Digital Transformation of Public Administrations

How Project Organization Structure Affects the ICT Implementation Process in Municipalities

By Helena Akst (42355) and Michael A. Mooser (42346)

Abstract: The purpose of this study is to provide an in-depth understanding of the role of project organization structure in the implementation process of information and communication technologies (ICTs) in public administrations. By conducting a comparative case study of two German municipalities, this study reveals how institutional logics conflict in the ICT implementation process. Further, this study identifies cross-functional collaboration and adaptability as means through which project organization structure affects the ICT implementation process. Based on the level of cross-functional collaboration and adaptability, project organization structure enables or disables the ability of Project Managers to resolve conflicts of institutional logics. The study's implications enable practitioners in public administrations to identify ways to arrange project organization structure for effective ICT implementation.

Acknowledgments

Completing this Master's thesis marks a significant milestone in our academic journey, an accomplishment that would not have been possible without the collective support we have received along the way.

Foremost, we extend our utmost gratitude to all the interviewees who contributed to this thesis. Their willingness to share insights and experiences has not only added depth and breadth to our study but also provided us with a comprehensive understanding of the intricate dynamics we explored.

We are especially grateful to our supervisor, Professor Mats Jutterström, for his guidance, insightful critiques, and constant support, which have profoundly influenced our thesis experience. The stimulating discussions and constructive feedback provided have significantly enriched our learning journey.

Lastly, we express our heartfelt thanks to our families, friends, and partners for their unwavering support. Your enduring encouragement and belief in our abilities have been a constant source of strength and motivation throughout this process.

Table of Contents

List of Figures

List of Tables

List of Abbreviations

DTPA .... Digital transformation of public administrations ....

ICT .... Information and communication technology ....

RQ............................... Research question ....

1. Introduction

The need for digital transformation in Germany's public administrations is urgent. When compared to digitalization efforts across Europe, the German public administration lags far behind and consistently occupies a lower to middle position in digital government rankings (European Commission, 2022). In 2023, only around one-third of Germans used the internet to interact with public authorities (OECD, 2023). At the same time, a growing number of citizens perceive their interactions with governmental agencies as increasingly burdensome (Initiative D21, 2023).

In 2017, the Online Access Act came into effect in Germany, aiming to digitalize 575 public services across federal, state, and municipal administrations by the end of 2022 (Federal Ministry of Interior and Community, 2017). However, the goal was missed by a wide margin (German Association of Cities and Municipalities, 2023). An amendment to the Online Access Act, which is intended to give new impetus to the digital transformation of German public administrations, has been under political discussion since 2023 (Federal Ministry of Interior and Community, 2023). To avoid further unsuccessful efforts to accelerate the digital transformation of public administrations (DTPA), a deeper understanding of past implementation processes is necessary.

Considering that municipal public administrations are the main point of contact for public services for citizens, a significant challenge in the DTPA is the role of the 11,000 municipalities and the right to municipal self-government (Ruge & Ritgen, 2021). Article 28 of the Basic Law, which is the German constitution, manifests the autonomy of municipalities and their explicit right to self-government within the framework of EU, federal and state laws (Deutscher Bundestag, 2023). Within these legal frameworks, municipalities have competences such as the right to choose their personnel and organizational structure. Consequently, municipalities have the discretion to determine the way they implement information and communication technology (ICT) in their operations, resulting in a wide variety of approaches across municipal administrations.

Due to the challenges Germany and other countries are facing, the DTPA is gaining increasing attention in the literature (Mergel et al., 2019; Pfaffl et al., 2022). The DTPA is driven by the integration of ICT, the reshaping of operational efficiency as well as an increased focus on service delivery and responsiveness to citizens (Hammerschmid et al., 2023a; Haug et al. 2023; Heintze & Bretschneider, 2000). However, implementing ICT in public administrations

requires extensive organizational transformations (Hammerschmid et al., 2023b). While private companies have relied on project organization for many years, public administrations are only beginning to utilize projects and programs as means to implement ICT and enable digital transformation (Munck af Rosenschöld & Wolf, 2017).

The DTPA research examines the role of various organizational characteristics on the success of the DTPA but has neglected to explore the growing reliance of public administrations on project organizations so far. Within the niche field that focuses on project organizations in the DTPA, there is preliminary empirical evidence suggesting that the organizational structure of project organizations plays an important role in the implementation process of ICTs. However, a comprehensive analysis of the project organization structure set in place by municipalities is still missing. In addition, the causal mechanisms between the organizational structure of project organizations and the ICT implementation process remain largely unexplored.

Consequently, the purpose of this study is to address these research gaps by analyzing project organization structure and how it affects the ICT implementation process. The research questions underlying this study are the following:

> *"How do public administrations arrange their project organization structure to implement ICT?"*
>
> *"How does the project organization structure affect the ICT implementation process?"*

To approach these research questions, the next chapter provides a comprehensive overview of the current literature on the DTPA and project organizations. The third chapter outlines the theoretical framework employed for the analysis of project organization structure and the ICT implementation process. The methodologies and research design applied in this study are subsequently described in chapter four, before outlining the results from the comparative case study of two Germany municipalities in chapter five. The thesis then critically discusses the study's implications, limitations, and directions for future research on the DTPA in the sixth chapter, and finally culminates in chapter seven with concluding remarks.

2.   Literature Review

This chapter provides an overview of the literature addressed by this study, starting with an exploration of the existing literature on the DTPA (2.1.). Subsequently, a link to research on project organizations is established (2.2.). The chapter concludes by identifying the gaps in the existing research and outlining the research questions this study aims to address (2.3.).

2.1. Digital Transformation of Public Administrations

Examining digital transformation specifically within the realm of public administrations is necessary due to significant distinctions between the private and public sector (Meier & O'Tolle, 2011). While most of the existing research on digital transformation has been conducted in the private sector (Plekhanov et al., 2022), a distinct body of literature has emerged that addresses the intricacies of the digital transformation of public administrations (Haug et al. 2023). Both private corporations and public administrations experience pressures to transform their organization and operations, yet the nature of these pressures are fundamentally different (Kuipers et al., 2014). Private organizations need to develop new business models or transform existing ones to create and capture value in order to generate profits (Fehér & Szabó, 2018). In contrast, the purpose of public administrations is to provide all citizens equal treatment and access to public services as well as to serve the common good of their communities (Cordella & Tempini, 2015; Willem & Beulens, 2006).

Rather than in fast radical shifts as seen in private industries, the DTPA tends to unfold through the accumulation of incremental adjustments over time (Haug et al., 2023). The DTPA is a phenomenon of incremental change that is driven by the implementation of digital technologies, especially ICT (Hanelt et al., 2021). With the proliferation of ICT, citizens gain literacy in the usage of digital technologies, experience new possibilities and advantages in their private lives, and consequentially increase their demand for digital public services (Young 2020; Haug et al. 2023; Hanelt et al. 2021). As the quality of services improves, the demand for further digitalization increases, thereby incentivizing public administrations to develop and expand their digital services (Jiang & Ji, 2014). This also translates into laws that oblige public administrations to further implement ICT (Federal Ministry of Interior and Community, 2017). Ultimately, the DTPA is driven by efforts to incrementally digitalize administrative processes and improve digital public services to all citizens (Haug et al., 2023; Fischer et al., 2021).

The long-term transformative potential of the DTPA lies not merely in the adoption of ICT but in the possibility to change the public administration's organization and its processes. Some authors argue that the introduction of ICT itself is the driving force for the DTPA, highlighting that ICT implementation serves as an initial catalyst for initiatives to transform public administrations. An alternative stream of literature underscores a more compelling perspective, emphasizing the importance of organizational influences (Hammerschmid et al., 2023b). Beyond the mere adoption of ICT, it is the change of organizational structures and administrative procedures that accompanies ICT implementation and yields the greatest potential to transform public administrations (Kuipers et al., 2014; Sarantis et al., 2010).

In this particular stream of literature, diverse intra-organizational factors were shown to influence the DTPA. These include standardization (de-Miguel-Moline, 2010; Mustafa et al., 2022), automation (Kassen, 2019), organizational culture (Schulz & Newig, 2015), size and financial resources (Feeney & Brown, 2017) as well as centralization, formalization, and specialization (Mustafa et al., 2022). Additionally, various organizational success factors were identified (Escobar et al., 2023), including the adoption of a steering committee (Kaya et al., 2020; Schedler et al., 2019) and the support of top management (Carrasqueiro et al., 2018; Enaw et al., 2016). However, the current landscape of research about the DTPA requires further development as it is predominantly based on singular case studies and purely inductive approaches. In addition, existing research in the field has largely ignored to investigate how the rise of project organizations in public administrations affects the DTPA. The use of projects and project organizations to advance the digital transformation of the public administration has increased over the past years (Jensen et al., 2013; Munck af Rosenschöld & Wolf, 2017). Some studies in the DTPA field have implicitly investigated the role of projects but researchers are only beginning to examine project organizations as a variable that affects the DTPA (Lappi & Aaltonen, 2017; Lappi et al., 2019).

2.2. Project Organizations and the DTPA

The academic interest in project organizations situated in the wider public sector has risen in recent years (Fred, 2015; Hodge & Adams, 2016; Jacobsen, 2022; Mahura & Birollo, 2021). However, little research has differentiated between distinct forms of public sector organizations and even fewer studies have specifically focused on public administrations (Willem & Buelens, 2006)

In the context of project organizations, the topic of organizational structures is increasingly receiving scholarly attention. Jacobsen (2022) introduces the term "organizational projectification" to define the transition from traditional to project-based organizational structures that public organizations are undergoing. This transition entails the restructuring of organizational hierarchies, roles, and communication flows (Jacobsen, 2022). It was shown that project organizations as specific organizational structures offer a way to overcome the traditionally entrenched sectorization (Storbjörk & Isaksson, 2014). This perspective underlines the potential of project-based structures to circumvent the obstacles of traditional bureaucratic organizational structures.

The exploration of project organizations within the context of the DTPA (see Figure 1) constitutes a niche research field, characterized by its limited scope and a scarcity of comprehensive empirical studies. The existing research is limited to a literature review (Sarantis et al., 2010), a case study conducted in Sweden (Fred, 2020), a cross-case and multi-case analysis in Finland (Lappi et al., 2019; Lappi & Aaltonen, 2017) as well as a cross-country analysis of Denmark, Germany, Belgium, and Estonia (Breaugh et al., 2023). Mostly, the national administrative level was examined (Breaugh et al., 2023; Lappi et al., 2019; Lappi & Aaltonen 2017), while only one study specifically focused on the municipal level (Fred, 2020).

Project organizations in the DTPA are most commonly analyzed through the conceptual lenses of project governance (Lappi et al., 2019; Lappi & Aaltonen, 2017). The term is used ambiguously in the current literature, creating a lack of conceptual clarity (Lappi et al., 2019).
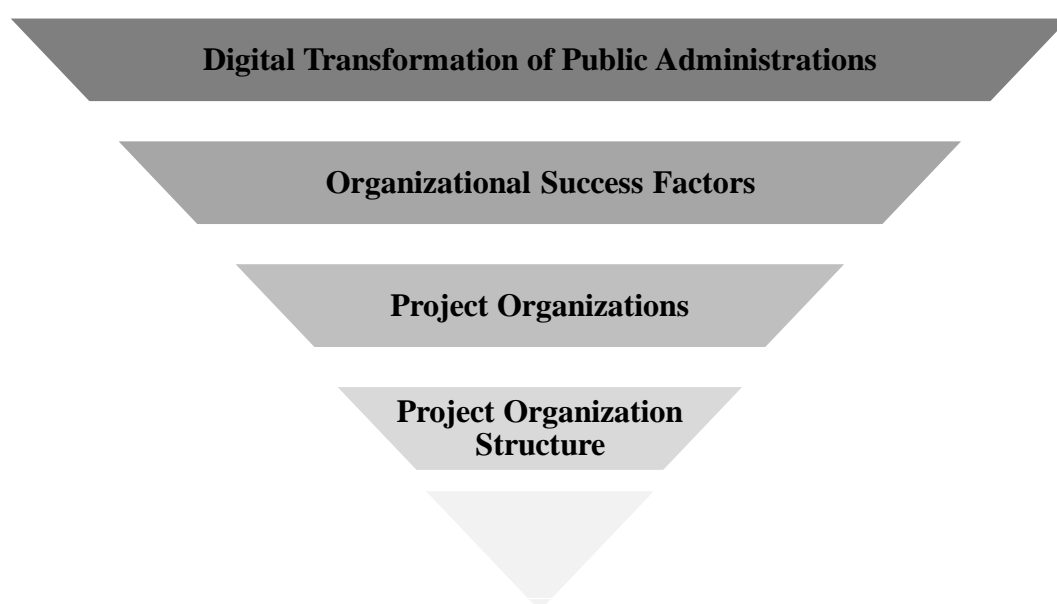

Figure 1. Literature Review Overview

Hereby, project governance is often described as an interplay of processes, leadership, hierarchy, roles, responsibilities and decision-making (Lappi et al., 2019; Lappi & Aaltonen, 2017). Thus, project governance in its current conceptualization blends boundaries with organizational structure.

All empirical studies that examine project organizations in the context of the DTPA recognize the importance of organizational structure for the success of the DTPA (Breaugh et al., 2023; Fred, 2020; Lappi et al., 2019; Lappi & Aaltonen, 2017; Sarantis et al., 2010). Breaugh et al. (2023) demonstrated that effective institutional design features, including established rules, project structures and operating procedures, are crucial in the early phases of projects. Proficiency in comprehending and customizing these features is vital for addressing project-related challenges and ensuring that the implementation process moves forward (Breaugh et al., 2023).

Initial evidence suggests the importance of hierarchy, roles and responsibilities, and decision-making. Fred (2020) showed that the implementation of ICT led to civil servants demanding more hierarchy and that the public administration experienced tensions in balancing hierarchy and autonomy requests of its employees. Unclarity about roles and responsibilities was described as a critical problem that can stall the project's progress (Lappi & Aaltonen, 2017). The existence of various project roles increases complexity and creates confusion, which has a negative impact on government digitalization (Lappi et al., 2019). When responsibilities are assigned ambiguously to a multitude of roles, project members that experience overload can easily blame each other in case of errors or issues (Sarantis et al., 2010). A challenge in the implementation of ICT arises from public sector organizations often adhering to more formal decision-making procedures, exhibiting less flexibility and more extensive control (Sarantis et al., 2010). Further, rigid organizational structures can generate conflicts between projects and the broader organization, necessitating increased transparency regarding the decision-making authority (Lappi & Aaltonen, 2017).

Public administrations can choose to arrange the organizational elements of a project organization and by doing so, influence the implementation process of ICT projects (Jensen et al., 2013). However, most of the literature assumes that project organizations are inherently more efficient or successful than traditional bureaucratic organizations. Previous research on project organizations in the wider public sector portrays a more differentiated view (Jacobsen, 2022; Munck af Rosenschöld & Wolf, 2017). On the one hand, it was shown that project organizations enable public organizations to implement flexible structures to drive innovation

(Jacobsen, 2022). On the other hand, undesirable consequences such as project fatigue or gaps in accountability resulting from the project's high degree of autonomy have been identified (Jacobsen, 2022; Munck af Rosenschöld & Wolf, 2017). As clarity about the way project organization structure affects the ICT implementation process is lacking, more research is required in this area. Specifically, the existing literature lacks a comprehensive and theory-based analysis of the effects of project organization structure on the implementation process of ICT over time (Haug et al., 2023).

