Wind of Change or Just Another Digitalization Breeze? Lessons from Municipal Digital Change Agent Initiatives

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Abstract. Digital transformation (DT) is a critical challenge for public administration, requiring municipalities to modernize services while overcoming bureaucratic inertia and workforce resistance. Hence, many German states have recently invested in municipal digital change agent (MDCA) initiatives (kommunale Digitallotseninitiativen) to facilitate and accelerate the DT process within municipalities. However, the effectiveness of such initiatives remains underexplored, as public sector constraints differ from those in private organizations, and due to their novelty. This study adopts a case study design using interviews and document analyses to examine the effectiveness and potential of MDCA initiatives. The findings indicate that the success of digital change agents is contingent on clearly defined roles, effective communication strategies, and adequate resource support. The findings highlight key drivers of success, including digital capabilities, appointing dedicated digitalization staff, fostering proactive employee initiatives, participatory leadership, proactive communication, (re)building trust, and personal benefits. However, several challenges impede MDCA's effectiveness, such as unclear role definitions, insufficient training, lack of assigned responsibilities and communication, resource scarcity, and inadequate leadership support. Structural obstacles, such as low prioritization of digitalization, absence of incentives, and resistance from tenured employees, further restrict progress. The study derives four propositions regarding the effectiveness of MDCA initiatives and DT enhancement in public administration: Clearly defining the MDCA role and responsibilities, assigning DT responsibilities to managers, increasing visibility and prioritization of DT, and introducing incentive mechanisms to foster engagement. These insights contribute to the literature on DT and change management in public administration, highlighting the need for structured frameworks and accountability measures. While MDCAs can act as catalysts for digital change, their effectiveness depends on strategic alignment, leadership commitment, and adequate resource allocation.

Keywords. Digital Transformation, Internal Change Agents, Public Administration, Municipalities, E-government
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1. Introduction

Governments worldwide are changing in the light of DT, aiming to enhance process efficiency and improve public service delivery (Twizeyimana & Andersson, 2019). Municipalities play a particularly critical role in this process, as they are the first point of contact for many citizens, providing the majority of the national, state, and municipal public services. Effective digitalization can help enhance service delivery and accessibility, optimize resource allocation, and mitigate workforce shortages. Furthermore, governments face growing pressure to digitize services, increase transparency, and foster citizen engagement in response to evolving societal and technological demands (Jahn et al., 2024).

However, public sector organizations in Germany encounter unique challenges in adopting DT (Ritchie, 2014). Legal constraints, bureaucratic inertia, and risk aversion slow progress, as a workforce accustomed to traditional processes often resist new technologies (Kussel et al., 2024; H. Markus & Meuche, 2022). Public authorities operate strictly within the boundaries of legal provisions, meaning that any change to processes has emerged from the law. If regulations do not explicitly require digital workflows, there is little motivation or incentive to implement them, as they lack the legal basis to justify financial resources from tax funds (Ritchie, 2014). Beyond legal constraints, institutional inertia and resistance to change present additional challenges. Employees accustomed to well-established administrative procedures for decades may view digitalization as a disruption rather than an improvement. Unlike private-sector organizations, where competition and efficiency pressures drive innovation, public administration operates under long-term stability principles, making change slow and complex. In addition, DT extends beyond mere technology adoption; it requires a fundamental cultural shift, which is often underestimated (Bannister & Connolly, 2014; Kuhlmann & Heuberger, 2023). Thus, implementation requires people familiar with the process to make the necessary local adjustments. To address these challenges, several German states have introduced MDCA initiatives (Kommunale Digitallotseninitiativen) to support and accelerate DT in municipalities (Fischer & Breaugh, 2024). MDCAs are internal employees who receive external training to assist their colleagues and facilitate DT (Fischer & Breaugh, 2024). However, the municipalities struggle to measure the effectiveness of such initiatives because private sector change management metrics are not easily transferable due to differing objectives (shareholder value vs. public value (Moore, 1995; Segura-Tinoco et al., 2020)) and workforce demographics and culture. For instance, in German public administration, 26% of employees and 31% of political leaders are over 55, often lacking digital education (H. Markus & Meuche, 2022).

The existing literature on DT in public administration covers various aspects of change management, strategy, and transformation progress (Kuipers et al., 2014; Tangi et al., 2021; van de Voet, 2014). However, much of this research focuses on high-level strategies and transformation outcomes (e.g., Gong et al., 2020), while the evaluation of specific measures and influencing factors remains underexplored (Buick et al., 2018; Heuberger, 2020; Kuipers et al., 2014). In contrast, change agents literature in the private sector is more developed, with numerous studies identifying success factors, impact areas, and facilitation methods (Bünnagel, 2021; Parry et al., 2014).

However, there is limited research on internal change agents in public administration, with existing studies primarily focusing on the role of managers and their influence on organizational change (Pittaway & Montazemi, 2020; Tangi et al., 2021; van de Voet, 2014). As a result, lower-hierarchy change agents, such as regular MDCAs, remain understudied despite their potential impact on DT. Kuipers et al. (2014) highlight that research often lacks detailed analyses of change processes and their outcomes in public organizations, leaving a gap in understanding how change unfolds and is sustained in governmental settings. This gap underscores the need for further empirical research into the role, effectiveness, and evaluation of internal change agents in public administration. Additionally, most public sector studies prioritize the content and context of change over the actual transformation process and its outcomes (Kuipers et al., 2014). While public sector DT is often technology-driven, cultural and social aspects – such as leadership, regulations, and workforce adaptation – are equally important but frequently overlooked (Kuhlmann & Heuberger, 2023; Mergel et al., 2019; Tangi et al., 2021). Successful DT requires organizational readiness and leadership-driven change, not just technical system upgrades. Moreover, the role of MDCAs is a relatively new and underexplored phenomenon. Most research on change agents focuses on private-sector contexts, leaving limited empirical work on their role and effectiveness in public administration, particularly in facilitating cultural and technological change (Fischer & Breaugh, 2024; Kuhlmann & Heuberger, 2023). Without such evaluations, whether these programs are effective and should be scaled further remains unclear. This gap leads to the following research question: *What factors influence the effectiveness of the municipal digital change agent initiative?*

To address the question, we conducted an exploratory case study (Yin, 2014) to investigate the effectiveness of an MDCA initiative in southern Germany. Our data collection includes 34 semi-structured interviews, analyzed through an abductive coding approach comparing success factors from the literature to the case. Additionally, we incorporated document analysis, informal discussions with the project team, and participation in initiative events for triangulation. To assess the impact of MDCAs, we compared practices and digitalization levels between departments with and without MDCAs. Furthermore, a case comparison with another municipality in southern Germany supports the robustness of the findings.

The study identified key drivers and challenges of MDCA initiatives in public administration. Effective MDCA initiatives and DT are driven by building digital capabilities, appointing dedicated digitalization staff, fostering proactive employee initiatives, encouraging participatory leadership, promoting proactive communication, building trust, and offering personal benefits. However, challenges such as unclear MDCA role definitions, unassigned responsibilities, lack of communication, resource scarcity, limited training, and insufficient leadership support hinder MDCA's effectiveness. Additionally, structural barriers like weak change incentives and low prioritization of digitalization efforts further impede progress. The study concludes with propositions and recommendations for effective MDCA initiatives.

Our study contributes to DT and change agents literature in public administration by examining the effectiveness of MDCA initiatives in a quasi-voluntary setup (Fischer & Breaugh, 2024). By identifying key drivers and challenges, we offer empirical insights into MDCA initiatives and the role of non-management level MDCAs in accelerating DT. Additionally, our findings broaden the discourse on change agents by shifting the focus from leadership roles to regular employees (Pittaway & Montazemi, 2020). The derived propositions serve as a foundation for future research to empirically validate, and the proposed recommendations can be used to set up more effective MDCA initiatives.

2. Theoretical Background

2.1 Change and Digital Transformation in Public Administration

The concept of change and change management encompasses numerous definitions, with "organizational change" being the most commonly used term. van de Ven and Poole (2014) define change in an organizational context as a transformation in form, quality, or condition that can be empirically observed over time. Organizational change involves not only adjustments to structures, systems, and processes but also psychological effects on employees (Choi, 2011). At the same time, employees can significantly influence the change process (Choi, 2011).

