to role conflict with diverse negative individual and organizational outcomes. In addition to previous examples, unclear role expectations can dissolve work boundaries, a precondition for stress and stress related symptoms (Thunman, 2012). This can be facilitated by the flexible usage provided by IT, can be necessitated by users' busy schedules, and may occur if not restrained properly by an organization. Here, the intense usage of the MD outside of work at BankA can serve as an example, as B6 mentioned a lack of time:

So, when I look at my managers, for example [...] they can't fit it [DigiMind] into their work day. (Head of Service Center, B6)

While participants mentioned no negative stress, it is easy to imagine how this can occur and negative stress can in turn reduce their productivity (Halkos & Bousinakis, 2010). Further, the addition and expansion of roles can lead to role overload or interrole conflict if their demands are too high or incompatible. This is exemplified by S3 expressing their belief that it is not possible for a single person to act out all roles necessary to successfully use and manage DigiMind. In those situations, appropriate team structures and task separation are necessary to avoid role overload that can

hinder individuals from fulfilling their tasks and thereby limit an organization's ability to utilize CMMTs.

Role change also bears the risk of person-role conflicts arising when occupants' values or self-concepts clash with their new role demands which can equally lead to bad task performance and organizational issues. This risk is especially large in cases where roles are generally stable, e.g., in traditional environments such as our two cases, because occupants may not be used to their roles changing and may identify strongly with them. S3 stressed this particularly:

We are a company with a very long history, a very long tradition, a family businesses that has actually been doing the same thing for many, many, many years. (HR Manager, S3)

Additionally, the changes in roles and processes can influence an organizations' culture, which can lead to disapproval by employees that disagree with the changes or feel that change is being imposed upon them, which can cause distrust. The replacement of human interaction with machine interaction in the internal recruiting process of SupplierB is one example of how the interpersonal social fabric of an organization can suffer from including a CMMT into established human processes. In addition to that, while the goal of CMMTs is individual enablement, they may also enable the enforcement of certain changes, e.g., when certain roles or behaviors are integrated like in SupplierB's recruiting process. Then the scope can switch from enabling individuals to participate in the change process to changing organizations by effectively replacing individuals instead of enabling them. First, this is clearly not the initial goal of the CMMT and while it may make sense for individual hiring decisions in the short term, it can certainly result in employee resentment and distrust towards the CMMT and the organization. Such skepticism from employees was a key reason for the lacking adoption of DigiMind at SupplierB and showcases the detrimental impact it can have on an organization. Again, hurting the company culture and employee relationships may be especially critical for traditionally-focused organizations as it is an important building block of their success.

To summarize, ill-perceived or not appropriately supported role changes caused by the CMMT may foster resistance and distrust among employees that can emerge as user resistance towards the CMMT or, even worse, as skepticism towards or rejection of organizational change initiatives. In this case, CMMTs can effectively hinder the change that is the reason for their implementation and usage in the first place.

5.2. Theoretical Contribution

We contribute to three streams of literature. First, we contribute to a growing body of literature on technology-mediated (Kanitz & Gonzalez, 2021) and digitally enabled (Hasreiter, 2023) change management. We introduce the definition of CMMTs to position this phenomenon in IS research while maintaining a close connection to management research and avoiding silos. As research in this field is still limited (Hasreiter, 2023), the increasing number of these technologies in practice warrants research to guide it. Following Kanitz and Gonzalez's call for research (2021), we extend the discussion on risks and benefits of technology use in change management, specifically in the context of change enablement. Here, our study validates and extends previous conceptual (Kanitz & Gonzalez, 2021) and Delphi-based (Hasreiter, 2023) work on risks and benefits of CMMTs with empirical case data. Thereby, we help with closing this important research practice gap (Rynes et al., 2007).

Second, while CMMTs go beyond the digital transformation, they are closely related to it as a means to support organizations in their digital transformation endeavors. This can happen, for example, by enabling individuals to perform their routines effectively and thereby building the microfoundations for organizations' dynamic capabilities (Feldman & Pentland, 2003) that are important factors for their successful digital transformation (Vial, 2019). Thereby, we contribute to needed research (Schilke et al., 2018) on how this process of building dynamic capabilities can be mediated with IT. Moreover, we share and exemplify Vial's need for sustainable ethical performance (2019). As we show in the recruiting context, short-term decision optimization that can be enabled by CMMTs may have negative long-term implications if the relevant stakeholders are not taken into account.

Last, we present an application of role theory in the context of the introduction and usage of new technologies in organizations, describing how technology can impact and change roles. While role theory has been commonly used to describe how IS-related roles have changed over time (Galletta & Heckman, 1990; Heckman & Galletta, 1988), how roles influence the behavior of IT-professionals (Hsu et al., 2017; Shadbad & Biros, 2021), or how roles affect different users (Lin et al., 2013), to our knowledge, the description of the direct influence of IT usage on roles and role change specifically is novel. We believe this to provide a useful lens for understanding the impacts of IT on individuals and organizations.