2.3. Research Gaps and Research Questions

The study at hand addresses the following research gaps. In accordance with Haug et al. (2023), this study argues that the greatest potential for the DTPA resides within the organization itself. In the DTPA research, the effects of various organizational factors on the implementation of ICT were examined. However, existing empirical studies largely fail to account for recent shifts towards project organizations that public administrations are experiencing as means of implementing ICT. Thus, empirical research analyzing the role of project organization in the DTPA is still scarce.

Within the niche area of project organizations in the DTPA, current studies of project governance, regrettably, blend conceptual boundaries of organizational structures with other aspects of project governance. The lack of conceptual clarity and focus required for in-depth analyses of project organizations implies that existing findings about hierarchy, roles and responsibilities, and decision-making do not depict a comprehensive understanding of project organization structures in public administrations.

This study aims at thoroughly examining the organizational structure of project organizations because the nuances of organizational components in the context of the DTPA projects have not yet been sufficiently investigated. Exploring these aspects in depth is essential for a more holistic understanding of how public administrations can effectively navigate the DTPA. Thus, the first research question (RQ) is the following:

RQ 1: How do public administrations arrange their project organization structure to implement ICT?

Moreover, the effect of the organizational structure of project organizations on the DTPA is not fully understood yet. Prior research indicates that a disadvantageous arrangement of organizational structure elements can lead to tensions between hierarchy and autonomy, create

ambiguity about the roles involved and complicate decision-making (Breaugh et al., 2023; Fred, 2020; Lappi et al., 2019; Lappi & Aaltonen, 2017; Sarantis et al., 2010). However, the existing body of literature lacks a comprehensive and theory-based analysis of the causal effects between project organization structure and the implementation process of ICT over time (Haug et al., 2023). For this reason, the second research question is defined as follows:

RQ 2: How does the project organization structure affect the ICT implementation process?

To address these research questions and gain nuanced insights into the structural elements of project organizations as well as the dynamics of the ICT implementation process, municipal public administrations are examined as part of this study. While most of the existing empirical studies that investigate aspects of project organization structure in the context of the DTPA have focused on the national level, municipal administrations constitute an important and largely overlooked research context (Fred, 2020). Knowledge about the structure of project organizations and the ICT implementation process in municipalities is limited (Fred, 2020). The municipal right of self-government in Germany allows municipalities to adopt different arrangements of project organizations. Municipal public administrations in Germany act as an important operational body of the public administration, not only fulfilling their own tasks, but also receiving and executing tasks from higher levels, including the state and federal level (Kuhlmann et al., 2021). This concept of decentralized execution emphasizes the important role of municipal administrations as a key actor in the effective DTPA. German municipalities also show varying degrees of success in the implementation of ICTs (Freitag et al., 2019). Subsequently, municipalities in Germany are particularly suitable for comparative analyses of the project organization structure and the ICT implementation process.

An ICT that is of particular importance in the German DTPA is the so-called electronic file (e-file). The e-file is a structured filing system that enables public administrations to switch from paper files to digital file management (Bundesverwaltungsamt, 2023). The implementation of the e-file is not just a technical project but an overhaul of many procedures within the German public administrations that is accompanied by organizational changes (Bundesverwaltungsamt, 2023). Further, the e-file is considered a central enabler for developing digital public services, yet its implementation in municipalities is challenging (Deutscher Landeskreistag, 2017). For this reason, the e-file constitutes a suitable case for examining the effects of project organization structure on ICT implementation. More information about the e-file can be found in Appendix 1.

3. Theoretical Framework

This chapter introduces the theoretical and analytical framework of the study. The framework reflects a dynamic synthesis of insights gained from an iterative review of the relevant literature and the emerging patterns within the empirical data. This lays the foundation for the analysis of the project organization structure and how it affects the ICT implementation process in subsequent chapters. It starts with the conceptualization of project organization structure and outlines how project organization structure reflects institutional logics (3.1.). Three key elements of project organization structure are subsequently introduced, namely hierarchy, roles and responsibilities, and decision-making. The chapter further highlights the challenge of competing institutional logics in the ICT implementation process and introduces the coping strategies of decoupling, compromising and selective coupling (3.2.).

3.1. Project Organization Structure as a Manifestation of Institutional Logics

Project organizations are an organizational form that is adopted to reach defined objectives, such as implementing an ICT in a municipality (Jensen et al., 2013; Mahura & Birollo, 2021). These objectives typically entail creating change or innovation in the public administration (Jensen et al., 2013). Project organizations are often installed when relatively clear goals have been set but there is uncertainty about the steps and measures required to fulfil these goals (Fred, 2015; Jensen et al., 2013; Lindkvist, 2008). Achieving the project organization's objectives, thus, requires some degree of trial-and-error to reduce uncertainty (Fred, 2015).

In public administrations, project organizations consist of different organizational levels: the program- and the project-level (Munch af Rosenschöld & Wolf, 2017). The program-level is often represented by a Program Management that bears the overarching responsibility for achieving the overall goal of implementing the ICT in the whole municipality. The Program Management is responsible for supporting and monitoring the subordinated project-level to align the individual projects with the overall objective. At the project-level, a dedicated Project Manager strives to achieve a specific goal that encompasses a variety of complex tasks (Hodge & Adams, 2016; Lindkvist, 2008). An exemplary project goal is the implementation of ICT in a specific office of a municipality. The projects individually contribute to the program and collectively generate synergies (Wirick, 2013). While new projects can be initiated with

specific goals, existing projects can be merged and re-allocated to fit a program's overall objective (Munch af Rosenschöld & Wolf, 2017).

Project organizations are also referred to as temporal organizations as they are expected to be dissolved upon the achievement of their goals (Lundin & Söderholm, 1995; Jensen et al., 2013). This temporality is a key difference between a project organization and the permanent organization, which is the regular bureaucratic organization of the municipal public administration (Fred, 2020; Lundin & Söderholm, 1995).

Co-existing institutional logics influence project organizations. These institutional logics are world views that are represented in symbols and practices, and they manifest themselves in implicit taken-for-granted rules (Heeks et al., 2020; Reay & Hinings, 2010; Thornton et al., 2012). Furthermore, they influence the way problems are perceived by acting as sense-makers, serving as sources of motivation and giving direction to actors' behavior (Fincham & Forbes, 2015). Hence, institutional logics influence which goals are considered legitimate and which means are suitable for achieving them (Pache & Santos, 2013).

Bureaucratic and project logic are the predominant institutional logics that co-exist in project organizations aiming to implement ICTs in municipal public administrations. The bureaucratic institutional logic is predominantly observed in the permanent organization of public administrations (Fred, 2020). This logic is associated with "routines, stability, efficiency, predictability and transparency" (Fred, 2020, p. 365). Accordingly, core values consist of the recognition of central hierarchy and higher authority (Fred, 2018; Gerth & Wright Mills, 2014; Meyer et al., 2014). To provide public services to citizens of the municipality, specialized professionals follow established procedures and comply with existing laws through strict oversight and accountability (Fred, 2018, 2020; Gerth & Wright Mills, 2014; Meyer et al., 2014). The functionally divided bureaucratic logic is further associated with silo mentality (Fred, 2018, 2020; Meyer et al., 2014).

Moreover, project organizations are also exposed to project logic that emphasizes the project organizations' objectives. A core element of project logic is the establishment of wider goals and values which can foster support of various groups of organizational members (Fred, 2018, 2020). The project logic entails solving complex issues through teamwork and decentralized authority (Fred, 2018). Performance, outcome and efficiency are particularly valued norms (Fred, 2018; Meyer et al., 2014). It encompasses a sense of future-orientation and the anticipation of circumstances that are yet to materialize, creating an importance of growing

know-how (Fred, 2020). Thus, the project logic entails the need for a certain degree of autonomy and flexibility to successfully achieve a project's goals (Mahura & Birollo, 2021).

Overall, project organizations can be understood as a decided order, which means that their current organizational structure is not presumed, but rather the result of underlying decisions (Ahrne & Brunsson, 2011). Those decisions are influenced and shaped by institutional logics as these logics delineate appropriate goals and design for a project organization (Meyer et al., 2014). Hence, bureaucratic and project logic manifest themselves in the organizational structure of project organizations (Skelcher & Smith, 2015; Meyer et al., 2014). To analyze the project organization structure and its manifestation of institutional logics, the following section provides a conceptualization of three elements of organizational structure. Hierarchy, roles and responsibilities as well as decision-making are organizational structure elements that were not only relevant in previous empirical research (Breaugh et al., 2023; Fred, 2020; Lappi et al., 2019; Lappi & Aaltonen, 2017; Sarantis et al., 2010) but they also play a crucial role in the analysis of this study's results.

3.1.1. Hierarchy

As a dimension of organizational structure, hierarchy determines the construction of authority and shapes interactions among organizational members. It is an order that positions people in organizational units at different levels within an organization by clarifying the ranks, authority, communication flows and lines of command among them (Jeanes, 2019). Hierarchies are usually represented as organizational charts indicating the vertical lines of reporting and horizontal spans of control (Jeanes, 2019). They specify how different organizational members are related to each other and enable the vertical organization of tasks and activities (Diefenbach & Todnem, 1965; McGrath & Whitty, 2015). In addition, hierarchical frameworks are a means of organizing roles, responsibilities and decision-making rights within organizations (Diefenbach & Todnem, 1965). Hierarchies oblige organizational members to comply with central decisions (Ahrne & Brunsson, 2011). However, hierarchical rigidity can restrict knowledge transfer and hinder the bottom-up flow of information in the context of public administrations (Mahura & Birollo, 2021).

3.1.2. Roles and Responsibilities

Organizations can be analyzed as systems of roles that encompass multiple activities and responsibilities (Katz & Kahn, 1966). Organizations divide their overall pattern of activities into roles that are performed by individuals. Roles consist of predefined, recurring activities and responsibilities that produce organizational outcomes (Miner, 2006). Ambiguity can occur when a single role encompasses multiple conflicting responsibilities or when one individual has multiple roles (Miner, 2006). These scenarios can, for example, foster role conflicts, which can also arise when the adherence of one role hinders the compliance with the requirements of another role. A clear allocation of roles and responsibilities is a key factor for project success (Gomes et al., 2012) and can enhance project realization and operations performance (Irfan et al., 2021; Zwikael et al., 2019).

3.1.3. Decision-making

Organizational decision-making is defined as the process in which members evaluate alternative courses of action in response to potential threats and opportunities to achieve organizational objectives (March, 1994). Analyzing decision-making processes provides insights into where, how and by whom decisions are made in organizations (McGrath & Whitty, 2015). Several aspects contribute to how decisions are made within organizations and how organizational members are involved in approval processes and decision structures (Jeanes, 2019). Decision-making structures can vary in terms of the number of organizational members involved and the level of centralization within the organization (Pinsonneault and Kramer, 1997). Centralized decision-making involves a limited number of individuals at a high hierarchical level, such as Department Managers in municipalities. In contrast, decentralized decision-making distributes and delegates decision authority to multiple members across the organization, such as the Program Management and Project Managers (Huber, 1981). Additionally, various decision types exist within organizations, ranging from repetitive and routine decisions to more complex, unstructured decisions (Heintze & Bretschneider, 2000; Simon, 1960; Gorry & Morton, 1989)

3.2. Conflicting Institutional Logics in the ICT Implementation Process

ICT is implemented in public administrations as a tool that enables better delivery of public services to citizens (Cordella & Tempini, 2015). ICT implementation is not simply a shift from paper-based to digital processes but an opportunity to redesign administrative processes and increase efficiency (Cordella & Tempini, 2015). Through the standardization of processes during ICT implementation, transparency can be increased (Gil-Garcia et al., 2018). Hereby, the substantial amount of information that administrative staff must manage is the motivation behind the introduction of information management technologies, yet it also represents one of their significant challenges of the implementation process (Alvarenga et al., 2020). Public administrations represent complex and uncertain contexts for the implementation of ICT (Andrade & Joia, 2012). To effectively implement an ICT, it must accurately reflect administrative processes in the software so that administrative staff can work with it, their overall workload gets reduced and processes become more efficient. Expertise in the increasingly complex administrative processes and the distinct legal settings resides with specialized professionals at the operational level within functionally divided offices. In the pursuit of standardization and digitalization of administrative processes, this creates uncertainty about the specificities of the ICT implementation process and the respective competing logics.

During the ICT implementation process, Project Managers are subject to competing bureaucratic and project logic and they experience tensions between the two. They are often assumed to create innovative, flexible and pragmatic solutions that create added value for the organization and facilitate the work of employees. At the same time, it is expected that they evade issues created and perpetuated by bureaucratic organizations (Fred, 2018, 2020; Packendorff & Lindgren, 2014) while nevertheless being subject to the municipality's hierarchies, authority and requirement of strict legal compliance (Fred, 2020).

Conflicts arise in the ICT implementation process as the project logic and the bureaucratic logic engage in a dynamic competition for influence (Fred, 2020). The implementation of ICT is deeply impacted by these conflicts as they serve as a pivotal crossroad in the implementation process. When institutional logics conflict, there is usually a requirement that both logics are complied with in the process. However, there is no straight-forward solution for this integration, creating a conflict between institutional logics. The outcome of these conflicts can

determine the trajectory of an ICT implementation, setting the project on a path to success or failure.

Project Managers who are responsible for the ICT implementation sense these conflicts during the implementation process. They then must choose between various actions that are associated with different institutional logics (Fred, 2020). Project Managers have the option to either engage with any of the given logics or to disregard them (Fred, 2020). Thus, the institutional logics are in competition for the Project Managers' attention (Reay & Hinings, 2010). As they engage in sense-making of the connections of norms and organizational structures in their environment, the Project Managers can decide which strategies they use to resolve conflicts between competing institutional logics in the implementation process (Skelcher & Smith, 2015). In the following subchapters, the three strategies of decoupling, compromising and selective coupling are discussed (see Table 1). These strategies are not an exhaustive representation of possible strategies (Heeks et al., 2020). Nonetheless, these three strategies for solving conflicts between competing institutional logics are both most prominent in existing research and highly relevant for the results discussed in Chapter 5.

3.2.1. Decoupling

To solve the conflict between two institutional logics, Project Managers can symbolically adopt policies aligned with one institutional logic, while executing operational practices rooted in a different institutional logic (Bromley & Powell, 2012; Heeks et al., 2020; Meyer & Rowan, 1977; Pache & Santos, 2013). Here, Meyer and Rowan (1977) introduced the notion of decoupling as a strategy to keep the policies and practices of an organization separated from each other. When decoupling occurs, new policies and their respective institutional logic are merely formally adapted and the internal operational practices, the everyday ways of working, follow a different approach (Heeks et al., 2020). Organizations have demonstrated a tendency to engage in decoupling during transitional periods as those offer instances in which diverse institutional logics conflict (Pache & Santos, 2013).