DT describes changes in core practices, competencies, processes, as well as (organizational) culture and mindset (Gong et al., 2020). The literature increasingly refers to a continuous change driven by digital technologies, aiming to improve or transform processes through information, computing, communication, and netwosrking technologies (Haug et al., 2024; Vial, 2019). Although governments, states, and municipalities conduct a variety of planned change initiatives, many scholars describe DT in public administration primarily as an emergent process, where incremental changes accumulate into a broader transformation (Kickert, 2010; Mergel et al., 2019). This is because DT is often viewed as a continuous process, in contrast to earlier e-government initiatives, which were characterized by a defined start and end date, a measurable outcome, and a fixed budget (Kickert, 2010; Mergel et al., 2019).

Research also associates DT in public administration with more efficient internal processes, expanded information provision, and a transformed relationship with citizens and businesses (Ndou, 2004). Additionally, bureaucratic structures pose a challenge as they can hinder the adoption of new technological innovations (Lekkas & Souitaris, 2023). Furthermore, the shortage of IT professionals and difficulties in recruiting qualified personnel complicate the implementation of such initiatives (Czernich et al., 2021). Research and practice have shown that successful DT relies on individuals familiar with the processes to implement local adjustments. At the same time, a fundamental cultural shift is necessary to better integrate digital elements into workflows and enable sustainable change (Heuberger, 2020). However, the subsequent organizational culture transformation is often overlooked in the context of DT in public administration and usually follows the technical digitization process (Tangi et al., 2021). In addition to technological aspects, social factors play a crucial role but are frequently underestimated (Bannister & Connolly, 2014; Kuhlmann & Heuberger, 2023). Thus, an increasing number of public administrations use the concept of internal change agents.

2.2 Internal Digital Change Agents

In the context of change initiatives, individuals or teams, known as change agents, can take on the initiation, promotion, or implementation of change initiatives (Caldwell, 2003). A distinction can be made between internal (employed staff) and external (external staff, e.g., consultants) change agents (Caldwell, 2003). Internal change agents address individual reactions to change (Wylie & Sturdy, 2018) or promote change (M. L. Markus & Benjamin, 1996). Studies have examined a variety of aspects of this concept, such as the influence on resistance (Battilana & Casciaro, 2013; Ford, Jeffrey D., Ford, Laurie W. & d'Amelio, 2008), acceptance and readiness benefits (Armenakis et al., 1993; Hemme et al., 2018), as well as individual workplace behavior (Parke et al., 2021). For instance, in Lewin's 3-phase model, change agents support readiness in the first phase, promote acceptance and exploration of the change in the second phase, and consolidate the progress made in the third phase (Armenakis & Bedeian, 1999; Burnes, 2004; Wylie & Sturdy, 2018). In this study, we focus on internal change agents based on Wylie and Sturdy (2018). The authors define them as individuals in permanent employment who dedicate part of their role to managing change, actively contributing to defined change projects or programs, and being part of a team or unit with a clearly assigned responsibility for implementing change. Thus, we define MDCA as trained internal employees facilitating DT within a municipal organization like a city administration. Another dimension for change agents is their role within the organization, whether in a leadership position or as regular employees (Parke et al., 2021; Specht et al., 2018). Regardless of their role, a strong network within the organization and effective change communication are key success factors (Battilana & Casciaro, 2013).

For a successful DT, processes, regulations, employees, and especially leadership must be adapted (Mergel et al., 2019). The literature emphasizes the crucial role of managers, as they exert the most significant influence within hierarchical structures (Kuipers et al., 2014; Pittaway & Montazemi, 2020). DT significantly impacts the

relationship between public managers and employees, requiring managers to emphasize relationship management, participatory leadership, and clear frameworks to effectively engage their employees (Gilli et al., 2024). Research focuses on the role and influence of leadership, identifying managerial support as a critical factor (Kuipers et al., 2014; Pittaway & Montazemi, 2020). Studies address topics such as the perception of DT (Mergel et al., 2019), challenges (Moser-Plautz, 2024), the impact of communication on employee readiness (Hameed et al., 2019), DT expertise of leaders (Pittaway & Montazemi, 2020), and the role of middle management as change agents in managing resistance (Buick et al., 2018). Buick et al. (2018) found that middle management change agents can effectively facilitate transformation and reduce resistance if adequately supported. However, the role and effectiveness of MDCAs, who are not exclusively in management positions, have been neglected in existing research.

MDCA initiatives aim to accelerate DT in cities, municipalities, and districts. They act as an interface between administration, citizens, and businesses to efficiently facilitate the DT in public administration (Fischer & Breaugh, 2024). The first approaches to such programs emerged in Germany in 2018 when the first federal states in southern Germany began deploying administrative staff as MDCAs following specialized training to support administrations in digitalizing processes and services. These programs were further developed in subsequent years and adopted by other federal states. During the COVID-19 pandemic (2020–2021), digitalization gained significant traction, further increasing the relevance of MDCAs. Many German cities implemented such programs to systematically address the challenges of DT.

2.3 Impact Areas of Internal Change Agents

The effectiveness of internal change agents in enhancing DT depends on their skills and the organizational areas they can impact. This chapter summarizes three core impact areas: employee support, resistance management and acceptance, and networking. All impact areas contribute to the workforce's acceptance of and willingness to change and are thus relevant for internal change agents such as MDCAs. While internal change agents can facilitate communication, foster readiness for change, and mitigate resistance (Buick et al., 2018), their effectiveness depends on leadership backing and sufficient resources (Fischer & Breaugh, 2024).

Impact areas are the key domains where change agents influence organizational transformation, defining where and how their actions drive change. Employee support comprises two key areas: social support and the promotion of self-efficacy. *Social support*, a central focus of change agents, includes emotional, instrumental, informational, and appreciative support (Bünnagel, 2021; Fischer & Breaugh, 2024). *Emotional support* aims to reduce fears and foster readiness for change through empathy, trust, and active listening (Endrejat et al., 2021). *Instrumental support* provides practical help, such as assistance with information systems, while *informational* support focuses on the structured sharing of explicit and tacit knowledge (Bünnagel, 2021; Fischer & Breaugh, 2024). *Appreciative support* enhances self-efficacy through constructive feedback and the recognition of achievements (Bünnagel, 2021). Promoting *self-efficacy* focuses on strengthening employees' personal traits that enhance openness to change. Self-efficacy is a key factor in successfully navigating change processes (Armenakis et al., 1993; Kuntz & Gomes, 2012). Overall, support from change agents contributes to fostering readiness for change and overcoming challenges in the transformation process.

Managing resistance is one of the core responsibilities of change agents (Angehrn & Atherton, 1999; Endrejat et al., 2021). They can create an understanding of change by highlighting its necessity and urgency (Armenakis & Fredenberger, 1997). In addition, change agents are expected to convince employees of the change and increase their willingness to embrace it by demonstrating organizational and personal benefits (Armenakis et al., 1993; Hemme et al., 2018). It is crucial for employees to recognize that the change is achievable and that they possess the skills required to implement it successfully, also known as resilience (Armenakis & Fredenberger, 1997). Clearly defined and achievable goals can further build trust in the change process (Kuntz & Gomes, 2012). Another goal of change agents is to foster a sense of accountability for the change among employees (Angehrn & Atherton, 1999). They should also confidently handle critical reactions and effectively manage conflicts (Pádár et al., 2017). Furthermore, they should address problems directly and confront underperforming employees or leaders when necessary (Furnham, 2002).

Managers play a unique role in change processes as they can impact areas beyond the influence of regular change agents, increasing the impact. Managers can influence DT at various hierarchical levels and in different ways. Lekkas and Souitaris (2023) distinguish between higher-level and lower-level managers: while senior managers initiate or approve changes, their lower-ranking counterparts are primarily responsible for operational implementation. Higher-level managers are tasked with developing visions and strategies for transformation (Fernandez & Rainey, 2006). This includes formulating a clear vision, defining goals, outlining expected outcomes, and assessing their impact on respective departments (Caldwell, 2003; Westover, 2010). Additionally, they are responsible for initiating the change process (Caldwell, 2003), ensuring the provision of adequate resources (Caldwell, 2003; Fernandez & Rainey, 2006), and overseeing progress to evaluate the success of the transformation (Angehrn & Atherton, 1999; Bünnagel, 2021). Lower-level managers play a crucial role in engaging employees at

the operational level. In addition to managing resistance (Westover, 2010), they can encourage employees to adopt new technologies (Caldwell, 2003). Gathering feedback, such as on new software, and organizing training programs are also central responsibilities (Fernandez & Rainey, 2006; Westover, 2010).