5.3. Implications for Practice

Our study has multiple implications for practice regarding the successful usage of CMMTs for enablement. During planning and introducing CMMTs, practitioners should be transparent about their goals, especially when they aim at or expect role change, and communicate with affectees to avoid issues regarding role conflict, consensus or ambiguity. Furthermore, employees should be prepared to fulfill their new roles, e.g., through training. Additionally, managers should be sensitive about unexpected changes, especially when they could have negative effects on employees.

Regarding the effectiveness of CMMT for enablement, our study showed the importance of social and organizational factors such as motivation, peer support, or routines to facilitate their success. Long-term motivation to use a CMMT is a key factor that is especially important for user groups that are skeptical or have limited resources and should be fostered accordingly. Another important factor is the establishment of clear guidelines for the usage of such tools regarding, e.g., the usage outside of work. Such guidelines should be negotiated with employees to find a balance between using the advantages of IT such as flexibility and ensuring worker rights and health.

Finally, the adapted usage of DigiMind at BankA and especially SupplierB's integration of specific role profiles show why developers and vendors of such tools should provide opportunities to adapt their tools to specific companies' requirements and situations.

5.4. Limitations and Further Research

Limitations Our study is not free of limitations. As mentioned before, both companies have a long history and are rich in tradition which can lead to roles being more constant and therefore more sensitive to change. In this case, our analysis could overestimate the impact of role changes on individuals and organizations. Nevertheless, we believe that it's better to be too sensitive rather than insensitive to such changes and their effects. Another issue is the possible self-selection bias of employees for the DigiMind program as well as for our interviews. Most users of DigiMind were rather open towards CMMTs and interested in the topic of digital mindset and digital transformation, thereby likely positively skewing users' impressions. While these issues partly limit the generalizability of our findings, we still believe them to be typical for many organizations. Furthermore, while role theory provided a useful lens for analysis and lets us see clearer in many ways, it also determined certain blind spots

that lay beyond its scope. Therefore, this is not an attempt at compiling a full list of risks and benefits of CMMTs, but a snapshot from a specific, empirically grounded perspective, which we expect to be valuable nevertheless.

Further Research We see many avenues for further research on CMMTs. Based on our limitations mentioned above, future research should challenge and generalize our findings with other cases of organizations in different situations using different CMMTs. Further, our study can be a starting point for developing and empirically testing propositions and hypotheses to build more theory on CMMT usage. For example, it would be valuable to quantify effects of CMMTs to extend our qualitative study or to causally explore antecedents of certain risks or benefits. Additionally, other theoretical lenses should be used to uncover more risks and benefits, and understand the associated mechanism better. Moreover, longitudinal studies may be an appropriate approach to study the effects of CMMTs over time, especially regarding their long term acceptance and measurable effects, e.g., on the digital mindset of employees. While we investigated a tool focusing on change enablement, further research should look at other types of CMMTs such as change-focused communication and collaboration platforms, technologies that utilize nudges or boosts to steer individuals' behavior, or data-driven change monitoring systems as they are also increasingly relevant in practice, yet scarcely researched.

Finally, other types of relevant inquiries include developing a design theory for building CMMTs as well as guidelines for practitioners to inform them throughout the CMMT lifecycle.

6. Conclusion

In this study, we set out to understand and describe how the usage of CMMTs for change enablement can lead to the emergence of role-related risks and benefits. We explain, how CMMTs can induce role change by modifying, adding, or removing roles which can influence role consensus, ambiguity and conflict and in turn have various positive and negative effects on individual role occupants and organizations. We conclude that, while CMMTs bear many opportunities for enabling individuals and organizations for necessary and immanent changes such as the digital transformation, they need to be implemented and used carefully to avoid several risks.

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References

- Anglin, A. H., Kincaid, P. A., Short, J. C., & Allen, D. G. (2022). Role theory perspectives: Past, present, and future applications of role theories in management research. *Journal of Management*, 48(6), 1469–1502.
- Ashforth, B. E., Kreiner, G. E., & Fugate, M. (2000). All in a day's work: Boundaries and micro role transitions. *The Academy of Management Review*, 25(3), 472.
- Bates, F. L. (1956). Position, role, and status: A reformulation of concepts. *Social Forces*, 34, 313–321.
- Berente, N., & Yoo, Y. (2012). Institutional contradictions and loose coupling: Postimplementation of NASA's enterprise information system. *Information Systems Research*, 23(2), 376–396.
- Biddle, B. J. (1979). Role theory: Expectations, identities, and behaviors.
- Biddle, B. J. (1986). Recent developments in role theory. *Review of Sociology*, 12, 67–92.
- Corbin, J. M., & Strauss, A. (2008). Basics of qualitative research (3rd ed.): Techniques and procedures for developing grounded theory.
- de Ven, A. H. V., & Poole, M. S. (1995). Explaining development and change in organizations. *Academy of Management Review*, 20, 510–540.
- DiLeonardo, A., Mendelsohn, D., & Wood, A. (2020). Personalizing change management in the smartphone era. Retrieved June 6, 2023, from <https://www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/personalizing-change-management-in-the-smartphone-era>
- Feldman, M. S., & Pentland, B. T. (2003). Reconceptualizing organizational routines as a source of flexibility and change. *Administrative Science Quarterly*, 48(1), 94–118.
- Fitzgerald, M., Kruschwitz, N., Bonnet, D., & Welch, M. (2014). Embracing digital