Decoupling is particularly suited for scenarios in which a policy mandated by an external organizational entity contradicts or conflicts with internally endorsed logics endorsed by the organization's members (Pache & Santos, 2013). By deliberately establishing and perpetuating gaps between the two logics, Project Managers can reduce the possibility of an escalation of the conflict between the two logics while maintaining their external legitimacy (Bromley & Powell, 2012; Brunsson, 1989; Brunsson & Olsen, 2018; Pache & Santos, 2013). Internally,

the Project Manager can continue to operate based on a different, preferred logic (Heeks et al., 2020). An underlying assumption of decoupling is that Project Managers can evade the observation of the external authorities and that these remain unaware of the discrepancies between their policies and the internal practical realities (Pache & Santos, 2013). However, where institutional logic conflicts persist over a longer period, Project Managers may encounter challenges in avoiding external scrutiny (Pache & Santos, 2013).

3.2.2. Compromising

Compared to decoupling, the strategy of compromising is less well documented in the literature (Fred, 2018). Compromising institutional logics involves a Project Manager moderating the directives of two conflicting logics by incorporating elements from each into an intermediary position (Heeks et al., 2020). The underlying assumption is the existence of a trade-off relationship between the institutional logics, requiring the establishment of balance when incorporating them (Pache & Santos, 2013). By compromising, the Project Manager can conform to the demands of different institutional logics and develop respective new practices while creating and maintaining support from organizational members who endorse various logics within the organization (Pache & Santos, 2013). Hereby, practices are usually altered slightly while adhering to minimal standards of both institutional logics (Heeks et al., 2020; Knook et al., 2022; Scott, 1983). Compromising may come into play proactively, as an anticipation of a challenging event and through the alignment of different expectations and demands (Pache & Santos, 2010). Likewise, it can be a response to a current challenge that involves negotiations for necessary adjustments in order to create balance between institutional logics (Pache & Santos, 2010). Thus, compromising represents an approach of creating collaborative solutions that are supposed to work in the long-term (Knook et al., 2022).

However, a constraint of compromising is that it relies on the ability to establish sustained support from crucial sources in the organization over an extended period (Pache & Santos, 2013). The attempt to satisfy the demand of different institutional logics may further result in the inability to appropriately satisfy either logic (Pache & Santos, 2013). Likewise, the availability of compromises between different institutional logics depends on the compatibility of the logics' overarching goals and the feasibility of partial adaptation of the logics (Pache & Santos, 2013).

3.2.3. Selective Coupling

The latest addition to the theory of multiple institutional logics is selective coupling, which describes the integration of two competing logics by blending aspects of both logics into a combined solution (Fred, 2018; Heeks et al., 2020). This facilitates opportunities for Project Managers to leverage a more diverse range of behaviors advocated by different institutional logics (Fred, 2018; Pache & Santos, 2013). Instead of viewing the distinct institutional logics as requiring partial or complete adoption, the conflicting logics can function as a source of inspiration to blend them into a novel combined logic (Fred, 2018). Hence, this approach recognizes the presence of multiple logics, permitting their co-existence and enabling actions based on them to occur to different extents (Fred, 2018). Institutional strategies are treated as a toolkit, allowing Project Managers to employ different logics to address specific problems in more diverse ways (Pache & Santos, 2013).

By integrating compatible elements from conflicting institutional logics Project Managers can secure support from a more diverse range of actors, addressing symbolic concerns similar to decoupling practices (Pache & Santos, 2013). In situations of high external scrutiny, selective coupling offers a safer option than decoupling by reducing the risks associated with pretended compliance (Pache & Santos, 2013). Furthermore, this strategy aids in avoiding conflicts stemming from clashes between coalitions supporting different logics, which could have detrimental effects on a project (Pache & Santos, 2013). Lastly, selective coupling proves to be a more cost-effective alternative than the intricate negotiation needs prevalent in the compromising process.

Table 1. Three Strategies: Decoupling, Compromising and Selective Coupling

	Decoupling	**Compromising**	**Selective Coupling**
Summary	Symbolically adopting policies aligned with one logic, while executing operational practices in line with a different institutional logic	Moderating directives from two competing logics by incorporating elements of each to find an intermediary position	Integrating of two competing logics by blending aspects of both logics into a combined solution
Underlying Assumptions	External scrutiny can be avoided, and external organization remains unaware of discrepancies between their policies and the internal practical realities	Trade-off between institutional logics requires a balance and consensus when different logics are included	Different logics can coexist and be integrated to form novel, combined approaches
Advantages	Maintains external legitimacy and reduces conflict between competing logics, while continuing operations based on internally preferred institutional logic	Enables adaptation of different institutional logics and development of new practices that are broadly acceptable within the organization	Facilitates leveraging a more diverse range of behaviors advocated by different institutional logics
Disadvantages	Challenges can arise over longer periods of time, as avoiding external scrutiny becomes harder	Difficult to maintain support from crucial sources in the organization over an extended period	Avoiding internal inconsistency requires careful balancing between elements from different logics

4. Methodology

This section introduces the research methods. First, the methodological fit is elaborated (4.1.). Then, the four key aspects of the research design are outlined (4.2.). This is followed by elaborations on the data collection (4.3.) and the data analysis methods (4.4.). Finally, the quality of the study is discussed (4.5.).

4.1. Methodological Fit

Achieving a strong methodological fit is fundamental to ensure internal consistency across the different parts of a research project (Edmondson & McManus, 2007). Therefore, the state of theoretical development served as the foundation for the research design. The current research on project organization in the context of the DTPA is a niche area with emerging insights about project organization structure. However, a theoretical connection between project organization structure and ICT implementation processes in municipal public administrations has not been established yet (Jacobsen, 2022; Lappi & Aaltonen, 2017; Lappi et al., 2019). Thus, the area can be classified as nascent, as it proposes preliminary insights on emerging questions about project organization structure and reveals potential to develop connections between the project organization structure and the ICT implementation process (Edmondson & McManus, 2007).

Through qualitative methods, especially field research, this study collected rich and detailed contextual data. To uncover the causal mechanisms between the project organization structure and the e-file implementation process, the aggregation of a broader scope of data rather than the analysis of pre-determined variables was required (Edmondson & McManus, 2007). This approach allowed to enhance the academic understanding about project organizations in the DTPA context, while remaining receptive to unexpected patterns (Bell et al., 2022). Current empirical studies lack comparative research (Fred, 2018; Haug et al., 2023), which is why this study aims at addressing this gap by conducting a comparative case analysis.

Moreover, the literature lacks a comprehensive understanding on how ICT implementation processes unfolds over time (Haug et al., 2023). The time perspective is important for comprehending the dynamics and causal mechanisms between the project organization structures and the e-file implementation process (Beach, 2016; Tansey, 2007). Therefore, a process study approach is chosen to gain a deeper understanding of the implementation of ICT in municipalities (Haug et al., 2023).

4.2. Research Design

Firstly, this study relied on pragmatism as a research paradigm to guide research decisions (Giraldo & Hernández, 2022). This paradigm is particularly suited to addressing research questions focusing on the practical application of digital transformation within municipalities. It allows for the selection of the best-suited methods to answer the research questions and emphasizes the convergence of subjective and objective knowledge gains, leading to more comprehensive insights (Bell et al., 2022).

Secondly, given that research at the intersection of project organizations and the DTPA is sparse, this study applied an abductive approach to conduct a theory-based analysis that remained open to unexpected patterns. By working abductively, insights and explanations could be generated based on iterations between collecting and analyzing contextually rich data as well as exploring existing theories (Bell et al., 2022; Dubois & Gadde, 2002; Kapitan, 1992). This approach was particularly well suited to facilitate connections between unexplained phenomena in the empirical results and existing theories in the literature (Awuzie & McDermott, 2017; Bell et al., 2022; Dubois & Gadde, 2002).

Thirdly, this paper employs comparative case design to examine the organizational structures of project organizations of two German public administrations as well as their effects on the implementation process of the e-file. Comparative case design was chosen as it leads to insights about similarities, differences and the recognition of patterns between the two cases (Rohlfing, 2009). During the case-selection process, cases with specific similarities were carefully selected in order to enable a cross-case comparison (Eisenhardt, 1989). Both selected case organizations are municipal public administrations in Germany that fall under the same federal laws and under comparable state laws. Before the examined period, both public administrations experienced low levels of digitalization within their organization and a slow transformation process. Given their legal requirement to offer 575 public services digitally by the end of 2022, both municipalities initiated new project organizations to accelerate the implementation of the e-file in 2021. Additionally, the selected municipalities are each responsible for around 300,000 residents. Further, both municipalities provided the chance to conduct an in-depth analysis of the e-file implementation in one of their offices. Identical data collection methods in the form of public documents and interviews were possible.

While overall similarities were important, differences in the relevant areas of study proved to be essential in case selection. Consequently, instead of random selection, this study relied on

choosing two cases with contrasting characteristics to gain a more profound understanding of the phenomena and causal mechanisms at play (Eisenhardt, 1989; Pettigrew, 1988). In Case A, the project organization tasked with implementing the e-file was embedded within the existing permanent structure of the municipality. In contrast, Case B was characterized by the development of a project organization structure more independent from the municipality's regular permanent organization.

Finally, process tracing was conducted for within-case analysis of the casual mechanisms between the project organization structure and the e-file implementation (Beach, 2016; Tansey, 2007). Accordingly, rich and in-depth data about the sequence of relevant events associated with the e-file implementation was collected to foster insights about how the implementation unfolds over time (George & Bennett, 2005; Tansey, 2007). The investigated time-period spans from the beginning of 2021 until autumn of 2023. This timeframe was chosen due to the launch of new e-file implementation initiatives by both municipalities in 2021. Extending the time frame further into the past would have posed challenges in accurate recollection due to employee turnover and the difficulties associated with remembering more distant events (Condie, 2012).

4.3. Data Collection

The data collection in this study relied on triangulation, meaning that different data sources were combined considering their strengths and weaknesses (Flick, 2004; Jack & Raturi, 2006). To cross-validate and contextualize findings, data was collected from both publicly available documents and semi-structured interviews with individuals from public administrations (Bell et al., 2022; Flick, 2004). Although field observations were also considered for data collection, they were not deemed feasible due to the extensive requirements for obtaining regulatory approval which were in stark contrast to the limited value it would bring to reconstruct past implementation processes. During the data collection process, information that could lead to the identification of the municipalities and participating individuals was anonymized. This was essential to encourage the participation of the municipalities, who had concerns about their public image in light of the ongoing critical public discourse about the challenges faced by German public administrations in adopting ICT. Due to these circumstances, the process of data collection in Case A proved to be more challenging than in Case B.

4.3.1. Documentary Data

The first step of data collection consisted of gathering all publicly available documentation on the practices of the two municipal case organizations. Media outputs were useful in the longitudinal approach of mapping processes over time (Bell et al., 2022). Public and organizational documents were collected to enable cross-referencing data with the interviews. The documents included press statements, reports, public tenders, vacancies and websites. Only documents that fulfilled authenticity requirements were included in the data analysis (Scott, 1990). The authenticity of documentary data was ensured by relying on data from official websites of public administrations. By integrating insights from the documentary data analysis in the interview, the credibility and representativeness of the documentary data could be verified. For example, interview partners were asked if the organizational chart provided on the municipal's website was up to date and if they could locate themselves within the organizational chart. Further, the selected newspaper articles were either published in public service newspapers or specialist journals. The final collection consists of 31 documents (see Table 2). Documentary data provided initial insights into how the case organizations approached the implementation of the e-file and their related challenges as well as revealed a provisional timeline of the underlying process steps. However, the published documents did not provide a detailed description of the implementation processes and gave little information about the project organizations involved. Therefore, interviews were conducted to gain a more representative view and further information in addition to the publicly available data.

4.3.2. Interviews

The interview sample consists of 21 interviews, with durations varying between 45 and 90 minutes (see Table 2). The collected interview data encompasses digital audio recordings and verbatim transcriptions. Speech-to-text software with manual supplementation facilitated the transcription which was conducted within 24 hours of each interview to ensure accurate interpretation.

A snowball sampling approach was used to obtain comprehensive data and to interview all relevant organizational members (Tansey, 2007). Interviewees were specifically asked about key individuals in the e-file implementation process. This facilitated contact with additional relevant interviewees across the organizational hierarchies of the municipal administrations. An overview of the interviewed roles can be found in Table 2. The inherent risk of sampling bias in the snowball system, for example, by interviewees referring to people with whom they

have closer relationships, was minimized by explicitly asking for contacts with opposing views or colleagues with whom they do not regularly interact (Emerson, 2015; Marcus et al., 2017).

Semi-structured interviews were conducted based on interview guides to foster cross-case comparability (Bell et al, 2022). The semi-structured interviews were characterized by open-ended questions and follow-up questions for further clarification. This approach allowed to accurately capture the interviewees' experiences and subjective perspectives while providing the freedom of exploring topics beyond the initial scope. Moreover, interview guides strengthened research dependability by organizing the line of questioning based on predetermined high-level topics (Kallio et al., 2016; Nuzhat et al., 2022). A sample of the interview guides used in this study is provided in Appendix 2. Potential interviewees were provided with some preparatory questions to reduce reluctancy in study participation due to the topic's sensitivity. Furthermore, all interviews were conducted by both researchers to ensure the comparability of the interview process.

A trust-based environment was established to make the interviewees feel comfortable and share information openly. This was achieved by adopting a collaborative, relaxed, yet professional tone and connecting with respondents through small talk, active listening and expressing gratitude (Bell et al., 2022). In the beginning of each interview, the purpose, process and usage of interview data were explained, assuring confidentiality as well as anonymization. Building rapport and fostering transparency ultimately fostered the collection of high-quality data (Dion Larivière et al., 2022).

The interviews were conducted through internet-enabled video meetings, mimicking the dynamics of face-to-face interviewing situations with naturalistic, video-mediated non-verbal communication. For participants, the format implied more convenience through predefined time commitment and their familiar working environment. From a research perspective, the format allowed to collect data from geographically dispersed participants in a time- and cost-effective manner (Thunberg & Arnell, 2022). Potential challenges of conducting video interviews were mitigated by opting for well-established meeting tools within the organizations (Tomás & Bidet, 2023).

The data collection process was concluded upon reaching information saturation, marked by a sequence of interviews that did not generate any new insights about the ICT implementation processes. This point was reached after conducting a total of 21 interviews.

Table 2. Interview and Documentary Data Overview

	Case A	Case B
Interviews		
Number of interviews	10	11
Duration of interviews	45 – 90 min	50 – 75 min
Average Duration	69.5 min	62.3 min
Roles of interviewed employees	Office Manager Program Management Employees Project Managers Office Employees	Department Manager Program Manager Project Manager e-File Coordinator File Plan Specialist IT Manager Consultant
Documentary Data		
Number of documents	20	11
Type of documents	Flyers Newspaper articles Organizational chart Presentations Press statements Reports Seminar materials Vacancies Websites	Newspaper articles Organizational chart Presentations Press statements Public tenders Reports Seminar materials Vacancies Websites

4.4. Data Analysis

In line with the overall abductive research design, the data analysis process was repeatedly iterated alongside ongoing data collection (Edmondson & McManus, 2007). For the documentary data and the semi-structured interviews, the same data analysis process has been adopted.