To enhance employee involvement, bottom-up initiatives are often promoted (Hansen & Nørup, 2017), and employees are integrated into decision-making processes (Angehrn & Atherton, 1999; Hansen & Nørup, 2017; Westover, 2010). Participation in implementation can further increase employees' acceptance of change initiatives (Fernandez & Rainey, 2006). While a participative leadership style improves change acceptance, a more directive leadership approach is recommended for performance-oriented implementation (Hansen & Nørup, 2017; Westover, 2010). Managers can also employ various motivational strategies. Besides traditional incentives, persuasion, rewards, and guarantees against potential disadvantages, they may also use critical feedback, pressure, or coercion (Fernandez & Rainey, 2006). Supportive measures such as psychological assistance or symbolic ceremonies can also facilitate transformation processes (Fernandez & Rainey, 2006). Managers at all levels can also influence change passively by demonstrating acceptance and commitment to transformation through their own attitudes and behaviors, thereby signaling their support for the process (Armenakis et al., 1993).

3. Method

MDCA initiatives are still a quite new approach that an increasing number of cities implement to accelerate their stagnating DT activities. The review of the literature revealed a lack of empirical evidence on the effectiveness and success of such initiatives (Kuhlmann & Heuberger, 2023; Tangi et al., 2021). When conducting the study, the literature provided little empirical evidence on the effectiveness and success of such initiatives. Therefore, we deem an exploratory case study approach suitable for the study (Yin, 2014).

3.1 Case City

For this study, we collaborated with a major city (with a population of at least 100,000 – in our case, less than 200,000) in southern Germany. The city implemented MDCAs in its municipal administration in 2019. According to their current concept, MDCAs serve as multiplicators for DT, aiming to reduce fears and concerns while motivating employees to actively contribute to its implementation. The MDCAs are part of their digital strategy, which targets DT across nearly all administrative areas, resulting in the deployment of MDCAs in almost all departments. The case city emphasized that every employee – regardless of the role or hierarchy level – is welcome to participate in the training and to qualify as MDCA.

The initiative is coordinated by the Department for Digitalization and IT Planning (Digitalization Department). The MDCAs are municipal employees who undergo three-day seminars to be trained as ambassadors for digitalization. During the training, they receive basic knowledge of DT and Change Management. The program aims to actively involve employees in the DT. The main tasks of MDCAs in the case city include informing colleagues about the city's digital activities, enhancing the understanding of DT, serving as advisors and supporters to mitigate concerns and fears, the proactive proposal of ideas to advance DT, driving cultural change by exemplifying a digital mindset, supporting organizational units in communicating their digital needs as well as implementing the digitalization strategy and actively shaping the DT. For these tasks, five working days per year are allocated for MDCAs. Additional initiatives can be pursued beyond regular working hours. Consequently, the role is quasi-voluntary.

3.2 Data Collection and Analysis

We used several information sources to collect data and enable data triangulation (Yin, 2014). Therefore, we conducted 34 semi-structured interviews, participated in an MDCA networking event day, protocoled the observations from the event and from informal meetings with the project leaders, and analyzed internal documents. The case city comprises 38 departments, ranging from the citizens' office to the city treasury and facility management. At the time of data collection in early 2024, 17 of these departments hosted 27 MDCAs, leaving 21 departments without an MDCA. To comprehensively analyze the effects of the MDCA initiative, we interviewed MDCAs, their managers, and employees from departments with MDCAs. In departments without MDCAs, we interviewed managers and employees to gather comparative insights. As summarized in Table 1, a total of 34 interviews were conducted – 28 in departments with MDCAs and 6 in departments without MDCAs, the latter reporting a high degree of digitalization. Specifically, in departments with MDCAs, we conducted 10 interviews with MDCAs, 8 with MDCAs in management positions, 4 with regular employees, and 6 with managers. In departments without MDCAs, interviews included three employees and three public managers across three departments. The sampling was balanced to account for the MDCAs' years of experience, as we anticipated that greater experience would correlate with higher impact (Myers & Newman, 2007). Interviews ranged from 24 to 77 minutes, averaging 43 minutes. The sampling process was influenced by employee availability, resulting in last-minute cancellations and adjustments, including the replacement of interviewees.

Tab. 1 – Interview Sampling (MDCA-M = Municipal Digital Change Agent-Manager, E = Employee, M = Manager).

Department	MDCA	MDCA-M	E	M
6 with MDCAs	10	8	4	6
4 without MDCAs	N/A	N/A	3	3

Based on the literature review, the informal discussions with project management, and the document analysis findings, an interview guide was developed to gain a deeper understanding of the experiences, perspectives, and attitudes of the MDCAs. It covers key topics such as resistance management, digital competencies, readiness and willingness to change, acceptance, change agent training, challenges and success factors, and the perception of the MDCA initiative and the MDCAs themselves. The interviews aimed to gather insights into the extent to which actual experiences and practices align with the concepts described in the literature and the goals pursued by the city. Semi-structured interviews were conducted to achieve comparable results while still capturing the diversity of MDCA mechanisms (Myers & Newman, 2007). During a full-day MDCA networking event, we talked to the MDCAs, participated in the discussion rounds, and summarized all impressions and observations in a joint protocol (Yin, 2014). The observations covered the agenda, self-perception, wishes, complaints, and tasks mentioned by the MDCAs, presented facts about the initiative in the case city and relevant quotes per topic. As for the document analysis, we included training documents, the digital strategy of the case city, their MDCA concept, annual reports, an internal MDCA toolbox, protocols of the meetings with the MDCA project leaders, and presentations (if available) from the networking events.

The data analysis followed an abductive coding approach based on concepts from the literature while drawing on grounded theory to identify emerging themes and patterns (Eisenhardt, 1989; Gioia et al., 2013). The analysis focused on identifying the drivers and challenges of the current MDCA initiative regarding DT for a comprehensive understanding of its implementation. We employed triangulation across all data sources to enhance reliability and validity (Yin, 2014). To enhance the robustness of our study, we incorporated insights gained through a public meeting from another city (>150,000 inhabitants) in southern Germany. The city (City-2) implemented the same MDCA initiative following the same state-led training initiative and conducted an internal evaluation.

4. Results

4.1 Drivers of Municipal Digital Change Agents and Digital Transformation in Public Administration

This section presents the drivers for MDCA initiatives and DT in public administration identified from the case study. Table 2 summarizes all drivers at the end of chapter 4. In the following interviewee citations are indicated according to Table 1 (e.g., M1 = Manager1).

Building digital capabilities. Departments without MDCAs but with a high degree of digitalization emphasized their ability to build and capture digital capabilities by strategically hiring tech-savvy employees. Thus, focusing on digital expertise in recruitment is a key driver for their digitalization success. While most employees acquired the necessary digital skills during their professional education, several managers reported identifying tech-savvy employees within their teams and intentionally assigning them digital tasks to leverage their expertise or point them out as digitally responsible (M2; M4; M5). In addition, employees in digitalized departments are reported to be well-trained in the respective systems.

Dedicated full-time digitalization equivalent. Each digitalized department had at least one team member responsible for digital topics. These employees were typically tech-savvy individuals with a strong curiosity and intrinsic interest in digitalization, demonstrating dedication and a fundamental understanding of the relevant processes. The need for such a role stems from the increasing complexity of digitalization efforts, making a decentralized approach less viable. As one interviewee explained, *"[Digitalization] has now reached such a scale and requires consolidated expertise that we decided to create the position of a 'digitalization specialist' position within our organization to centralize the competencies previously distributed across various individuals. (...) In my opinion, decentralization no longer works. It can only function centrally, with someone who holds all the threads while involving others (...)."* (M3) While most MDCAs themselves have limited capacity for DT topics directly, they view themselves as role models*: "I see it as my responsibility to make sure that I use the city's digital services, that people can see I use them, that I can handle them, and that I also look into what else can be digitalized that hasn't been digitalized yet."* (MDCA5) By demonstrating digital competence in practice, they aim to encourage broader acceptance and integration of digital processes across their departments. Although awareness of the MDCA initiative varies, several employees who know about it appreciate having a clear point of contact for digitalization-related concerns, recognizing the necessity of guidance and structured support. *"I do think it's good to have a point of contact to turn to. Because if everything gets digitalized and there's no one you can approach with questions, it would become a bit difficult. One person might be more technically skilled, (...) and understand things more easily, while another might not. I also have to consider the older colleagues."* (M5).