- technology: A new strategic imperative. *MIT sloan management review*, 55(2), 1.
- Galletta, D. F., & Heckman, R. (1990). A role theory perspective on end-user development. *Information Systems Research*, 1(2), 168–187.
- Halkos, G., & Bousinakis, D. (2010). The effect of stress and satisfaction on productivity. *International Journal of Productivity and Performance Management*, 59(5), 415–431.
- Hasreiter, S. (2023). Digitally enabled change management – an exploratory investigation by human and artificial agents. *Academy of Management Proceedings*, 2023(1), 11804.
- Heckman, R. L., & Galletta, D. F. (1988). Changing roles in IS: A role theory perspective. *International Conference on Interaction Sciences*.
- Hsu, J. S.-C., Li, Y., & Sun, H. (2017). Exploring the interaction between vertical and shared leadership in information systems development projects. *International Journal of Project Management*, 35(8), 1557–1572.
- Kahn, R. L., Wolfe, D. M., Quinn, R. P., Snoek, J. D., & Rosenthal, R. A. (1964). *Organizational stress: Studies in role conflict and ambiguity*. John Wiley.
- Kanitz, R., & Gonzalez, K. (2021). Are we stuck in the predigital age? Embracing technology-mediated change management in organizational change research. *The Journal of Applied Behavioral Science*, 57(4), 447–458.
- Lin, X., Li, Y., Califf, C. B., & Featherman, M. (2013). Can social role theory explain gender differences in Facebook usage? *46th Hawaii International Conference on System Sciences*, 690–699.
- Lyytinen, K., & Newman, M. (2008). Explaining information systems change: A punctuated socio-technical change model. *EJIS*, 17, 589–613.
- Markus, M. (2004). Technochange management: Using IT to drive organizational change. *Journal of Information Technology*, 19, 4–20.
- Orlikowski, W. J. (2000). Using technology and constituting structures: A practice lens for studying technology in organizations. *Organization Science*, 11(4), 404–428.
- Rizzo, J. R., House, R. J., & Lirtzman, S. I. (1970). Role conflict and ambiguity in complex organizations. *Administrative Science Quarterly*, 15(2), 150–163.
- Rynes, S. L., Giluk, T. L., & Brown, K. G. (2007). The very separate worlds of academic and practitioner periodicals in human resource management: Implications for evidence-based management. *The Academy of Management Journal*, 50(5), 987–1008.
- Schilke, O., Hu, S., & Helfat, C. E. (2018). Quo vadis, dynamic capabilities? A content-analytic review of the current state of knowledge and recommendations for future research. *The Academy of Management Annals*, 12, 390–439.
- Shadbad, F. N., & Biros, D. (2021). Understanding employee information security policy compliance from a role theory perspective. *Journal of Computer Information Systems*, 61(6), 571–580.
- Sluss, D. M., Dick, R. V., & Thompson, B. S. (2011). Role theory in organizations: A relational perspective.
- Tavakoli, A., Schlagwein, D., & Schoder, D. (2017). Open strategy: Literature review, re-analysis of cases and conceptualisation as a practice. *The Journal of Strategic Information Systems*, 26(3), 163–184.
- Thunman, E. (2012). Burnout as a social pathology of self-realization. *Distinktion: Journal of Social Theory*, 13(1), 43–60.
- Turner, R. H. (1990). Role change. *Annual Review of Sociology*, 16, 87–110.
- Urquhart, C., Lehmann, H., & Myers, M. D. (2010). Putting the ‘theory’ back into grounded theory: Guidelines for grounded theory studies in information systems. *Information Systems Journal*, 20(4), 357–381.
- Vandenberghe, C., Bentein, K., & Panaccio, A. (2014). Affective commitment to organizations and supervisors and turnover: A role theory perspective. *Journal of Management*, 43(7), 2090–2117.
- Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *Journal of Strategic Information Systems*, 28(2), 118–144.
- Wessel, L., Baiyere, A., Ologeanu-Taddei, R., Cha, J., & Blegind Jensen, T. (2020). Unpacking the difference between digital transformation and IT-Enabled organizational transformation. *Journal of the Association for Information Systems*, 22.
- Wolf, C., Bohn, U., & Brugger, L. (2023). Data driven organizations: Boosting change success with data. Retrieved June 6, 2024, from https://prod.ucwe.capgemini.com/wp-content/uploads/2023/01/Change_Management_Study_EN.pdf