Detailed case descriptions of the overall process of e-file implementation and the organizational structures were created for both municipalities based on iterative examination of the interview transcripts and the documentary data. To analyze the collected data a grounded theory approach was used. The data was clustered by connecting it with existing and suggestive

themes and theoretical categories (Bell et al., 2022; Edmondson & McManus, 2007; Glaser & Strauss, 1967). In line with abductive reasoning, the process was characterized by a dynamic and iterative process of data collection, data analysis and review of relevant literature. Thus, non-anticipated findings and anomalies in the data could be integrated in the analysis, revealing unexpected themes. Recurring themes that required additional investigation were identified and further explored through subsequent literature review and data collection (Edmondson & McManus, 2007; Eisenhardt, 1989).

4.5.   Quality of Study

In the process of designing and conducting this study, the applied methodologies were continually evaluated and optimized to ensure research quality. This process adhered to two criteria of trustworthiness: credibility and dependability (Lincoln & Guba, 1985).

Credibility evaluates the accuracy and truthfulness of results, by assessing the reliability of the collected data and the methods used. Triangulation combines several methods and sources of data to study a social phenomenon, resulting in a more accurate depiction of the complex social reality (Denzin, 1970). Accordingly, documentary data was used to verify and corroborate the information provided by respondents. The convergence of the chosen methods served as checks and balances, increasing the trustworthiness of research findings (Kanter, 1977). Furthermore, respondent validation has been conducted to substantiate the validity of the research findings (Bell et al., 2022). The validation process involved presenting preliminary research findings to interviewees from both municipalities and asking clarifying questions. This process did not only strengthen the credibility of the findings, but also ensured that the researchers' interpretations accurately reflected the participants' perceptions and insights.

Dependability ensures that the results of the study are consistent and reproducible. To guarantee transparency and comprehension of research decisions (Lincoln and Guba, 1985), detailed records of each component of the research process were retained. Elaborate notes covering each methodological decision, including the initial problem formulation and interview preparation were compiled. Additionally, interview transcripts and the analysis process were systematically documented to track the coding of the collected data.

5. Results

This chapter presents the empirical findings from the interview and document analysis of two municipal public administrations. Firstly, the project organization structures of the two municipalities are described (5.1.) and analyzed (5.2.) based on the previously outlined theory. Secondly, an in-depth description of the e-file implementation process in both examined municipalities is presented (5.3.). Finally, the causal mechanisms through which project organization structure affects the implementation process are identified and discussed (5.4.).

5.1. Description of Project Organization Structures

Both examined municipalities started a new initiative to implement the e-file in 2021 but adopted differing project organization structures.

5.1.1. Project Organization Structure - Case A

In Case A, the state administration steered the implementation of the e-file in the municipality with the aim to achieve greater state-wide standardization of administrative processes. The state administration was in charge of the overall implementation process, developed a strategy for the e-file implementation and extensively coordinated the implementation of the e-file by transferring specific assignments to the municipality.

Adopting the Project Organization

In early 2021, the Elected Leader of the municipality received the formal assignment to prepare for the municipality-wide e-file implementation. The Elected Leader and Department Managers delegated the responsibility for this assignment to an existing sub-unit of the Steering Office that is responsible for improving and controlling processes in the municipality (see Figure 2). This sub-unit consisted of several employees and acted as the Program Management for the e-file implementation in the municipality, it received assignments directly from the state administration and was required to realize them within a requested time period. The Program Management's responsibilities were described by one if its employees as follows:

> "[Our] main tasks included passing on tasks to the Project Managers, ensuring that they make progress and informing the state administration about the state of preparations [in our municipality]."
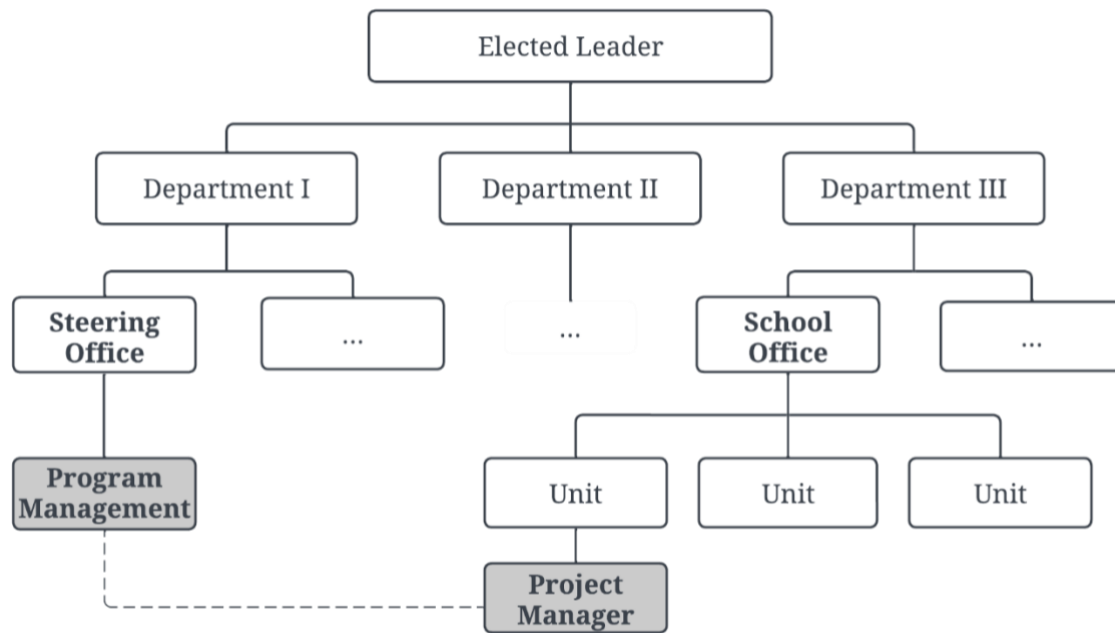
Figure 2. Organizational Chart of Case A

Its responsibilities also consisted of fostering acceptance for the new software by offering workshops, providing support and guidance to offices in preparation for the e-file implementation and ensuring effective internal communication to keep employees updated on e-file-related developments.

In fall 2021, the Program Management requested each Office Manager in the municipality to name one employee who would take on the role of the Project Manager of the e-file implementation project in their office. An employee in the Program Management described the following:

> "[Project Managers] can take many different forms. They are mostly ambitious employees who have an IT affinity and are interested in taking part in this project for various reasons. Generally speaking, it tends to be employees from the operational level who are not managers […]. There are also a few managers who see themselves in the role and taking on responsibility, but that is the exception rather than the rule."

The Project Managers were responsible for the e-file implementation in their office. Thus, their role was two-fold. On the one hand, the responsibilities involved the execution of tasks delegated to them by the Program Management as well as collecting information about the e-file implementation from the Program Management and sharing this information within their respective office. On the other hand, they had to gain relevant insights about the state of preparation in their office and share these insights with the Program Management.

Their main task area revolved around the so-called File Plan. A File Plan is a document that structures the workstreams of municipalities into a hierarchy of topics and sub-topics (see Appendix 1). It defines how electronic files are categorized with a topic-specific reference number so that they can be easily found and managed in the e-file software. This File Plan is essential for the effective implementation of the e-file software in an office. Here, the Project Managers' obligations included adapting the File Plan to their office's needs and establishing readiness for the e-file implementation within their office.

During the whole implementation process, the Project Managers kept their role in the permanent organization and performed their new tasks in the project organization in addition to their existing work. Further, the Project Managers were not granted any decision-making abilities in the permanent organization beyond those that they already had in their existing permanent role. Except for the few Project Managers that were embodied by Office Managers themselves, most Project Managers were reliant on their Office Manager for many operational decisions.

5.1.2. Project Organization Structure - Case B

In Municipality B, an overarching strategy was developed to accelerate the municipality's digital transformation. The state-level administration did not engage in significant state-wide standardization efforts and delegated most decisions about the e-file implementation to its municipalities. The e-file was identified as a key project by the municipality because it is the basis for further DTPA projects. Here, the introduction of the e-file was seen not only as a technical implementation, but as an opportunity to optimize organizational processes. In collaboration with external consultants, a proposal for a project organization was developed. An external consultants described the reasoning for the new Program Management Unit as follows:

> "In the normal bureaucratic structures, [...] everyone always has blinkers on and says, 'I'm going to take care of my work and my topic and I'm not interested in what happens on the other side.' [...] Budgets were allocated just as separately to the departments and offices. We realized that the digital transformation cannot be mapped in this way, it is much more important that we also think [municipality-wide]."

After the consultants convinced the Political Leader and the Department Managers of the idea of the project organization, it was adopted accordingly.

Adopting the Project Organization

Firstly, all important roles were defined, assigned and implemented. The municipality adopted a Program Management by creating a centralized specialist unit with the overall responsibility for digital transformation. Previously, the e-file implementation was managed by one employee within a sub-unit of an IT Office, which was positioned at a low hierarchical level. In contrast, the new Program Management had direct access to the Department Managers and was directly accountable to the municipality's Elected Leader (see Figure 3).

The Program Management played a pivotal role in the strategic decisions within the municipality. Core responsibilities included central decision-making on the prioritization and scheduling of e-file implementation projects across various municipal offices. Further, collaboration with the external e-file software provider was part of their duties. The Program Management was also responsible for addressing strategic issues. The Manager of the Program Management Uni described an example, stating:

> *"If it is foreseeable that we will have to expect additional costs in a project, then it is my job to first find out why we actually have to incur the additional costs and whether we can still implement the project in other ways. In the event that we need more money, it is my job to discuss directly with the [Elected Leader] why we need more money now and secure the resources."*
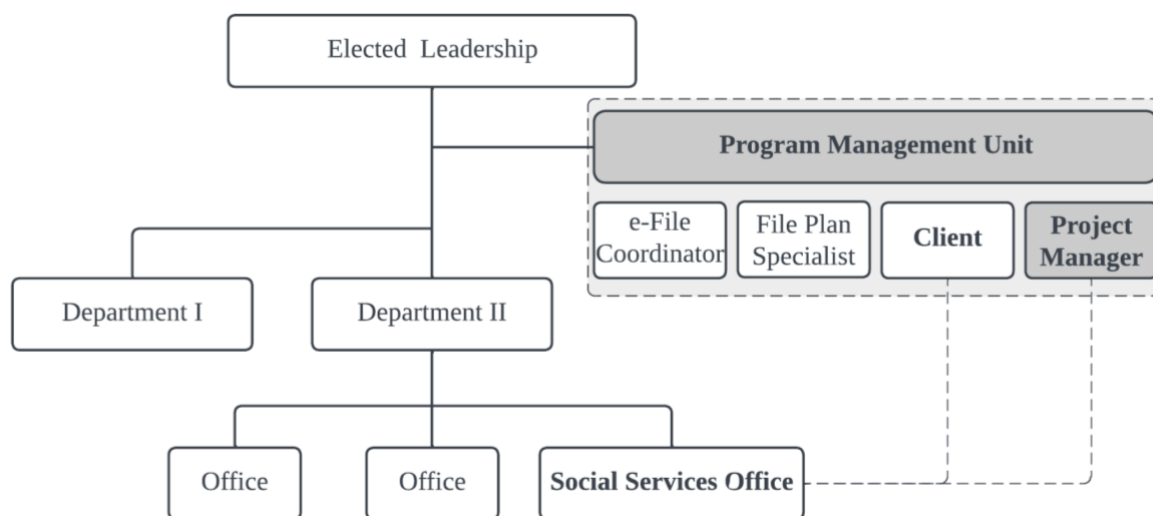

Figure 3. Organizational Chart of Case B

To support the Project Managers and facilitate the successful execution of ICT projects, the Program Management consisted of several roles embodied by employees with technical expertise. Among them was the File Plan Specialist, responsible for creating File Plans for offices, and the e-File Coordinator, who supported the technical administration and adjustment of the e-file software for each office.

During the summer of 2021, the Program Management selected offices to implement the e-file. These projects were then presented to the steering meeting, a meeting of the Elected Leader, the Department Managers and the Manager of the Program Management Unit. In these meetings, strategic decisions regarding the municipality's digitalization were made. For each project two roles were defined: the Client and the Project Manager.

The Clients were responsible for making key decisions throughout the project's lifecycle. Hence, this role was frequently assumed by Office Managers. An interviewed Project Manager described the reasoning for this choice as follows:

> *"For us in the project initiation phase, it's still something different when the Office Manager says 'yes, dear office employees, we are introducing the [e-file] for the following reasons. These are the advantages. There may also be some disadvantages, especially during the introduction there may be stumbling blocks, but this was decided and now [the e-file] will be implemented'. Ultimately, it's about hierarchical legitimacy."*

Further, the role of the Project Manager had the overall responsibility for the implementation project in a specific office. The Project Managers acted as a link between the project and the office employees, serving as first point of contact for office employees who have questions or concerns regarding the project. Moreover, the allocation of the Project Manager role was based on a deep understanding of the processes in the office. Hereby, the role of the Project Manager required that the employee embodying the role had a focus on this role and did not fulfill extensive duties in the permanent organization. The Project Manager was accountable to both the Client and the Program Management and was responsible for collaborating with Program Management's technical experts, including the File Plan Specialist and the e-File Coordinator. For example, in bi-weekly meetings among the e-File Coordinator, the Project Manager and Office Manager, latest issues requiring a decision by the Office Manager were discussed.

5.2. Analysis of Project Organization Structures

The following section analyzes how the municipalities in Case A and B structure their project organizations. In addition, it demonstrates how these project organization structures reflect bureaucratic and project logic.

5.2.1. Hierarchy

When analyzing the hierarchical structures of the project organizations, one fundamental difference was identified: The position of the Program Management (see Table 3).

Hierarchical Position of Program Management

In Case A, a sub-unit of an office functioned as the Program Management. This placed the Program Management within the structure of the permanent bureaucratic organization. The Program Management in Case A had a low level of authority within the municipality's hierarchy and was therefore subject to greater bureaucratic control by the superior office and department. Consequently, it was subject to delegations and commands from higher levels of the municipality and state. Additionally, the Program Management had a significant distance to the Elected Leader and the Department Managers, the strategic decision makers within the municipality. This restricted the Program Management's ability to escalate strategic issues.

In contrast, the municipality in Case B created a specialist unit for the digital transformation of the municipality directly below the Elected Leader. This specialist unit consisted of several digitalization-related programs, one of which was the e-file. The introduction of the specialist unit created a Program Management that mostly resides outside of the structures of the permanent bureaucratic organization. As such, the Program Management was trusted with a high level of autonomy and authority. Thus, the Program Management was subject to comparatively less traditional bureaucratic control. The entire project organization was accountable to the Department Managers and Elected Leader. Yet, its position outside the permanent organization gave the Program Management the ability to act more independently and to influence strategic topics such as budgets and project prioritization. In addition, the position enabled a rapid escalation of emerging strategic issues to the responsible decision-makers, namely the Department Manager and Elected Leader.