Proactive employee initiatives. While various facets of proactive initiative were observed, they originate from the same underlying reasons: a strong sense of responsibility and the belief that individual actions can lead to meaningful improvements in processes and workflows. Therefore, employees demonstrated attentiveness towards their colleagues and proactively offered help where needed: *"Afterward, I did realize that there was still a need for discussion – and that not everyone understood what was happening. I then scheduled another meeting once I noticed this to provide a more fundamental explanation."* (M1, MDCA-M1)*.* Beyond assisting, employees take ownership of digital advancements, identifying opportunities for tool development or software improvements. When they recognize inefficiencies or discover better solutions from external sources, they take the initiative to assess potential benefits and address the topic with their manager. As one manager told us: *"Now we're switching to a new software. These are initiatives that come from employees who have learned that something like this works elsewhere with certain software. It fits better. Then you look at things and consider whether you can generate added value or simplify work processes."* (M2). This mindset reflects a new culture where employees actively shape their digital environment rather than passively adapting to imposed changes, ensuring that new technologies are integrated to enhance efficiency and usability.

Participatory leadership style. This describes managers who include their employees through active communication, feedback collection, and participation. There is a strong consensus that managers should actively support DT by involving employees and providing clear strategic direction. *"Ultimately, it all stands and falls with the managers – no question about it. They must ensure persistence, advocate effectively, and act as the driving force."* (M3). Managers from these departments stated that they regularly collect feedback from team members on tools and requirements for new software, invite them to beta tests, and talk about current updates and concerns at team meetings (M2; M4). In addition, some managers mentioned celebrating digitalization successes with their teams, reinforcing motivation and a positive attitude toward change. Training programs in these departments play a key role in preparing leaders for this approach, as managers and aspiring managers are systematically trained in change management and transformation methods as part of their career development. One MDCA-M also adopted a similar approach to encourage collaborative innovation: *"[I] actually try to involve people in a dialogue and encourage them to think for themselves about what could be done. (…) It's not about me sitting in an office and deciding how things should be done, but about sitting down together and figuring out how to approach it and what solutions we have."* (MDCA-M5). A participatory leadership style creates a more sustainable and employee-driven DT process by positioning leadership as an enabler rather than a directive force.

Active communication. Active communication is also part of the participatory leadership style and can be enacted by both managers and employees. Still, regular MDCAs can use proactive communication to spread information about DT and to give feedback to their colleagues and managers on how to enhance a digital mindset*: "Well, I spoke very openly. I often said, yes, you also have to deal with it, so, of course, it was department manager and his deputy. There's no other option, you have to deal with it."* (MDCA2) Departments with strong communication structures (M3; M1) report that employees feel well-informed about digitalization and system handling (M5; M2; E2). In addition, the Digitalization Department shares information on DT, e.g., by offering practical guidance on activities like setting up mobile devices, which employees and MDCAs who use the intranet find very valuable. Furthermore, MDCAs can serve as a direct communication link between employees and the Digitalization Department. In some cases, they helped identify needs, problems, and progress within their department.

(Re-)Building trust. MDCAs build trust by engaging with colleagues, pointing out the advantages of digitalization and small efficiency gains (e.g., using email instead of internal mail), and attempting to reduce fears by building trust. In this process, having the patience to identify the root causes of those fears helped to overcome them and ultimately generate acceptance. Those who were a bit anxious can be persuaded through training and support programs. However, individuals with deeply ingrained fears often develop them due to previous negative experiences with change initiatives. Hence, they first need time to rebuild trust, as illustrated by one MDCA: *"They are really extremely afraid, and in some cases, they're 30, 40, 50 years old, working for the city (…) they've had bad experiences, they lack trust, and that was crucial. I first had to build trust. It took about a year, but then it was really, really great because they knew they could rely on me. They simply lacked a foundation."* (MDCA7). Thus, MDCAs could effectively take on the role of a trusted intermediary, facilitating smoother transitions and greater acceptance of DT efforts (MDCA7; MDCA-M5). In addition, many MDCAs reported open, trusting relationships with colleagues (MDCA5; MDCA1).

Personal benefit. Employees seemed more likely to accept change in terms of DT or take over digital responsibilities when this change comes with other benefits for them, such as remote work. One interviewee from the municipal health department explained that the introduction of remote work significantly increased willingness to adopt digital tools during the COVID-19 pandemic*: "There was resistance from employees, yes, and skepticism, no question about it. The workforce (…) has a rather advanced age, let's put it that way, and perhaps a mindset that is somewhat inflexible. (…) Many employees have been here for decades (…), and they naturally struggled a lot with the transition. (…) Ultimately, there was a significant shift when the option of working from home was introduced. Then, employees showed more willingness to embrace something new."* (E2). In addition, offering individual benefits also lowers resistance and increases readiness for digital change. *"I resisted taking on the role*

of digitalization officer for a year. (...) then I finally agreed to do it voluntarily and got a day of home office in return. That's how they got me." (E1), explained an employee from the specialist administration for the building material rights department.

4.2 Challenges of Municipal Digital Change Agents Initiatives

This chapter describes the challenges we encountered while investigating the MDCA initiative. We clustered them into organizational, cultural, and structural challenges. Each group has a different level of access or leverage for the municipalities to implement resolutions. Table 2 summarizes all challenges at the end of chapter 4.

The organizational challenges are obstacles that lie within the organizational setup of the MDCA initiative. Hence, the city has the power to overcome the challenges of this group. While the power to change is high, this does not necessarily mean that the case city has sufficient resources to implement resolution changes.

MDCA Role Ambiguity. There is significant uncertainty among the MDCAs and employees about the change agents' specific tasks and responsibilities, which has been identified as the biggest challenge. The majority of the interviewees (employees, managers, and MDCAs) stated that they were not sure about the responsibilities or duties of an MDCA. One MDCA told us directly: *"[I] am an MDCA, but I don't really know exactly what the goal is at the end of the day. I was never really informed about what was expected. There isn't much information provided (...). I'm not really sure what rights or freedoms are granted in this role, even in day-to-day work."* (MDCA4) The majority perceive themselves as a person of contact. The MDCA concept of the case city includes the following responsibilities that MDCA should take on: active information dissemination, assessment of digital needs, acting as intermediaries between relevant stakeholders, proactively contributing suggestions on how organizational units can advance, serving as a local point of contact, reporting on DT progresses, regular participation in network meetings and knowledge exchange, and contribute to the implementation of the digital strategy by engaging in workshops, real-world labs, and projects. However, further than this level, the description is quite vague in terms of SMART goals or even monitoring mechanisms. We found that two factors contribute to this discrepancy: First, minimal offers (workshops, meetings, a standardized channel for suggestions, etc.) and no reporting claimed by the Digitalization Department (which we address later), and second, a lack of communication about the role. The latter was also documented in a Q&A session following up an early MDCA networking event. Thus, we suspect that this ambiguity harmfully affects the effectiveness of the MDCA. Consequently, the MDCA role is not the primary driver of action. One MDCA explained: *"I don't know if it's due to the role of being an MDCA or if the same result would have been achieved without it."* (MDCA5). The void created by the unclear definition of the MDCA's responsibilities is filled with other topics. For instance, some MDCAs reported during a network meeting that their managers had assigned their role to select a new administrative system, and they were pleased that this selection process allowed them to shape the decision according to their personal preferences. Others complained that their colleagues perceived them as low-level IT support (MDCA4). Similarly, city-2, after an internal evaluation of their program, faced very similar challenges to the case city. The ambiguous role description results in their colleagues' perception of low-level IT support. Furthermore, the factors of gender or years of experience had no notable impact on MDCA effectiveness, highlighting that intrinsic motivation rather than structured responsibilities drove the engagement in DT activities.

Insufficient training. This refers to a lack of practical knowledge among MDCAs, as they struggle to recall content, find it too abstract, and feel unprepared for DT challenges. Most MDCAs could not name any specific content from their basic training that they have applied in their role as an MDCA or demonstrated little recollection of the training content in general. Some MDCAs expressed a desire for more in-depth training and additional information to better address the questions and concerns of their colleagues. *"If you [a colleague] have this or that problem, we take a look at your processes and see if we can simplify something (...). And then [I get] very little understanding: Why? I don't have time for that, and so on. If I knew how to approach this (...), it would have stood out to me here in particular. I honestly don't know how to make it work.,"* explained MDCA7. The analysis of the training documents revealed that change management methods were covered in addition to project management topics. However, most MDCAs seem to have struggled to translate this theoretical knowledge into practice: *"The things we did (...) I found them kind of too abstract. They didn't really help me."* (MDCA6).

Lack of clear communication. This concerns *primarily* the communication on the digital strategy, stakeholder responsibilities, and the role of MDCAs within the city *administration*. Many employees are unaware of the initiative and its impact (E6). The lack of visibility limits engagement and prevents employees from recognizing the value and potential of the initiative. In addition, there are diverging perspectives on the obligation to seek and the obligation to provide information by the employees. Some believe that while digital resources and platforms already provide relevant details, MDCAs should be more active in consistently sharing and promoting it within their departments. Others argue that accessing information is a shared responsibility, emphasizing that employees should also take the initiative in seeking information on the internal platform and exploring available resources, such as internal media channels and newsletters provided by the city. MDCAs generally value their role as it often allows them to receive internal information from management earlier than others or get invited to meetings where

they are introduced to new technologies or beta testing. However, not all see it as their duty to process and share this information or meeting recaps with their colleagues. This is less about deliberately withholding information and more about the lack of responsibility and duties associated with the role. The investigation in City-2 highlights similar observations like the awareness, visibility, and recognition of the initiative.

Unclear responsibilities. We observed a significant conflict regarding the stakeholders' responsibilities in the DT's operationalization. While many employees and managers assume the Digitalization Department will initiate and lead digitalization efforts, the city's digital strategy places authority and accountability within individual divisions and departments. This was supposed to address concerns about top-down imposition, yet it creates ambiguity among all parties involved. Accordingly, several interviewees view stronger guidance from top management as essential to driving DT. Many managers, however, had a different perspective: *"(...) we are not the drivers of digitalization in the city. We are the users. We can provide suggestions, but we don't operationally drive it for ourselves."* (MDCA-M3) and later stated that the digitalization officer is in charge of operationalizing DT. On the other hand, the digitalization officer and the Digitalization Department see the higher-level and lower-level managers responsible for operationalizing the digital strategy. Regarding the MDCA initiative, according to managers, it is not the MDCA's responsibility to push forward digitization initiatives, as no resources for project management were allocated to the MDCA role. Although the execution of larger digitization projects falls under the purview of the digitization department and, thus, the digitalization officer, they cannot properly execute this task due to limited resources, as discussed later. The issue becomes even more severe when responsibilities for digitalization projects are passed back and forth until they ultimately reside in one department where the already fully occupied employees cannot manage them. For instance, MDCA has initiated the digitization of room booking processes. Shortly after, a new Building Management Office was established, but it did not want to take responsibility for the room booking digitalization project. As a result, the continuation of the initiative has fallen back to the digitization department, where progress is on hold due to limited resources. Several interviewees mentioned the mayor as head of the institution and even higher political forces such as national policymakers and the state as responsible because they were the ones allocating resources and prioritizing strategic topics such as DT (MDCA-M8; MDCA-M1; MDCA7; MDCA6; MDCA3). Most interviewees saw higher-level management in charge of initiating, driving, and prioritizing DT, while lower-level managers were expected to implement and operationalize DT efforts. Across managers and employees, there is a consensus that while DT responsibility covers multiple levels (political level, state level, mayor, etc.), each employee should actively contribute to DT within their means (MDCA-M8; MDCA-M5; MDCA-M3; MDCA1; MDCA2). However, some noted a lack of learning culture and proactive engagement to achieve this goal: *"There is too little learning culture (...) It's easier to say, 'Let someone else handle it.'"* (MDCA2). Although city-2 implemented the same quasi-voluntary approach of the initiative, their managers expected MDCA to take over responsibility for implementing digitalization projects and, like in the case city, did not perceive this responsibility as their own.

Resource scarcity. MDCAs, managers, and employees face limitations regarding time and workforce, including the Digitalization Department and the IT department. The time allocated for the MDCA activities is perceived as insufficient to effectively enhance digitalization. Since the MDCA role encompasses five working days per year, it is primarily voluntary. Hence, since employees are already fully occupied with their daily tasks, their MDCA activities are often deprioritized. *"I don't have the time for this [creating guidelines or reports]. For example, there was a request to create guidelines for meeting media, but I haven't had the time for that. Nor has anyone else. We have a high workload here,"* explained MDCA5. City-2 reported similar observations: MDCAs face significant time constraints, with their responsibilities perceived as "on top," resulting in declining engagement. In such cases, networking meetings or training sessions are typically the first to be canceled. A higher time budget or the integration of MDCA activities into the job description would help the MDCAs to be more effective: *"And it would, of course, be helpful if specific time allocations were designated for this. In other words, being partially relieved from regular duties to have dedicated time to take on and actively carry out this task. That would help all of us tremendously"* (MDCA-M5). Similar capacity constraints forced the digitalization officer to scale back MDCA support, including temporarily suspending the Meet & Learn series, a virtual space for knowledge exchange (MDCA-M1). Furthermore, several interviewed MDCAs (MDCA10; MDCA3) did not possess their own device for participating in the online interview and had to use the only device with a camera in the department, which belongs to her supervisor. According to her manager, the shortage of technical resources and progress stems from the understaffing of the IT department: *"If the [IT department] is not well staffed, you just have to be glad if you can manage regular operations."* (MDCA-M6).

Missing structured framework. This refers to the absence of overarching offers for the MDCA initiative to be effective, such as regular networking and exchange meetings, training opportunities, or support. Although the MDCAs seem to be well-connected with their work colleagues and within their departments, they lack opportunities to exchange best practices and experiences with other MDCAs. The desire to learn from their counterparts and share experiences was raised multiple times: *"(...) I would have liked it to go a bit deeper, more like, how do you do it? I have these experiences, what are yours? So, being more in exchange."* (MDCA7). This issue originates from capacity constraints within the Digitalization Department, which oversees the initiative. Correspondingly, the MDCAs from city-2 miss offers for experience exchange and networking within the initiative.

Cultural challenges are obstacles that lie within the working culture and work demographics. Hence, the city has some power to overcome the challenges in this group. The process, however, takes much more time and effort, and the results only display in the long run.

Limited proactive engagement of MDCAs. This results from the ambiguous role of understanding the conflicting communication from the Digitalization Department (compared with the MDCA concept) and the limited accountability expected from MDCAs. According to the Digitalization Department, MDCAs are meant to play a somewhat educational role. They are intended to foster enthusiasm, influence organizational culture, and be knowledgeable about digital topics. However, the following or similar statements cast doubt on the initiative's effectiveness: In response to the question of what tasks the interviewees pursued as MDCA, they answered that they were available as a point of contact. When asked how often they are approached, they responded that they have not been contacted within the last year. Several MDCAs mentioned that they currently do not actively engage in their MDCA role within their departments (MDCA-M8; MDCA-M6; MDCA) – primarily due to time restrictions, the role ambiguity, limited intrinsic motivation, and the lack of accountability (E4). While MDCAs are generally perceived as keen to help and assist their colleagues with digital topics when approached, they seem discouraged about the limited openness of their colleagues to learn new things. *"To be honest, I don't even try to explain it to a colleague because it just goes in one ear and out the other; there's simply not much interest there."* (MDCA4). This behavior is predominantly reported for elderly personnel. Thus, younger employees might grasp the necessity of change in the light of DT faster, which we will discuss later (MDCA3).