Table 3. Hierarchical Position of the Program Management Comparison

Hierarchical Position of Program Management	Case A	Case B
Hierarchical Positioning	Sub-unit of Steering Office	Specialist Unit below Elected Leader
Link to Permanent Organization	Placed in the permanent bureaucratic organization	Mostly outside of the permanent bureaucratic hierarchy
Level of Authority & Autonomy	Low level of authority & autonomy	High level of authority & autonomy
Degree of Bureaucratic Control	Subject to comparatively more bureaucratic control	Subjected to comparatively less bureaucratic control
Proximity to Decision Makers	High distance to strategic decision-makers	Close proximity to strategic decision-makers
Escalation Ability	Limited ability to escalate strategic issues	Ability to quickly escalate issues & influence strategic topics

5.2.2. Roles and Responsibilities

Beyond the mere hierarchical position in the municipality, the roles of the Program Management and the Project Manager were important for understanding the similarities and differences in project organization structure of both cases. Both municipalities created project-related roles to implement the e-file, namely those of the Program Management and Project Manager. However, the roles' scopes and responsibilities varied between both cases. In Case B, an additional role of the Client was explicitly defined. As this role of the Client is primarily related to decisions, it is discussed in more detail in the section on decision-making (5.2.3.).

Role of Program Management

In both cases, the Program Management was responsible for supporting the Project Managers and monitoring project progress. Yet, the realization of these roles and their scope varied (see Table 4).

In Case A, the Program Management's responsibilities were comparatively narrow and consisted of the execution of assignments provided by the state administration. It was not responsible for strategic tasks and could not, for example, directly influence the municipality's budget allocation. Instead, Program Management employees received tasks from the state, partly delegated them to the Project Managers across the different offices and monitored the

Project Managers' progress. The role's focus was on communicating and gathering information as well as supporting the Project Managers in increasing acceptance of the e-file introduction by conducting workshops in the offices.

Whereas in Case B, the Program Management held the overall responsibility for the strategic direction of the municipality's overall digital transformation. The implementation of the e-file was therefore embedded in a broader spectrum of responsibilities. Accordingly, the Program Management was in charge of prioritizing projects and offices for the e-file implementation. It also consulted the Elected Leader and Department Managers in the strategic choices regarding the digital transformation of the municipality. Furthermore, the role explicitly included influencing the municipality's budget allocation to secure funds for digitalization projects. Similar to Case A, the Program Management in Case B supported Project Managers in the implementation process. Contrastingly, the role spanned further than mere acceptance management, information sharing and monitoring. The Program Management role further included the collaboration with external software providers and the technical support to Project Managers by modifying the e-file software for office-specific needs. For this purpose, two distinct roles were created within the Program Management: the e-File Coordinator and the File Plan Specialist.

Table 4. Program Management Role Comparison

	Case A	Case B
Program Management		
Nature of Role	Narrow scope of responsibilities	Broad scope of responsibilities
Type of Responsibilities	Execution of tasks & assignments from state administration	Overall responsibility for strategic direction & consultation of strategic choices
Influence on Decision-makers	Limited influence on strategic decisions of state or municipality	Direct consultative status to Elected Leader & Department Managers
Spectrum of Responsibilities	Focus on delegating task to Project Manager, acceptance management & communication	Budgetary responsibility, prioritizing projects, collaborating with software provider, providing technical support to Project Managers

Role of Project Managers

In both cases, the Project Manager roles existed with the purpose to drive the e-file implementation in their respective office, but the scope of the roles varied between the cases (see Table 5).

In Case A, the Project Managers were mainly responsible for executing tasks delegated to them by the Program Management. For instance, information about the e-file implementation given by the Program Management had to be shared with their offices. The Project Managers were also expected to collect relevant information from their office and share it with the Program Management. However, their responsibility did neither include explicitly reflecting on nor improving administrative processes. Moreover, the temporal role of the Project Manager was embodied within the Project Manager's existing role in the permanent organization and alongside the responsibilities of their permanent roles. As most Project Managers were not Office Managers in the permanent organization, they had no formal authority in their office. When conducting tasks of the Project Manager that fell outside the scope of their permanent role in the office, the employees embodying the Project Manager role relied on the approval of their Office Managers.

Table 5. Project Manager Role Comparison

	Case A	Case B
Project Manager		
Nature of Role	Executing operational tasks	End-to-end responsibility
Type of Responsibilities	Executing delegated tasks, for example, collecting information about administrative processes	Actively shaping the e-file implementation, e. g. mapping & improving administrative processes
Role Integration	Role embodied within existing role in permanent organization	Role as main activity, few responsibilities related to permanent organization
Authority	No formal authority beyond the permanent role	Authority through broadly defined role and support of Client
Autonomy & Flexibility	Relied on approval from Office Manager	Able to make operational decisions

In contrast, the Project Manager in Case B held an end-to-end responsibility for e-file implementation in their respective office. The role was designed to be the employee's core focus, with only few additional responsibilities in the permanent organization. The Project Managers were responsible for mapping the administrative processes relevant for the e-file implementation and they also had the flexibility and freedom to reflect upon and change administrative processes if necessary.

5.2.3. Decision-making

An essential differentiator between the cases is the level of delegation of decision-making (see Table 6).

Delegation of Decision-making

Centralized decision-making was observed in Case A, where the state administration was responsible for most strategic and many operational decision-making. Comparatively few decisions were delegated to the municipalities. Managers at higher levels in the municipality such as Department Managers delegated the responsibility to implement the e-file to the sub-unit of an office that would become the Program Management. The Program Management had no authority to make strategic decisions about which offices should be given priority. Similarly, Project Managers were entrusted with the final decisions to clarify details on the File Plan for their office, but otherwise had little operational decision-making authority. Within their respective offices, their decision-making abilities were also limited as most did not hold Office Manager positions in the permanent organization. As a result, centralized decision-making ensured the state's control over the Program Management and Project Managers.

Meanwhile in Case B, the decision-making was more decentralized between the state and the municipality. The state administration in Case B did not attempt to create state-wide standardization use of the e-file and delegated most decisions to the municipalities. Within the examined municipality, centralized and decentralized decision-making was balanced among the organizational levels. Strategic decisions were made centrally in the steering meeting by the Elected Leader and the Department Managers. The manager of the Program Management Unit supported and influenced strategic decision-making, for example by prioritizing e-file implementation projects. By setting the strategic direction in the steering meeting and making the Project Managers and the Program Management accountable to these decisions, the Elected Leader maintained control over the e-file implementation.

Table 6. Delegation of Decision-making Comparison

	Case A	Case B
Delegation of Decision-making		
Decision-making Structure	Centralized strategic and operational decision-making	Centralized strategic decision-making and decentralized operational decision-making
Strategic Decisions	Most strategic decisions taken centrally by state	Strategic decisions made centrally in the steering meeting of municipality
Operational Decisions	Most taken by state, some by Program Management and Project Managers	Taken by Project Managers and Clients
Program Management	Operational decisions	Influenced strategic decision-making
Project Managers	Limited operational decision-making	Operational decision-making, enabled by Client

Operational decisions were the responsibility of the Project Manager and the Client. The Project Manager was trusted to take decisions about the customization of the e-file software to his office either by himself or to seek decision-making from the Client. With the support of the e-File Coordinator, the Project Manager was provided with necessary information to make informed decisions, for example, about adjustments to the e-file software for their office. Office Managers were involved in decision-making in their role as the Client of the project, as they had to make decisions on matters handled by the Project Manager and the e-File Coordinator. If they were unable to decide, the decision had to be delegated to either the Project Manager, the e-File Coordinator or an office employee. Alternatively, the matter could be escalated to the Department Manager in the steering meeting.

5.2.4. Conclusion

The two municipalities employed different organizational structures in their project organizations to implement the e-file. The most significant differences between both cases are the hierarchical positioning of the Program Management, the scope of the roles of Program Management and Project Manager as well as the delegation of decision-making. The project organization structures of the two municipalities exhibited different degrees of bureaucratic and project logic.

The analysis of Case A reveals the following key findings regarding the prevailing bureaucratic logic in the project organization structure. Program Management in Case A was characterized by a low level of authority and autonomy. Due to its position in the permanent organization's hierarchy, the emphasis rested on hierarchical control rather than independent decision-making. This structure created a significant distance to decision-makers, limiting its ability to escalate strategic issues.

The decision-making and control mechanisms in Case A were centralized. The state administration made most of the strategic and operational decisions, while only a few decisions were delegated to the Program Management and Project Managers. This concentration of decision-making authority emphasizes the bureaucratic logic in the project's organizational structure. Moreover, the Program Management's scope of responsibilities was narrowly defined and subject to clear lines of control. The constrained focus on operational responsibilities reflected a limited confidence in the ability of the Program Management to address broader aspects of the implementation process. The bureaucratic logic was also significantly prevalent in the role of Project Managers. Project Managers primarily handled operational responsibilities and their role was integrated into their existing positions. They strongly depended on approval from Office Managers which illustrates their lack of formal authority. This limited the Project Managers' ability to make operational decisions and to enhance administrative processes.

While the bureaucratic logic was predominant in the project organization of Case A, in Case B the coexistence of project and bureaucratic logic was observed. The analysis illustrated that the Program Management in Municipality B was characterized by a significant degree of autonomy, due to being positioned largely outside the permanent organizational hierarchy. Combined with a wide range of responsibilities, the Program Management was able to act proactively and flexibly to influence various aspects of the implementation process. The confidence placed in the Program Management further indicates the presence of project logic. Operational decision-making was decentralized, with a considerable number of decisions delegated to the Program Management and Project Managers. In addition, bureaucratic logic was detected in the project organization structure of Case B. For example, Project Managers were accountable to the Program Management and Clients, who held formal authority in the permanent organization and made operational decisions. Similarly, there was a clear line of control to the Elected Leader and the Department Managers, that ensured the accountability of

the Program Management to achieve the desired objectives of the project organization. Moreover, strategic decision-making remained largely centralized in the steering meeting.

In conclusion, the analysis offered insights into how the two municipalities structure their project organizations. Case A predominantly relied on bureaucratic logic characterized by centralized decision-making, limited autonomy for Program and Project Management and centralized hierarchical control. Case B featured co-existing bureaucratic and project logic. This approach allowed the Program Management and Project Managers to have greater autonomy and flexibility, while maintaining necessary control mechanisms through clear lines of accountability towards and partial delegation of decisions by the Elected Leader.

5.3. Description of the Implementation Processes

In the following, the implementation processes in both cases are described. In particular, the operational processes of the e-file implementation within a single office in each respective case are outlined.

5.3.1. Implementation Process - Case A

The state administration in Case A aimed at achieving state-wide standardization of administrative processes and thus, actively steered the implementation of the e-file in the examined municipality. The state chose to hire an external private provider for the development of the e-file software for all municipalities. As the various municipalities differ in their organization and administrative processes, the software had to be tailored to each municipality. This adaptation of the software required deep insights into the respective municipality's operations, which is why the implementation of the e-file in Case A depended on the development of a detailed File Plan. However, this plan varies depending on the specific requirements and processes of the different offices within the municipality.

In spring 2021, the state delegated the responsibility for developing a File Plan to Municipality A with the aim of providing the required information so that the software supplier could adjust its e-file software to Municipality A's needs. The municipality then adopted its project organization structure as described in (5.1.) during the rest of 2021. In the beginning of 2022, trainings with all Project Managers were organized. These basic training courses were conducted by external consultants from different firms that were hired by the state administration. Despite the Program Management's responsibility for coordinating the

implementation of the e-file in the municipality, it was not informed in advance about the timing or the content of the training courses. A Program Management employee shared:

> *"The consulting firm set the time horizon, which meant that the order of when which workshop would be held was already fixed. […] In my opinion, what also made things unnecessarily difficult at the beginning was that we only got project information through these workshops. At the beginning of this entire project, we were more of a moderator, because we had to do the workshop together with the consulting firm. Now that we have the information, we can also distribute and process it ourselves here in the municipality."*

During the trainings, the external consultants shared information about what the File Plan was, how the user interface of the e-file software looked like and how the municipality could work with it, but the Program Management had no influence on the content of the training. The Project Managers were given their first task, which was adapting a File Plan draft to their offices' needs by the end of autumn 2022. Once they were finished, they were expected to share their final File Plans with the Program Management, who would send it to the state administration so that the e-file software could be tailored to each office's requirements.

Adjusting the File Plan in the School Office

To adapt the File Plan template to the School Office's needs, the Project Manager relied on the Office Manager. While the Project Manager, in cooperation with two colleagues from the School Office adapted the File Plan, most related decisions were officially taken and communicated by the Office Manager. The Project Manager required the approval of the two employees' Unit Managers for them to be allowed to collaborate with the Project Manager on the File Plan. In April 2022, the Project Manager and the two colleagues met for the first time to discuss how to proceed with the File Plan. In the following months, they met a couple of times and filled out the File Plan for their office based on their knowledge of the office's operations. The Project Manager decided not to include any further employees due to the effort it would take to find employees with a Unit Manager that is supportive of the e-file implementation and permits their employees to allocate their time to the File Plan.

One major issue emerged during summer 2022 as the state-level administration decided that digital files in the e-file software would be automatically deleted after the legal minimum storage duration of ten years. The Project Manager described the issue in the following way:

> *"There is a maximum retention duration for files in the e-file software […] and then the data is automatically deleted. That doesn't always make sense, for example in our*

case, buildings can exist for up to a hundred years, so it doesn't make sense for the construction files to be deleted after 10 or even 15 years."

Concerns were raised by those who worked with the construction and maintenance services for buildings within the School Office due to the difference between the legal minimum storage duration of files and what was considered a reasonable storage period. The reasoning being that if, for example, a new school building was constructed ten years ago and this building would need to receive significant maintenance in the future, relevant information could get lost through this default setting.

Therefore, the Project Manager in the School Office alongside other Project Managers in the municipality requested the Program Management to address this issue with the state administration. Through building coalitions and collectively addressing this issue with several other municipalities' Program Management Units, they managed to convince the state to replace this policy. However, the new policy instructed the municipalities to review all types of documents and files in all administrative processes and manually add the required storage duration for each document and file type in the File Plan. This created a significant additional workload for the Project Managers. Considering that the Project Manager in the School Office neither had the knowledge to fulfill this task nor the authority to involve other employees or delegate parts of this task, he opted for simply not doing this work. Instead, the Project Manager simply added the minimum legal storage duration of ten years as the required storage duration.