Limited active leadership support. This refers to the passive managerial approach toward DT and MDCAs, characterized by tolerance rather than active facilitation, sometimes accompanied by managerial control concerns, organizational inertia, and a lack of a trusting feedback culture. Management support for MDCAs varies substantially across departments. Only a few interviewees, mostly MDCA managers, claimed that managers were actively involved in DT activities, often referring to their own engagement. For instance, one interviewee noted that their division management maintained an open attitude towards digitalization and covered training costs but did not mention any other active engagement (MDCA4). While the majority of MDCAs state that they do not receive support from their manager (MDCA3; MDCA3), others report that their activities as an MDCA are being tolerated or that their ideas are only checked for practicability and effort by their manager or that they have full leadership support (MDCA2; MDCA-M4). Two other managers expressed a certain reluctance towards DT by showing a lack of willingness to actively provide support (M4; M5). Managers' passivity and resistance have been frequently reported. One MDCA expressed frustration with a lack of initiative among management: *"(…) the problem is [my manager's] colleagues, the managers who work under him. I see them as the issue – they do not actively contribute, and they are not the ones shaping things. Instead, they expect to be presented with something ready-made, and then they can complain about it."* (MDCA6). This discrepancy in management engagement impacts the effectiveness of MDCAs. While some managers encourage participation and remove challenges, others exhibit skepticism, reluctance, or a fear of losing control. This notably slowed digitalization efforts and shifted the convincing responsibility onto employees (E2). This aligns with the insights from city-2, where MDCAs noted limited management support and unequal approaches from managers in releasing MDCAs from regular tasks to pursue MDCA activities.

Structural challenges are obstacles that lie within the particularities of the public sector, like their monopolistic position, incentive mechanisms, and tenure protection (Ritchie, 2014). Hence, the city has the power to overcome these challenges. The process, however, takes much more time and effort, and the results only display in the long run.

Lack of change and digitalization incentives. This refers to positive incentives like promotions or rewards and negative incentives like sanctions or disciplinary actions. In the city administration and the initiative's current set-up, there are no consequences for departments or employees who avoid digitalizing their work processes or blocking joined digitalization efforts with other departments. As a result, MDCAs and departments are left to handle the situation on their own if they encounter avoiders or strong resistance, as one MDCA remembers: *"[There are people] who simply don't want to. And if there isn't much pressure from the city, they don't feel obligated to do it either. Or if their manager doesn't explicitly tell them to, they just don't do it. There's really nothing you can do about it."* (MDCA7). According to several interviewees, a key challenge is that elderly colleagues, particularly tenured employees, lack incentives to engage in DT efforts since they face no professional consequences for refusal (MDCA3). However, this challenge is not limited to elderly colleagues. The lack of incentive is widespread across all age groups. Younger employees in the administration perceive their formal education as sufficient, displaying little interest in further developing their digital skills. (MDCA-M1). The lack of directive authority of the regular MDCAs can generate frustration because the MDCA solely relies on consistent persuasion until resignation (MDCA-M2; MDCA3; MDCA7)

Insufficient visible prioritization. This refers to the quasi-voluntary and resource-constrained set-up of MDCA initiatives, which results in structural marginalization of the MDCA role and reduces their overall effectiveness in the DT. Hence, the overall impact of the MDCAs in their current role within the case city is considered rather limited

by the majority of interviewed people (MDCA5). City-2 reported this challenge, too. Many MDCAs are not acting upon their role since it is "not a priority."

Tab. 2 – Drivers and Challenges for MDCA initiatives and DT in public administration.

Drivers	Challenges	
- Building digital capabilities	**Organizational**	**Cultural**
- Dedicated full-time equivalent for digitalization	- MDCA role ambiguity	- Limited proactive engagement of MDCAs
- Proactive employee initiatives	- Insufficient training	- Limited active leadership support
- Participatory leadership style	- Lack of clear communication	**Structural**
- Active communication	- Unclear responsibilities	- Lack of change and digitalization incentives
- (Re-)Building trust	- Resource scarcity	- Insufficient visible prioritization
- Personal benefit		

5. Discussion

MDCA initiatives are a recent attempt to accelerate DT in public administration. While the literature on DT and change agents in public administration predominantly focuses on managerial change agents in leadership positions and managerial influence, the role and effectiveness of lower-hierarchy internal change agents, such as MDCAs, remain largely underexplored. This gap results in a lack of empirical insights into the effectiveness of such initiatives to enhance DT. This study presents insights into the effectiveness of MDCA initiatives on DT in public administration. To this end, we conducted an exploratory case study with a case city in southern Germany using interviews, informal discussions, document analysis, and insights from another south German city that implemented the same initiative. In the following, we first contextualize the observations with the literature to derive propositions, then present theoretical and practical implications and address the limitations of this study.

5.1 Propositions for Digital Transformation Initiatives in Public Administration

The effectiveness of internal change agents, particularly in the public sector, is underexplored in the literature, with existing research mainly focusing on industrial settings (Bünnagel, 2021; Parry et al., 2014). While clarity for the primary role is recognized as a factor for organizational effectiveness, its impact on employees assuming an additional role – such as MDCAs – has not been systematically examined. Our findings indicate that MDCA role ambiguity contributes to internal and external adoption issues. MDCAs from two initiatives struggled to internalize their responsibilities due to vague expectations. At the same time, colleagues and managers found it difficult to engage with them effectively, as their function within the organization remained unclear. This ambiguity results in uncertainty regarding how MDCAs should contribute to DT efforts, leading to passivity, deferred tasks, and inefficiencies in DT acceleration. In contrast to our results, Fischer and Breaugh (2024) found that MDCAs had a significant effect in their investigated city, deriving by six success factors: 1) The selection of motivated and empathetic MDCAs, 2) the provision of sufficient time resources, 3) the utilization of local expertise, 4) a focus on specific tasks to prevent overload, 5) the integration into broader digitalization strategies, and 6) the recognition and appreciation of their work. As laid out, our case city could only leverage factor 3) using local expertise and touched upon factor 1) selection of motivated MDCAs, and factor 6) appreciation of MDCAs; the remaining factors are neglected with the current set-up of the initiative and thus limit the effect of MDCAs in the case city. In our case study, the case city did not manage to implement an effective MDCA concept, leaving most MDCAs without the necessary structural support to succeed. The main reasons we identified are the MDCA role ambiguity, insufficient training, and the missing structured framework. Insights from City-2 further confirm the above findings, as they also reported unclear role descriptions and misperceptions of MDCAs as low-level IT support due to role unclarities. This leads to:

Proposition 1: Insufficient role definitions and organizational anchoring of MDCA initiatives reduce their effectiveness in accelerating DT because it leads to unclear responsibilities and limited active participation in DT efforts. (MDCA Role Clarity & Anchoring Proposition)

The case study demonstrated how the decentralization of DT responsibilities without accountability or monitoring concepts leads to decreased ownership and limited incentives for managers in DT initiatives. Responsibilities are passed back and forth until they reside on either side without consequences. We observed that public managers struggle to operationalize strategies. This is unsurprising because strategies and their operationalization were not a common and relevant task in public administrations before DT. Traditional public administration training does not emphasize the development of these competencies. This creates ambiguity regarding who is responsible for

DT at various levels, leading to a diffusion of responsibility between departments and hierarchical layers. The lack of communication within the DT exacerbates this effect. With vague responsibility structures, DT risks stagnation, as departments either defer ownership or fail to coordinate efforts effectively. This leads to:

Proposition 2: Unclear operational responsibility and respective monitoring for digital strategy in public administrations diminishes engagement and ownership of DT initiatives, leading to fragmented efforts and reduced long-term impact. (Responsibility Proposition)

Insufficient prioritization of DT efforts in public administration is often reflected not only in financial constraints but also in a significant shortage and allocation of specialized personnel, limiting the resources necessary to drive meaningful change (Fischer & Breaugh, 2024). Eggers and Bellman (2015) found that public administration is often faced with many competing priorities like political agendas, limited funding, or the lack of digital workforce skills, all of which make it harder to prioritize DT. The quasi-voluntary nature and limited visibility of the MDCA initiative contribute to the perception that DT is not a strategic priority in both cities. Additionally, time allocation for internal change agents has been a less examined factor in DT literature. Our results indicate that a quasi-voluntary set-up, without positive or negative incentives, has minimal impact on accelerating DT. Therefore, the formal allocation of resources for MDCAs is essential to ensure their effectiveness. Similar challenges have been reported in City-2, where MDCA responsibilities are frequently deprioritized due to time constraints. This leads to:

Proposition 3: A lack of strategic prioritization of DT in public administrations leads to reduced employee engagement due to perceived misalignment between organizational goals and individual motivation for change. (Prioritization Proposition)

The public sector's unique characteristics, such as monopolistic structures, distinct organizational cultures and demographics, and tenure protections, create structural barriers to DT often overlooked in change agent literature. Unlike private-sector organizations, where market competition and performance incentives drive DT, government institutions lack direct external pressures, and employees face minimal consequences for resisting change. Ritchie (2014) identifies risk aversion, bureaucratic inertia, and a lack of incentives as key factors inhibiting change in government, which enhances a culture where maintaining the status quo is preferable to engaging in innovation. Moreover, accountability for DT initiatives is often unclear, leading to diffusion of responsibility and slow adoption. Findings from our case study align with these observations, particularly in the absence of DT incentives. Employees receive no rewards for engaging in DT nor repercussions for resistance. Consequently, elderly tenured employees show little urgency to join DT activities, which may lead to stagnation. While MDCAs advocate for DT, their lack of directive authority limits their impact. To address these challenges, targeted incentive mechanisms tailored to the public sector are necessary. Options include integrating DT competencies into promotion criteria, creating structured recognition programs, or establishing clearer accountability frameworks. Based on these observations, we propose the following:

Proposition 4: The monopolistic structure and tenure protection of employees in public administration reduce the urgency for DT unless targeted incentives and accountability mechanisms are introduced. (Monopoly & Incentive Proposition)

5.2 Recommendations for MDCA Initiatives in Public Administration

This chapter summarizes actionable recommendations for municipalities that plan to implement or enhance their MDCA initiative based on the lessons from the above investigation.

Solid MDCA concept: To strengthen the effectiveness of MDCAs, a detailed concept with a clear definition of their role and responsibilities is essential. Establishing a catalog of examples or minimum tasks can provide guidance and set clear expectations. Transparent and frequent communication is also critical for successful DT and MDCA initiatives, ensuring adequate information sharing and a unified strategy (Parry et al., 2014). This should include regular internal updates on the MDCA role, tasks, and achievements, such as through newsletters or internal reports. To improve the capabilities of MDCAs, a comprehensive training program tailored for non-specialized change agents should be introduced, focusing on change and resistance management, with a particular focus on the public sector. Training materials should incorporate practical methods like role-playing exercises to enhance applicability and retention. We further recommend regular refresher sessions on emerging technologies and change practices, as many MDCAs struggled to recall or apply the learned concepts. A centrally managed initiative should oversee scheduling, networking, and training opportunities (Winners, 2020). Offering a structured framework could increase engagement and motivation among MDCAs. Furthermore, introducing a low-effort reporting mechanism (e.g., a past activities list) for the Digitalization Department would foster a sense of responsibility. Last, a continuous evaluation through annual surveys could ensure ongoing improvement of the initiative and adaptation to emerging challenges.

Clear assignment of responsibilities: This includes explicit role descriptions for managers and MDCAs, ensuring

that expectations and duties are well-defined. Managers should be held accountable for driving DT within their departments, particularly regarding the operationalization of the digital strategy. To support this, additional training for managers on how to effectively translate strategic goals into concrete actions could enhance their capacity to lead DT efforts successfully.

Visible prioritization of DT in theory and practice: Adequate resource allocation, particularly for the digitalization officer and their department, could enhance DT activities. MDCAs require dedicated time for their responsibilities rather than being expected to fulfill their role alongside their regular duties (Winners, 2020). While limited budgets restrict sufficient public administration, increased funding for the MDCAs should demonstrate a higher priority for the initiative and DT. With more funding, accountability concepts and reporting duties could be justified. In addition to this, regular communication on DT topics and emerging technologies should be aligned with the overall strategy to enhance awareness and engagement. Additionally, incentive structures should be developed within the framework of public administration to encourage participation and commitment.

Leverage organizational and cultural drivers: Leveraging organizational and cultural drivers can significantly enhance DT efforts. Organizational drivers should be prioritized, as they fall within the organization's direct control, allowing for structured implementation. At the same time, cultural drivers should be actively fostered through initiatives such as mentoring programs with successful managers or departments and competitions that encourage engagement. In particular, personal benefit has proven to be a powerful driver, offering a positive incentive for employees to adopt digital processes while mitigating resistance to change.

5.3 Implications and Future Research

This study contributes to the underexplored literature on DT and change management in public administration by examining the effectiveness of MDCA initiatives in a quasi-voluntary setup. While most research on internal change agents focuses on the private context, public administration faces distinct organizational, cultural, and structural challenges that require further theoretical exploration. By identifying key drivers and challenges of MDCA initiatives, we provide empirical insights into their role in accelerating DT and adapting change management strategies to the public administration context. Additionally, while existing research emphasizes change agents in leadership roles, our findings offer a nuanced perspective on regular employees assuming this role, broadening the theoretical discourse on hierarchical and non-hierarchical change-facilitation. The derivation of propositions provides a foundation for future research to empirically validate, refine theoretical frameworks, and develop practical strategies to enhance the effectiveness of DT initiatives in public administration. From a practical perspective, the results offer valuable guidance to cities or other public administrators who have already implemented MDCAs or are planning to do so. They can draw upon actionable drivers and recommendations that facilitate the implementation and help reduce potential inefficiencies in DT. This study comes with limitations. Following a qualitative case study approach limits the generalizability of the findings. Furthermore, the unique legal framework of German public institutions might yield additional bureaucratic hurdles to DT in public administration. Future research could focus on the quantitative evaluation of the MDCA initiatives outside of Germany and innovative accountability concepts suitable for the German public sector context.

6. Conclusion

The DT in public administration remains a complex challenge, requiring municipalities to adapt to evolving technological demands and citizen expectations while maintaining efficient service delivery. This study highlights the effectiveness of MDCA initiatives in facilitating DT efforts, particularly within a quasi-voluntary setup. Our findings reveal that the efficacy of MDCAs is highly dependent on clearly defined roles, sufficient and adequate training, and sufficient resource allocation. While MDCAs can serve as important facilitators of change, unclear responsibilities, insufficient managerial support, and a lack of strategic prioritization significantly limit their impact. Furthermore, our analysis underscores the importance of effective incentive structures and stronger organizational anchoring of MDCA initiatives to enhance their effect on DT. By identifying drivers and challenges, this study contributes to the broader discourse on change management and DT in public administration. Future research should focus on the empirical validation of our proposed theoretical insights to expand the understanding of how internal change agents can be leveraged to accelerate digitalization in government settings.

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References

Angehrn, A. A., & Atherton, J. E. M. (1999). *A Conceptual Framework for Assessing Development Programmes for Change Agents.* Centre for Advanced Learning Technologies, INSEAD.

Armenakis, A. A., & Fredenberger, W. B. (1997). Organizational change readiness practices of business turnaround change agents. *Knowledge and Process Management*, *4*(3), 143–152.

Armenakis, A. A., Harris, S. G., & Mossholder, K. W. (1993). Creating Readiness for Organizational Change. *Human Relations*, *46*(6).

Bannister, F., & Connolly, R. (2014). ICT, public values and transformative government: A framework and programme for research. *Government Information Quarterly*, *31*(1), 119–128.

Battilana, J., & Casciaro, T. (2013). Overcoming Resistance to Organizational Change: Strong Ties and Affective Cooptation. *Management Science*, *59*(4), 819–836.

Buick, F., Blackman, D., & Johnson, S. (2018). Enabling Middle Managers as Change Agents: Why Organisational Support Needs to Change. *Australian Journal of Public Administration*, *77*(2), 222–235.

Bünnagel, W. (2021). *Mitarbeiter als Change Agents*. Springer Berlin Heidelberg.

Caldwell, R. (2003). Models of Change Agency: a Fourfold Classification. *British Journal of Management*, *14*(2), 131–142.

Choi, M. (2011). Employees' attitudes toward organizational change: A literature review. *Human Resource Management*, *50*(4), 479–500.

Czernich, N., Falck, O., Pfaf, C., Ruthardt, F., & Wölfl, A. (2021). *Benchmarking Digitalisierung in Deutschland.* ifo Institut.