The Project Manager sent the adapted File Plan for his office to the Program Management, which, in turn, forwarded the File Plans to the state administration at the end of 2022 after receiving all File Plans from all Project Managers in its municipality. The Program Management then realized that some aspects of the File Plan, especially the document and file storage duration, had not been added at all or simply set to the legal minimum period of ten years by most Project Managers in the municipality. When asked what the Program Management did to address this issue, a Program Management employee stated:

> *"We are now sending the completed File Plan for the municipality to the [state-level administration] on time so that the e-file software can be adapted, and we will probably look at the [storage duration] later to see if and how we have to submit it at a later date."*

Identifying Issues with Regard to the Document Deletion Responsibility

In February 2023, the municipality's Project Managers participated in an additional training organized by the external consultancy. The Project Manager of the School Office reflected upon this training:

> *"The training was about permissions, access and roles in the e-file software and about who can see and change which files in their office. […] We were supposed to learn how to use the e-file software and then we were suddenly told that we, as Project Managers, were expected to be responsible for controlling our colleagues with the introduction of e-file software in our office."*

The control the Project Manager mentions refers to an administrative responsibility revolving around the deletion of documents. To prevent accidental or faulty deletion of documents, a four-eye principle was required to be implemented in each office. In the e-file software that will be introduced in 2024, the Project Managers are supposed to check deletion requests. Whenever an employee in the office tries to delete a document, the administrator must evaluate and approve it. However, the Project Manager of the School Office shared concerns because this would add unnecessary workload for him, without providing real benefits. He shared the concern that it is impossible for one person in the office to have the in-depth knowledge and expertise to be able adequately assess whether documents should be deleted or not, especially without any contextual information. Likewise, the Project Manager will have to achieve this additional workload alongside his regular work and his additional duties as the Project Manager. He stated:

> *"This causes a lot of frustration and usually everything that is introduced in the digital area involves more work, you never get the feeling that anything is made easier."*

With his concerns in mind, the Project Manager approached the Program Management and requested that they find a solution by either convincing the municipality's management to provide more personnel resources or to change the state-decided policy that required this responsibility to be added to his role. However, to receive additional staff capacity, the municipality's Elected Leadership and the Department Managers would have had to rearrange personnel. Considering the already scarce personnel resources, this escalation was deemed unlikely to be successful by the Program Mangement. Likewise, escalating this issue to the state-level was seen as resource-intense, unlikely to be achieved and not always worth the effort, as seen in the document deletion policy. Consequentially, the School Office's Project

Manager decided to simply approve every request due to the impossibility of making informed choices.

Current State

The Program Management invited the manager of the School Office to a meeting in October 2023 to discuss how and when their office will implement the e-file software. However, the Office Manager shared skepticism about the implementation of the software in his office. Other municipalities are experiencing challenges and some of the other Office Managers are strictly opposing the implementation of the e-file software in his office. In turn, the state decided the deadline for implementing the e-file software across all municipalities would be shifted to the beginning of 2025. Most likely, the examined municipality will start with the municipality-wide implementation of the software in the beginning of 2024.

5.3.2. Implementation Process - Case B

After the project organization was implemented in summer 2021, the Project Manager of the Social Services Office, which was selected to implement the e-file as one of the first in the municipality, started preparing the implementation.

Mapping Document Flows

The Project Manager played a crucial role in identifying and meticulously mapping processes within the Social Services Office from fall 2021 to spring 2022. The Project Manager shared:

> *"Based on the analysis of the processes, I wanted to see where we could shorten processes and where we could simplify the routes that a document takes through the municipality."*

This mapping provided essential information about the flow of documents through the organization, including how they entered the municipality, the methods of transmission, their subsequent destinations, the reasons behind their movements and the specific individuals who needed to review them. The Project Manager worked in collaboration with numerous relevant employees in the Social Services Office and interviewed them to clarify uncertainties. Rarely if ever did the Project Manager encounter reluctancy to support his efforts, which the Project Manager attributed to his close collaboration with the Office Manager and the Program Management's proximity to the Elected Leader of the municipality.

Anticipating Postal Unit Issues

While mapping out administrative processes, the Project Manager recognized that a major problem could emerge related to incoming paper-based documents at the postal unit of the office. Implementing the e-file software could result in a complication for the postal unit, given that it received up to two thousand paper-based documents each quarter related to medical treatments of asylum seekers by the Association of Statutory Health Insurance Physicians. If the Social Services Office had simply switched to the e-file software, the postal unit's employees would have had to process the documents manually by opening, stamping, scanning and forwarding them to the respective office. Additionally, the postal unit employee would have to manually assign each document to the correct digital file. The legal compliance requirement would have necessitated the storage of paper letters in case any issue arose. This workflow would have substantially augmented the workload and raised the risk of improper filing of documents due to the vast volume of work and human error.

Digitalizing the Document Transfer Process

The Project Manager collaborated with the Association of Statutory Health Insurance Physicians to streamline the data transfer process. The main objective was to digitalize and automate the assignment of documents to the respective e-files. The Project Manager pitched the idea to the Office Manager, who was skeptical at first because the solution had to be simple and functional enough to save time and still comply with applicable laws. However, the Office Manager approved the idea anyway. Subsequently, the association was contacted, which was also receptive to the initiative. The Project Manager described the first step:

> "We first had to choose a secure communication channel, because this is sensitive data from medical documents that we cannot simply send by email. As a public administration, we have a particular duty to protect people's data."

The Project Manager approached the e-File Coordinator, who developed a software for scanning incoming digital documents and automatically saving them in the correct digital files based on patient data. Developing the solution required a collaborative effort between the Project Manager, the e-File Coordinator and the Association of Statutory Health Insurance Physicians. They engaged in several meetings to define technical requirements, share essential data and rigorously test the digital transfer process.

The data transfer process was digitalized, automatically allocating documents to the correct files, with an error rate of 2-3%. Ultimately, the e-file system was implemented successfully in

the Social Services Office. Ongoing efforts focus on further refining and streamlining the process. Reflecting on this initiative, the e-File Coordinator shared:

> *"[The municipality] actually received these invoices in many boxes and we realized that's where we need to start. Thank goodness we have now digitalized this process, I can't imagine how things would look like if we didn't. It was only really possible for us because [the Project Manager] carried out a proper document flow analysis and identified the problem."*

Developing the File Plan

In early 2022, the Project Manager approached the File Plan Specialist to create a tailored File Plan for the Social Services Office. The File Plan Specialist described this process as follows:

> *"The Project Manager did all the preparatory work regarding the process analysis. We only needed two meetings with the Office Manager to clarify a few questions. [...] Around the beginning of May 2022, I completed the first File Plan draft based on this previous preparatory work and it was successively adapted and implemented."*

Simoultaneously, the Project Manager collaborated with the e-File Coordinator to prepare for the installation of the e-file software in the office. The e-File Coordinator and Project Manager presented software-related issues requiring the Client's approval or decision-making during bi-weekly meetings.

Adapting, Testing and Implementing the e-File Software

During the summer of 2022, the e-File Coordinator adjusted the software to the office's requirements based on the File Plan the previously mapped processes and in collaboration with the external software provider. The software was then further developed as more decisions were made together with the Client. Following several test rounds, employees in the Social Services Office tested the software and provided feedback that was used to further adjust the software.

In October 2022, the e-File Coordinator decided to implement the software throughout the Social Services Office, even though it was not her area of responsibility. As stated by the e-File Coordinator:

> *"I practically took the burden of decision-making off [the Office Manager's] shoulders. I outlined the risks for her, and I noticed that she was struggling a bit with the decision. Of course, she could not assess the entire situation because, as the Office Manager, her expertise lies in her field, not in technical matters and e-files. Furthermore, as the Client, she did not have direct involvement with these e-*

files. But what is crucial here is that she had the trust to say: I trust you to decide, and we will go on with that decision. I fully support it."

Therefore, the Social Services Office was required to switch to using e-file software starting from a designated day in October 2022. For a period of two weeks following the implementation, members of the office faced minor technical problems. Nonetheless, the Project Manager and the e-File Coordinator were able to adjust the software whenever issues occurred.

Current State

Although establishing this new organizational structure required more time and effort, the municipality in Case B has successfully implemented the e-file software in some of their offices and is experiencing a gradually accelerating implementation pace throughout the municipality. Overall, the e-File Coordinator who was involved in the implementation before and after the adoption of the project organization highlighted the following effect of the organization on the implementation process:

> *"The distances have become much shorter because we no longer have to go through the long official channels, up and down the administration or try to find the right managers. We now have the support of Department Managers, which helps to communicate such things top down. That has really sped things up."*

5.4. Causal Link Between Project Organization Structure and the e-File Implementation Process

In this section the theoretical frameworks described in Chapter 3 are used to analyze the influence of project organization structure on the e-file implementation process. Two related links are identified, namely cross-functional collaboration and adaptability.

5.4.1. Cross-functional Collaboration

Cross-functional collaboration describes the mechanism by which specialized and functional divisions work together to achieve an overarching goal (Bishop, 1999; Ford & Randolph, 1992). By contrast, encapsulation refers to the absence of cross-functional collaboration. During the implementation process, the structure of project organizations fostered either cross-functional collaboration or encapsulation (see Figure 4).
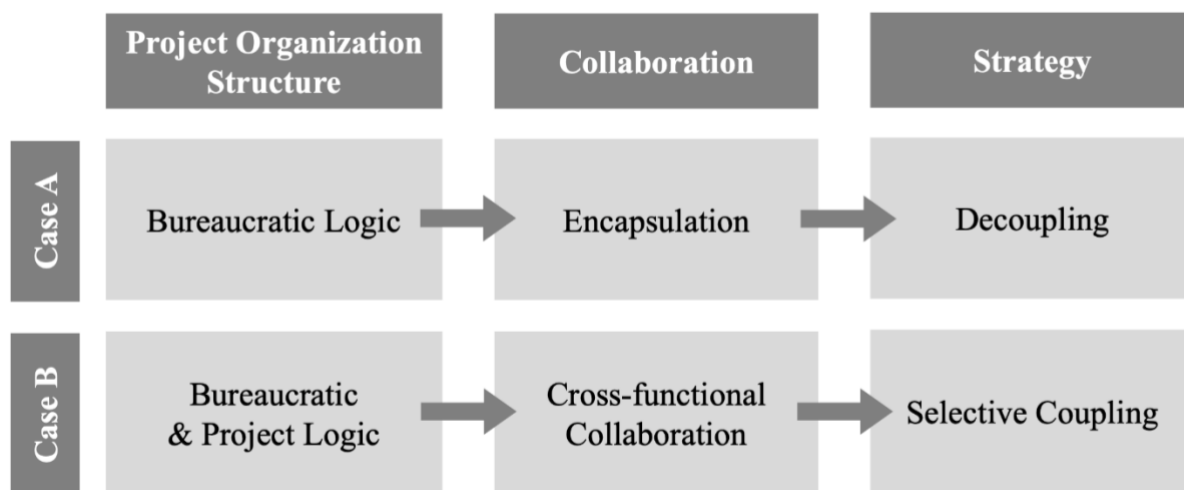
Figure 4. Overview Cross-functional Collaboration

In Case A, an encapsulation of the Project Manager could be observed as a result of the project organization structure. The Project Managers in Case A were responsible for ensuring that the File Plan accurately represented their entire office's requirements. Therefore, the Project Managers had to gain an understanding of the administrative processes throughout their office and involve office employees from different units. However, as the Project Managers' role was tied to the employee's permanent role, they were not authorized to decide with whom to collaborate in the office. Hence, each time the Project Manager in the School Office had to interact with an employee from a different unit of the office, permission had to be granted by the respective Unit Manager. As a result, the Project Manager was only able to involve two other office employees in the adaptation of the File Plan, indicating that there was a low level of cross-function collaboration within the office.

Contrarily, the project organization structure of Case B facilitated cross-functional collaboration. The Project Managers of Case B were assigned end-to-end responsibility for the implementation process. This approach enabled the Social Services Office's Project Manager to conduct interviews with different office employees and gain a profound understanding of the relevant administrative processes. The Office Manager, acting as Client in the project organization, delegated the decision of whom to collaborate with in the office to the Project Manager. This prevented the encapsulation of the Project Manager. Moreover, the hierarchical proximity of the Program Management to the Department Managers enabled cross-functional collaboration throughout the municipality even when employees were reluctant to support the Project Managers. The mere possibility that Project Managers could escalate issues to the Program Management and subsequently, to the Elected Leader and the Department Managers was sufficient to encourage employees to cooperate.

By influencing the level of cross-functional collaboration, the project organization structure affected how Project Managers handled conflicting institutional logics in the ICT implementation process. In Case A, the encapsulation created by the project organization structure facilitated the Project Manager's decision to opt for decoupling in the implementation process. Hereby, the Project Manager experienced conflicting institutional logics when confronted with the change in document deletion policy. On the one hand, the e-file software required a legally compliant regulation regarding the minimum storage duration after which documents and files are automatically deleted. Setting the duration to the legal minimum requirement reflected bureaucratic logic. On the other hand, as demonstrated in the "construction document" example, deleting certain information after ten years could result in future complications. However, determining the appropriate storage duration was ambiguous because it required extensive knowledge to evaluate whether and for how long to retain various document types beyond the minimum legal requirements.

As the project organization structure restricted cross-functional collaboration, the Project Manager could not combine the conflicting logics and chose to decouple them instead. Collaborating with employees on the operational level in the office units was necessary to obtain the required information. However, requesting multiple Unit Managers to collaborate with each individual employee would have been extensively time and resource consuming. Considering that the Project Manager also had to fulfill his permanent role's responsibilities alongside engaging in project-related activities, he deemed it an impossible task. Without the ability to effectively collaborate with a wide range of employees across different office units, the Project Manager could not effectively find a way to compromise or combine the conflicting logics. Instead, the Project Manager's choice of strategies was restricted to decoupling. The Project Manager simply set the deletion duration for each document type to the minimal legal limit of ten years. This way, he communicated to the Program Management that he had completed the File Plan and preserved external legitimacy without overwhelming himself with unmanageable tasks. Since the Program Management lacked authority to enforce the Project Manager's responsibilities, the latter felt secure in his decision. Given that most Project Managers employed the same decoupling approach, it is justifiable to infer that this instance of decoupling is representative for the municipality.

In Case B, the high level of cross-functional collaboration created possibilities for the Project Manager to effectively combine conflicting logics in the implementation process, specifically when digitalizing the data transfer with the Association of Statutory Health Insurance

Physicians. When examining the possibility to digitalize the data transfer with an external organization, there was uncertainty about how or whether this was possible due to conflicting logics. On one hand, it was necessary to conform to bureaucratic requirements for legal compliance and data privacy. On the other hand, the solution had to be pragmatic, flexible and reduce the overall workload for the office's employees.

By collaborating with various members of the municipality, the Project Manager developed a thorough understanding of the detailed requirements of the conflicting logics, enabling their combination in a joint solution. The Project Manager freely gathered information from multiple individuals in his office and mapped out relevant administrative processes in detail. Moreover, the Project Manager received support from the e-File Coordinator to clarify the municipality's data-safety requirements. Through further collaboration with the external organization, the Project Manager could minimize uncertainty around how to combine both logics and develop software that automatically classifies incoming documents into the correct files. Thus, cross-functional collaboration empowered the Project Manager's ability to actively choose selective coupling as a strategy to resolve the conflicting logics.

5.4.2. Adaptability

Adaptability refers to an organization's potential to initiate changes in its organizational structure and processes in response to a positive or negative triggering event (Sarta et al., 2021). It is demonstrated through the dynamic interaction of various organizational members (Abatecola, 2012). The cases at hand illustrate how project organization structure can enhance or weaken the adaptability of municipalities' adaptability (see Figure 5). In Case A, the project organization structure fostered low adaptability. The state made most strategic and operational decisions centrally and early in the implementation process, often without a clear understanding of the subsequent impact on operational realities in the municipalities during later stages of the implementation. As the e-file implementation process is not completely predictable, the state's decisions led to problems in the implementation process which required adaptation of previous decisions. By delegating only a few decisions to the Program Management and the Project Managers and limiting their roles' scope, the state effectively restricted their ability to influence state-made plans. In turn, this narrowed the Project Managers' and Program Management's ability to adjust the implementation process. For instance, the state actively prevented the Program Management from influencing and potentially changing the training content. Furthermore, due to its low hierarchical position, the Program Management had limited
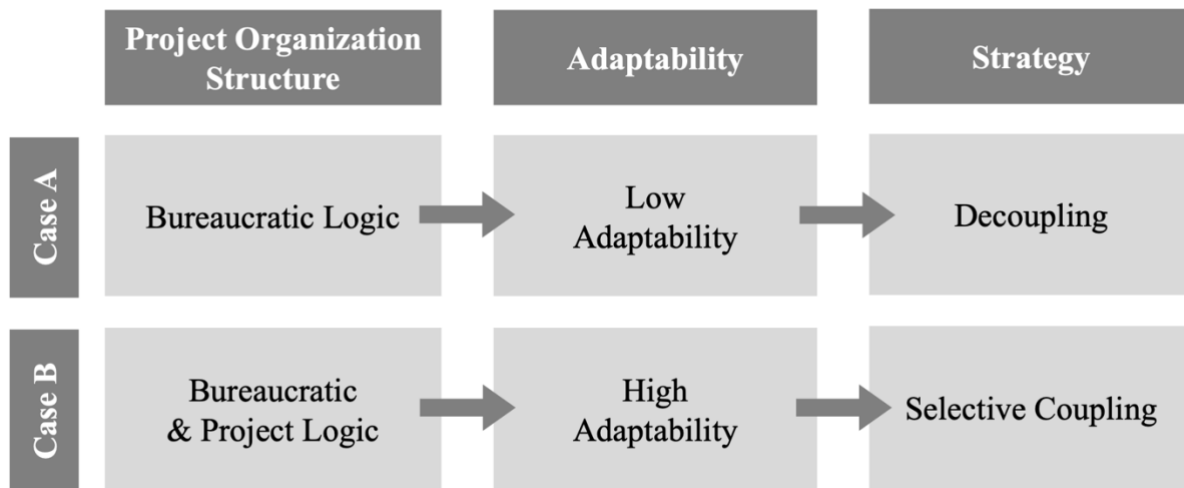
Figure 5. Overview Adaptability

abilities to escalate issues to relevant decision makers within the municipality and the state. As the municipality had minimal authority over decisions regarding the e-file implementation, the adaptation of related policies and processes was only possible at the state level. Here, the adaptability of the Program Management was tied to their ability to politically mobilize across different municipalities' Program Management Units and exert pressure on the state to make changes to the implementation process. This process required extensive resources and thus, change has only been achieved once in the implementation process in the case of the documents' minimum storage duration.

In Case B, the project organization structure facilitated the municipality's adaptability during the e-file implementation process. The state did not restrict the municipality's ability to make strategic or operational decisions, allowing the municipality to balance centralized and decentralized decision-making within its project organization. This allowed the project organization to develop adaptability at the necessary levels. The broad scope of the Program Management role enabled it to influence strategic decisions in the steering meeting. For example, the Program Management could change the order in which offices would implement the e-file or support strategic adaptation through its influence on the municipal budget allocation.

Operational decision-making was delegated to the Project Managers early in the implementation process, which enabled them to make necessary changes to drive the e-file implementation. For example, by mapping out administrative processes, the Project Manager of the Social Services Office could adapt these processes for the implementation of the e-file software. When the potential issue regarding the postal unit emerged, the Project Manager was

able to redirect attention to the matter. With the approval of the Office Manager and the support of the e-File Coordinator, the Project Manager developed a software for the automatic allocation of incoming documents into files. Through repeatedly testing and changing the software, operational-level adaptations became an integral part of the implementation process.

The level of adaptability in the two municipalities affected the selection of strategies in the implementation process. Specifically, in Case A, the lack of adaptability on the project- and program-level restricted the Project Manager's ability to cope with conflicting logics related to the document deletion responsibility. Once the e-file software will be implemented, Project Managers will be required to review all document deletion requests in their respective office. The purpose of this state-decided policy was to ensure legal compliance and prevent accidental or incorrect data deletion by monitoring deletion requests. The Project Manager of the School Office encountered challenges aligning this approach with the operational realities of the project. To adequately assess whether documents should be deleted, the Project Manager would have required extensive knowledge about the context of individual files and cases that employees throughout the office were working on. However, a single individual is unlikely have enough knowledge to make informed decisions when faced with deletion requests from more than 50 employees, each working on different specific cases and topics. Thus, the selective coupling of these conflicting logics was not possible.

The Project Manager attempted to compromise by escalating the issue to the Program Management in hopes of obtaining more resources or achieving a policy change. Allocating additional personnel resources to this task would have allowed to meet the demands of both logics to a minimum extent. All deletion requests could have been screened appropriately without overwhelming individuals with excessive workload. The Program Management refrained from escalating this issue to either the municipality or to the state administration due to a lack of confidence in achieving compromise.

Thus, as the issue did not reach relevant decision makers, changes to the role were not made and the Project Manager deemed decoupling as the only remaining strategy to deal with the conflicting demands. As no one was verifying that the responsibility of checking deletion requests was properly fulfilled, the Project Manager approved all requests without further investigation. This allowed the Project Manager to maintain external legitimacy by formally fulfilling the requirements of the the responsibility while avoiding excessive workload.

In Case B, the project organization exhibited high levels of adaptability, particularly at the project level, which facilitated the integration of institutional logics by the Project Manager. As discussed in section 5.4.1., the digital transfer of documents with an external organization created uncertainty about the possibility to develop a solution that was both pragmatic and work facilitating, as well as fulfilling the requirements of legal compliance and data security.

The ability to adapt the implementation process on an operational level enabled the Project Manager to engage in selective coupling. Through repeated testing and adaptation of the software solution for data transfer, the uncertainty about how to combine two conflicting demands was reduced iteratively. This enabled the Project Manager to thoroughly explore how the competing logics could be selectively coupled in practice. As a result, the final software developed for the automatic allocation of incoming digital documents into files in the e-file software combined both logics. It protected the data privacy of the municipality's residents in compliance with applicable laws. Additionally, it was both practical and straightforward, which simplified the work for office employees. The Project Manager combined the bureaucratic demand for a legally compliant document transfer and classification with the project's needs for a pragmatic digital solution that reduces the workload of the office's employees.

5.4.3. Conclusion

To conclude, the organizational structure of project organizations affected the choices and behaviors of Project Managers in the e-file implementation process. Specifically, the project organization structure influenced how Project Managers interact with and resolve conflicts of institutional logics. By strengthening (or weakening) cross-functional collaboration and adaptability, project organization structure enabled (or disabled) the Project Manager's agency in the selection of strategies to resolve conflicts of institutional logics.

Firstly, cross-functional collaboration or encapsulation was facilitated by the project organization structure in the two cases. Case A's project organization structure reflected bureaucratic logic and led to the encapsulation of the Project Manager. In comparison, the project organization structure in Case B allowed for both project and bureaucratic logic to co-exist, which is why cross-functional collaboration could be achieved. Depending on the extent to which cross-functional collaboration was made possible by the project organization structure, Project Managers were able to selectively couple institutional logics. The Project Manager's encapsulation in Case A prevented collaboration with office employees that was required to combine the conflicting logics involved in the document storage duration issue,

forcing the Project Manager to decouple. On the other hand, the high level of cross-functional collaboration in Case B allowed the Project Manager to selectively couple conflicting logics when digitalizing the data transfer with an external organization.

Secondly, the cases illustrated how adaptability is weakened or strengthened by the project organization structure. Low adaptability was observed in Case A as a result of its project organization structure's manifestation of bureaucratic logic. Contrary to Case A, Case B was characterized by high levels of adaptability due to the presence of project and bureaucratic logic in the project organization structure. In turn, the level of adaptability in the municipality immediately impacted the Project Manager's ability to actively choose a strategy to resolve conflicting logics. The lack of adaptability exhibited in Case A restricted the Project Manager's possibilities to reach an effective compromise with regard to the document deletion responsibility, causing the Project Manager to decouple the logics. The project organization of Case B entailed a high level of adaptability, which positively influenced the integration of institutional logics in the digitalization of data transfer between organizations.

6. Discussion

In the following, the theoretical contributions of this study (6.1.) and its practical implications are discussed (6.2.). After outlining the limitations (6.3.), the chapter concludes by presenting possibilities for future research (6.4.).

6.1. Theoretical Contributions

This study extends the DTPA research by examining the project organization structure and how it affects the ICT implementation process in municipalities with the help of both theoretical concepts and empirical findings.

How do Public Administrations Arrange their Project Organization Structure to Implement ICT?

An essential empirical contribution to the niche research strand on project organizations in the DTPA context is the identification of three key elements of project organization structure that differ amongst municipalities. These are hierarchy, roles and responsibilities as well as decision-making. Hereby, the findings build upon and extend existing empirical results (Breaugh et al., 2023; Fred, 2020; Lappi et al., 2019; Lappi & Aaltonen, 2017; Sarantis et al., 2010). This study deepens the knowledge about project organization structure by offering in-depth insights into how the organizational elements are adopted in two German municipal administrations. In particular, the hierarchical position of the Program Management, the role scope of the Program Management and the Project Manager, as well as the degree of delegation of decision-making were identified as key differentiating factors between the two examined project organizations.

In addition, a theory-based analysis of the elements of project organization structure was conducted utilizing an institutional logics approach, which so far has few links to the literature on public administrations (Skelcher & Smith, 2015). Project organization was conceptualized as a decided order that reflects institutional logics. Bureaucratic and project logic were identified as important co-existing institutional logics in project organization structures of public administrations that aim at implementing ICT.

The empirical findings provide the insight that project organizations differ between municipal public administrations based on the predominant institutional logics manifested in their structure. Bureaucratic and project logic are represented in municipal project organization

structure to varying extents, with either a sole focus on bureaucratic logic or a focus on both bureaucratic and project logic observed in the two cases. The dominance of bureaucratic institutional logic in project organization structure was reflected in a low hierarchical position of the Program Management, a narrow role scope of the Program Management and the Project Manager, as well as highly centralized decision-making. Project organization structure that featured both, a bureaucratic and a project-based logic, granted a high degree of hierarchical authority to the Program Management while maintaining clear accountability to municipal managers. Further, the scope of the Program Mangement and Project Manager was wide, and decision-making was balanced between centralized strategic and decentralized operational decisions.

How Does the Project Organization Structure Affect the ICT Implementation Process?

In the existing DTPA research, little is known about how project organization structure impacts the ICT implementation process. This study contributes to the literature on DTPA by identifying conflicts between bureaucratic and project logic as crossroads, the outcomes of which influence whether ICT implementation processes succeed or fail. Hereby, two institutional logics conflict when they are both required to be complied with during the implementation process, but it is uncertain whether or how this is possible. As the two institutional logics compete for influence in the implementation process, Project Managers can select from the three strategies – decoupling, compromising and selective coupling – to address and resolve these conflicts.

The findings recognize the project organization structure as an enabler of the agency of Project Managers as it influences their choices and behaviors in the ICT implementation process. Here, the project organization structure shapes the way in which Project Managers engage with and resolve conflicts arising from institutional logics. Project organization structure can enhance or limit cross-functional collaboration and adaptability, empowering or restricting the Project Manager's agency when choosing amongst the three strategies. Thus, public administrations can choose to arrange the organizational elements of a project organization and in doing so, influence the implementation process of ICT projects.

When bureaucratic logic dominates the project organization structure, cross-functional collaboration and adaptability are limited and Project Managers are restricted in their ability to reduce uncertainty about the way institutional logics can effectively be combined in the implementation process. Thus, compromising and decoupling become more likely. In turn,

project organization structure that is representative of both bureaucratic and project logic fosters cross-functional collaboration and adaptability. This enables Project Managers to explore the intricacies of how the conflicting logics play out in the implementation process and how they may be combined, essentially contributing to their ability to selectively couple them.

While these results were obtained in the context of ICT implementation in German municipalities, their applicability is by no means limited to this context. Firstly, municipalities adopt project organizations for various reasons, not exclusively related to the implementation of ICT. The findings of this study are generalizable to project organizations with other objectives that entail a similar notion of uncertainty and complexity as observed in the ICT implementation. The results are particularly relevant for the public reform literature (Jensen et al., 2013) as conflicting institutional logics likely play a role in reform efforts of public administrations beyond ICT implementation. In such reforms, project logic can act as a motor of change and innovation while bureaucratic logic requires engaging in actions following established practices. As Project Managers tasked with driving such reforms experience uncertainty about how to comply with both logics, project organization structure can support or obstruct them in resolving this conflict.

In particular, the findings of this study can be generalized to public administrations that resemble the Weberian administrative structure of the German public administration (Gerth & Wright Mills, 2014). Especially the municipal right to self-government in Germany, coupled with the relatively decentralized state structure, delineates the conditions within which the examined municipalities operate. As the administrative structures differ from country to country, this can lead to different contextual factors for the municipalities, which in turn can give rise to divergent results in the examined relationships.

In addition, the findings of this study could also be applied to project organizations at higher administrative levels, although other institutional logics might become more prevalent. Public administrations at the higher levels exhibit more politicized processes which, for instance, could be observed in Case A when a policy change by the state administration could only be achieved through political mobilization amongst municipalities. Hence, political logic like plays an additional role in the interrelationships of project organization structure and ICT implementation.

6.2. Practical Implications

The results of this study provide several practical implications for strategic decision-makers and practitioners in the field of project organization, especially for those operating in the context of ICT implementation processes within public administrations. Practicioners should proactively seek to identify and understand the prevalent institutional logics in their organizations. Project organizations, when understood as a decided order, are the result of choices that can be affected by institutional logics. Consequently, decisions about project organization structure should be made with an understanding of the underlying institutional logics at play in order to ensure that the project organization contributes to the project in a desired way.

Potential conflicts between different institutional logics should be anticipated when establishing project organizations. This requires assessing the objectives and requirements of the project organization, and developing an understanding of how those requirements may cause institutional logics to align or conflict. In the case of ICT implementation, the project organization should be designed to represent both bureaucratic and project logics, and to enable Project Managers to effectively cope potentially conflicting logics in the implementation process. This involves structuring the project organizations to facilitate cross-functional collaboration and adaptability.

Cross-functional collaboration can be facilitated in various ways. Positioning the Program Management outside of the permanent organizational hierarchy plays an important role in avoiding encapsulation. Ensuring hierarchical proximity of the Program Management to an administration's top management helps to foster collaboration between the project and the permanent organization. This is important for the mobilization of resources, expertise and knowledge across the organization. In addition, clearly defined responsibilities of the program- and project-related roles further enhances their autonomy and flexibility to collaborate across the organization.

Adaptability can be enhanced by balancing centralized and decentralized decision-making within the organization. Decentralizing operational decision-making allows to cope with operational complexities and address emerging issues. Partial delegation of operational decision-making to Project Manager can improve the organization's ability to adapt to emerging project requirements. In addition, encouraging early involvement of the Program Management in centralized strategic decision-making potentially enables to make informed

decisions aligned with operational realities. Furthermore, a high degree of autonomy and flexibility in the project organization, combined with clear accountabilities towards managers in the organization, as well as broadly defined roles for the Program Management and Project Managers, can positively contribute to adaptability.