Eggers, W. D., & Bellman, J. (2015). *The journey to government's digital transformation* (Deloitte University Press).

Eisenhardt, K. M. (1989). Making Fast Strategic Decisions in High-Velocity Environments. *Academy of Management Journal*, *23*(3), 543–576. https://www.jstor.org/stable/pdf/256434.pdf?refreqid=excelsior%3A4db5c7dfddb91ff6f96483a94720a7b1&ab_segments=&origin=&acceptTC=1

Endrejat, P. C., Klonek, F. E., Müller-Frommeyer, L. C., & Kauffeld, S. (2021). Turning change resistance into readiness: How change agents' communication shapes recipient reactions. *European Management Journal*, *39*(5), 595–604.

Fernandez, S., & Rainey, H. G. (2006). Managing Successful Organizational Change in the Public Sector. *Public Administration Review*, *66*(2), 168–176.

Fischer, C., & Breaugh, J. (2024). Digitallotsen in der Verwaltung.

Ford, Jeffrey D., Ford, Laurie W., & d'Amelio, A. (2008). Resistance to Change: The Rest of the Story, *33*(2), 362–377.

Furnham, A. (2002). Managers as change agents. *Journal of Change Management*, *3*(1), 21–29.

Gilli, K., Lettner, N., & Guettel, W. (2024). The future of leadership: new digital skills or old analog virtues? *Journal of Business Strategy*, *45*(1), 10–16.

Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2013). Seeking Qualitative Rigor in Inductive Research. *Organizational Research Methods*, *16*(1), 15–31.

Gong, Y., Yang, J., & Shi, X. (2020). Towards a comprehensive understanding of digital transformation in government: Analysis of flexibility and enterprise architecture. *Government Information Quarterly*, *37*(3), 101487.

Hameed, I [Imran], Khan, A. K., Sabharwal, M., Arain, G. A., & Hameed, I [Irfan] (2019). Managing Successful Change Efforts in the Public Sector: An Employee's Readiness for Change Perspective. *Review of Public Personnel Administration*, *39*(3), 398–421.

Hansen, M. B., & Nørup, I. (2017). Leading the Implementation of ICT Innovations. *Public Administration Review*, *77*(6), 851–860.

Haug, N., Dan, S., & Mergel, I. (2024). Digitally-induced change in the public sector: a systematic review and research agenda. *Public Management Review*, *26*(7), 1963–1987.

Hemme, F., Bowers, M. T., & Todd, J. S. (2018). Change readiness as fluid trajectories: a longitudinal multiple-case study. *Journal of Organizational Change Management*, *31*(5), 1153–1175.

Heuberger, M. (2020). Digitaler Organisationswandel. In T. Klenk, F. Nullmeier, & G. Wewer (Eds.), *Handbuch Digitalisierung in Staat und Verwaltung* (pp. 1–12). Springer Fachmedien Wiesbaden.

Jahn, S., Avigur-Wigand, R., Krcmar, H., Daßler, L., Jäger, I., Paul, L., & Pleger, S. (2024). *eGovernment MONITOR 2024: Nutzung und Akzeptans digitaler Verwaltungsdienstleistungen aus Sicht der*

Bürger*innen. Die deutschen Bundesländer, Deutschland, Österreich und die Schweiz im Vergleich. Initiative D21. https://initiatived21.de/publikationen/egovernment-monitor/2024

Kickert, W. J. (2010). Managing emergent and complex change: the case of Dutch agencification. *International Review of Administrative Sciences*, *76*(3), 489–515.

Kuhlmann, S., & Heuberger, M. (2023). Digital transformation going local: implementation, impacts and constraints from a German perspective. *Public Money & Management*, *43*(2), 147–155.

Kuipers, B. S., Higgs, M., KICKERT, W., Tummers, L., Grandina, J., & van der VOET, J. (2014). The Management of Change in Public Organizaitons: A Literature Review. *Public Administration*, *92*(1), 1–20.

Kuntz, J. R., & Gomes, J. F. (2012). Transformational change in organisations: a self-regulation approach. *Journal of Organizational Change Management*, *25*(1), 143–162.

Kussel, G., Pavleka, S., & Schmidt, C. M. (2024). *Innovationssystem Deutschland - Effizienz und Agilität der öffentlichen Verwaltung erhöhen.* acatech – Deutsche Akademie der Technikwissenschaften.

Lekkas, C.-K., & Souitaris, V. (2023). Bureaucracy Meets Digital Reality: The unfolding of urban platforms in European municipal governments. *Organization Studies*, *44*(10), 1649–1678.

Markus, H., & Meuche, T. (2022). *Auf dem Weg zur digitalen Verwaltung*. Springer Fachmedien Wiesbaden.

Markus, M. L., & Benjamin, R. I. (1996). Change Agentry - The Next IS Frontier. *MIS Quarterly*, *20*(4), 385–407.

Mergel, I., Edelmann, N., & Haug, N. (2019). Defining digital transformation: Results from expert interviews. *Government Information Quarterly*, *36*(4), 101385.

Moore, M. H. (1995). Creating Public Value Strategic: Management in Government.

Moser-Plautz, B. (2024). Barriers to digital government and the COVID-19 crisis – A comparative study of federal government entities in the United States and Austria. *International Review of Administrative Sciences*, *90*(2), 402–418.

Myers, M. D., & Newman, M. (2007). The qualitative interview in IS research: Examining the craft. *Information and Organization*, *17*(1), 2–26.

Ndou, V. (2004). E – Government for Developing Countries: Opportunities and Challenges. *THE ELECTRONIC JOURNAL of INFORMATION SYSTEMS in DEVELOPING COUNTRIES*, *18*(1), 1–24.

Pádár, K., Pataki, B., & Sebestyén, Z. (2017). Bringing project and change management roles into sync. *Journal of Organizational Change Management*, *30*(5), 797–822.

Parke, M. R., Tangirala, S., & Hussain, I. (2021). Creating organizational citizens: How and when supervisor-versus peer-led role interventions change organizational citizenship behavior. *The Journal of Applied Psychology*, *106*(11), 1714–1733.

Parry, W., Kirsch, C., Carey, P., & Shaw, D. (2014). Empirical Development of a Model of Performance Drivers in Organizational Change Projects. *Journal of Change Management*, *14*(1), 99–125.

Pittaway, J. J., & Montazemi, A. R. (2020). Know-how to lead digital transformation: The case of local governments. *Government Information Quarterly*, *37*(4), 101474.

Ritchie, F. (2014). *Resistance to change in government: risk, inertia and incentives* (Economics Working Paper Series).

Segura-Tinoco, A., Holgado-Sánchez, A., Cantador, I., Cortés-Cediel, M. E., & Rodríguez Bolívar, M. P. (2020). A Conversational Agent for Argument-driven E-participation.

Specht, J., Kuonath, A., Pachler, D., Weisweiler, S., & Frey, D. (2018). How Change Agents' Motivation Facilitates Organizational Change: Pathways Through Meaning and Organizational Identification. *Journal of Change Management*, *18*(3), 198–217.

Tangi, L., Janssen, M., Benedetti, M., & Noci, G. (2021). Digital government transformation: A structural equation modelling analysis of driving and impeding factors. *International Journal of Information Management*, *60*, 102356.

Twizeyimana, J. D., & Andersson, A. (2019). The public value of E-Government – A literature review. *Government Information Quarterly*, *36*(2), 167–178.

van de Ven, A. H., & Poole, M. S. (2014). Explaining Development and Change in Organizations. *Academy of Management Review*, *20*(3).

van de Voet, J. (2014). The effectiveness and specificity of change management in a public organization: Transformational leadership and a bureaucratic organizational structure. *European Management Journal*, *32*(3), 373–382.

Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, *28*(2), 118–144.

Westover, J. H. (2010). Managing Organizational Change: Change Agent Strategies and Techniques to Successfully Managing the Dynamics of Stability and Change in Organizations. *International Journal of Management and Innovation*, *2*(1).

Winners, C. (2020). *Fit für den digitalen Wandel in Kommunen*. Springer Fachmedien Wiesbaden.

Wylie, N., & Sturdy, A. (2018). Structuring collective change agency internally. *Employee Relations*, *40*(2), 313–328.

Yin, R. K. (2014). *Case Study Research: Design and Methods* (5th ed.). SAGE Publications, Inc.