6.3. Limitations

Critically addressing the limitations is essential to the integrity of the research and the applicability of its findings. Therefore, the following considerations contextualize the research findings. The generalizability of this study is limited because of the subjectivity of the pragmatist research paradigm and the abductive research approach (Giraldo & Hernández, 2022). Because of the underlying subjectivity, replication of the research process poses a challenge and the risk of biases that may have influenced both the research process and the results of this study should be considered.

Furthermore, while the comparative approach enables juxtaposition of the two selected cases, the cases demonstrate some inherent disparities. The two municipalities are located in different states and each state pursued a different strategy regarding state-wide standardization, which somewhat limits the inner-municipal comparability of the two cases. In Case A, the state enforced state-wide standardization of the e-file software. Whereas in Case B, the state refrained from efforts to create state-wide standardization, enabling greater autonomy and customization within the municipality.

Additionally, the effectiveness of the applied process tracing methodology is bound by several limitations. Although process tracing enables the exploration of causal mechanisms, it cannot substitute longitudinal studies. Reconstructing events and comprehending them retrospectively is more challenging and bound to inaccuracies compared with repeated observations over time. The quality of interview data is tied to the inherent limitation of interviewees' ability to recall past events. People tend to have difficulty remembering details of past events and tend to give distorted renditions of past events (Condie, 2012). Although triangulation was used to mitigate the negative consequences of distortions in the interviewees' responses, it cannot be completely ruled out that these nevertheless influenced the results of the study.

The implementation of ICT in the German public administration represents a recurring theme in the public discourse and it is a sensitive topic for some of the administrative staff involved in the implementation, especially in Case A. Despite efforts to build rapport and provide a safe

and comfortable environment in the interviews, it is possible that aspects of the implementation processes remained unexplored because the interviewees were unwilling to discuss these facets of the process.

6.4. Future Research

Methodological considerations constitute a relevant theme for future research. Firstly, longitudinal research that enables repeated obersevations over time of implementation processes is needed to produce more accurate findings that can reach beyond the methodological limitations of process tracing. This would be especially interesting in analyzing how a Project Manager's choice of decoupling performs and in how far it affects ICT implementation over time. Secondly, considering the differing strategies employed by the states in the examined cases, future comparative research should be conducted in municipalities of the same state to increase reliability. By following this approach, the external context of the cases would be easier to compare, and intra-municipal effects could be researched in greater detail.

The various institutional logics in public administrations need to be further investigated. The study at hand identified bureaucratic and project logic as the relevant institutional logics to analyze the project organization structure and how it affects the ICT implementation process. However, public administrations are characterized by a multitude of institutional logics that co-exist, compete and conflict with each other (Fred, 2020). In particular, the effects of what Fred (2020) describes as the political and market logic should be considered in future analyses of project organization structure. Hereby, the theory could be developed by differentiating the effects of various institutional logics. Additionally, exploring how project organization structure can be affected by more than two institutional logics in more complex ways would contribute to both the theoretical and empirical advancement of the research field.

Finally, as most empirical studies in the niche field of project organizations in the DTPA context have focused on European countries, the field would benefit from analyses of project organization structure in public administrations that do not follow the Weberian tradition. By extending the analysis beyond Europe, examinations of varying state structures in other parts of the world could provide more comprehensive, diverse and differentiated perspectives on project organizations and the DTPA.

7. Conclusion

Within the niche research field on project organizations in the DTPA context, the study at hand examines project organization structure and how it affects the implementation process of ICT in municipalities. By conducting a comparative case study of two German municipalities and employing process tracing in the in-case analysis, this study provides insights into the role of project organization structures in the ICT implementation process.

The study has made four notable contributions to the DTPA literature. Firstly, it contributed by identifying key differentiating features of the organizational structure of project organizations. These include the hierarchical position of the Program Management, the role scope of the Program Management and the Project Manager, and the degree of delegation of decision-making. Secondly, by employing an institutional logics approach, the bureaucratic and the project logic were identified as co-existing institutional logics that are reflected in the project organization structure. Empirical evidence from the two cases demonstrated that project organization structure represents either only the bureaucratic logic in Case A or both the project and the bureaucratic logic in Case B. Thirdly, conflicts of the bureaucratic and the project logic were elaborated as situations that fundamentally influence the trajectory of an ICT implementation. The strategies of decoupling, compromising and selective coupling were described as a means for the Project Manager to address the conflicts of institutional logics. Finally, cross-functional collaboration and adaptability were identified as mechanisms through which project organization structure can enable or hinder the Project Manager's agency in resolving these conflicts. When the project organization structure features dominating bureaucratic logic, cross-functional collaboration and adaptability are restricted. This limits the agency of Project Managers and leads to compromising and eventually to decoupling. In contrast, cross-functional collaboration and adaptability are facilitated when the project organization structure represents both the bureaucratic and the project logic. This allows the Project Manager to selectively couple the conflicting institutional logics in the ICT implementation process.

To expand these insights, future research should conduct longtitudinal analyses and examine a greater variety of institutional logics, such as market or political logic (Fred, 2020). Further analyses of project organization structure in countries outside of Europe, particularly in public administrations that do not resemble the Weberian tradition, should be conducted to enrich the theoretical perspectives in project organization and DTPA research.

References

Abatecola, G. (2012). Organizational adaptation: an update. *International Journal of Organizational Analysis, 20*(3), 274–293. https://doi.org/10.1108/19348831211243802

Ahrne, G., & Brunsson, N. (2011). Organization outside organizations: the significance of partial organization. *Organization, 18*(1) 83–104. https://doi.org/10.1177/1350508 410376256

Alvarenga, A., Matos, F., Godina, R., & C. O. Matias, J. (2020). Digital Transformation and Knowledge Management in the Public Sector. *Sustainability (Basel, Switzerland), 12*(14), 5824-. https://doi.org/10.3390/su12145824

Andrade, A., & Joia, L. A. (2012). Organizational structure and ICT strategies in the Brazilian Judiciary System. *Government Information Quarterly, 29*, S32-S42.

Awuzie, B., & McDermott, P. (2017). An abductive approach to qualitative built environment research: A viable system methodological exposé. *Qualitative Research Journal*, *17*(4), 356–372. https://doi.org/10.1108/QRJ-08-2016-0048

Beach, D. (2016). It's all about mechanisms – what process-tracing case studies should be tracing. *New Political Economy, 21*(5), 463–472. https://doi.org/10.1080/1 3563467.2015.1134466

Bell, E., Harley, B., & Bryman, A. (2022). *Business Research Methods (6th ed.).* Oxford University Press.

Bishop, S. K. (1999). Cross-Functional Project Teams in Functionally Aligned Organizations. *Project Management Journal, 30*(3), 6–12. https://doi.org/10.1177/875697289 903000302

Breaugh, J., Rackwitz, M., & Hammerschmid, G. (2023). Leadership and institutional design in collaborative government digitalisation: Evidence from Belgium, Denmark, Estonia, Germany, and the UK. *Government Information Quarterly, 40*(2), 101788. https://doi.org/10.1016/j.giq.2022.101788

Bromley, P., & Powell, W. W. (2012). From Smoke and Mirrors to Walking the Talk: Decoupling in the Contemporary World. *The Academy of Management Annals, 6*(1), 483–530. https://doi.org/10.1080/19416520.2012.684462

Brunsson, N., & Olsen, J. P. (2018). *The Reforming organization: making sense of administrative change.* Routledge.

Brunsson, N. (1989). *The organization of hypocrisy: Talk, decisions and actions in organizations*. Chichester: John Wiley & Sons.

Bundesverwaltungsamt (2023). Die E-Akte Bund. https://www.bva.bund.de/DE/Services/ Behoerden/Verwaltungsdienstleistungen/E-Akte/e-akte_node.html

Carrasqueiro, S., Monteiro, M. H., Pereira, R., Pereira, C., & Martins, H. (2018). Dematerialization of the Medical Certifi- cate for Driving License in Portugal: A Case Study of Success Factors of Whole-of-Government e-Government Initia- tives. *Proceedings of the 11th International Conference on Theory and Practice of Electronic Governance,* 127-132. doi: 10.1145/3209415.3209510.

Condie, J. (2012). Beyond rationalisations: improving interview data quality. *Qualitative Research in Accounting and Management, 9*(2), 168–193. https://doi.org/10.1108/ 11766091211240379

Cordella, A., & Tempini, N. (2015). E-government and organizational change: Reappraising the role of ICT and bureaucracy in public service delivery. *Government information quarterly*, *32*(3), 279-286.

de-Miguel-Molina, M. (2010). E-Government in Spain: An Analysis of the Right to Quality E-Government. *International Journal of Public Administration, 33*(1), 1–10. https://doi. org/10.1080/01900690903178454

Denzin, N. K. (1970). Who Leads: Sociology or Society? *The American Sociologist, 5*(2), 125– 127.

Deutscher Bundestag. (2023). Basic features of local self-government in Germany and Switzerland. https://www.bundestag.de/resource/blob/955540/eebb52b65ec8d75c645f3 b36f56e9fde/WD-3-050-23-pdf-data.pdf

Deutscher Landeskreistag. (2017). Die Einführung der E-Akte in der Kreisverwaltung. *Schriften des Deutschen Landkreistages, 132,* 24. https://www.landkreistag.de/images/ stories/publikationen/Bd.%20132.pdf

Diefenbach, T., & By, R. Todnem. (2012). *Reinventing hierarchy and bureaucracy from the bureau to network organizations* (1st ed.). Emerald.

Dion Larivière, C., Crough, Q., & Eastwood, J. (2023). The Effects of Rapport Building on Information Disclosure in Virtual Interviews. *Journal of police and criminal psychology*, *38*(2), 452–460. https://doi.org/10.1007/s11896-022-09535-5

Dubois, A., & Gadde, L.-E. (2002). Systematic combining: an abductive approach to case research. *Journal of Business Research, 55*(7), 553–560. https://doi.org/10.1016/S0148-2963(00)00195-8

Edmondson, A. C., & McManus, S. E. (2007). Methodological Fit in Management Field Research. *The Academy of Management Review, 32*(4), 1155–1179.

Eisenhardt, K. M. (1989). Building Theories from Case Study Research. *The Academy of Management Review, 14*(4), 532–550.

Emerson, R. W. (2015). Convenience Sampling, Random Sampling, and Snowball Sampling: How Does Sampling Affect the Validity of Research? *Journal of Visual Impairment & Blindness, 109*(2), 164–168. https://doi.org/10.1177/0145482X1510900215

Enaw, E. E., Check, N., & Teke, M. P. (2016). Organisational framework for e-Government development in Sub-Saharan Africa. In *Proceedings of the 9th International Conference on Theory and Practice of Electronic Governance* (pp. 352-355).

Escobar, F., Almeida, W. H., & Varajão, J. (2023). Digital transformation success in the public sector: A systematic literature review of cases, processes, and success factors. *Information Polity, 28*(1), 61–81. https://doi.org/10.3233/IP-211518

European Commission. (2022). The Digital Economy and Society Index (DESI) Ranking. https://digital-strategy.ec.europa.eu/en/policies/desi

Federal Ministry of Interior and Community. (2017). What is the Online Access Act? https://www.digitale-verwaltung.de/Webs/DV/EN/ozg/ozg-node.html

Federal Ministry of Interior and Community. (2023). Federal government adopts digital administration package: Germany receives a digital citizen account. https://www.bmi.bund.de/SharedDocs/pressemitteilungen/DE/2023/05/ozg-kabinett.html

Feeney, M. K., & Brown, A. (2017). Are small cities online? Content, ranking, and variation of US municipal websites. *Government Information Quarterly*, *34*(1), 62-74.

Fehér, P., & Szabó, Z. (2018). Digitalization in the Public Sector–Findings of a Hungarian Survey. In *2018 12th International Conference on Software, Knowledge, Information Management & Applications* (1st ed., pp. 1-6). IEEE. https://doi.org/10.1109/SKIMA57145.2022

Fincham, R., & Forbes, T. (2015). Three's a Crowd: The Role of Inter-logic Relationships in Highly Complex Institutional Fields. *British Journal of Management*, *26*(4), 657–670. https://doi.org/10.1111/1467-8551.12102

Fischer, C., Heuberger, M., & Heine, M. (2021). Digital transformation in the public sector: from design to impact. Der Moderne Staat – Zeitschrift Für Public Policy, *Recht Und Management, 14*(1-2021), 3–23. https://doi.org/10.3224/dms.v14i1.13

Flick, U., Kardorff, E. von, & Steinke, I. (2004). *A companion to qualitative research.* SAGE Publications.

Ford, R. C., & Randolph, W. A. (1992). Cross-Functional Structures: A Review and Integration of Matrix Organization and Project Management. *Journal of Management, 18*(2), 267–294. https://doi.org/10.1177/014920639201800204

Fred, M. (2015). Projectification in Swedish municipalities: A case of porous organizations. *Scandinavian Journal of Public Administration, 19*(2), 49–68. https://doi.org/10.58235/sjpa.v19i2.15610

Fred, M. (2023). The Trojan Horse of Local Government. In *Projectification of Organizations, Governance and Societies* (pp. 39-55). Palgrave Macmillan. https://doi.org/10.1007/978-3-031-30411-8_3

Fred, M. (2020). Local government projectification in practice–a multiple institutional logic perspective. *Local Government Studies, 46*(3), 351-370.

Freitag, K., Koch, T., & Neumann, M. (2019). Prognos Zukunftsatlas 2019: Das Ranking für Deutschlands Regionen. *Prognos AG,* 35. https://www.prognos.com/de/projekt/zukunftsatlas-2019

George, A. L., Bennett, A., & Mahoney, J. (2010). Case studies and theory development in the social sciences: Review of Case studies and theory development in the social sciences. *World Politics, 62*(1), 120–147.

German Association of Cities and Municipalities. (2023) OZG 2.0: "We have no time to lose". https://www.dstgb.de/themen/digitalisierung/aktuelles/ozg-2-0-wir-haben-keine-zeit-zu-verlieren/

Gerth, H. H., & Wright Mills, C. (2014). *From Max Weber. International Library of Sociology.* Taylor and Francis.

Gil-Garcia, J. R., Dawes, S. S., & Pardo, T. A. (2018). Digital government and public management research: finding the crossroads. *Public Management Review*, *20*(5), 633-646.

Giraldo, C. G., & Hernández, G. C. (2022). A methodological proposal for a strategic design investigation. *Quality & Quantity, 56*(5), 3325–3336. https://doi.org/10.1007/s11135-021-01256-x

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research.* Routledge

Gomes, C. F., Yasin, M. M., & Small, M. H. (2012). Discerning Interrelationships among the Knowledge, Competencies, and Roles of Project Managers in the Planning and Implementation of Public Sector Projects. *International Journal of Public Administration, 35*(5), 315–328. https://doi.org/10.1080/01900692.2012.655461

Gorry, G. A., & Morton, M. S. S. (1989). A Framework For Management Information Systems. *MIT Sloan Management Review, 30*(3), 1-49.

Hammerschmid, G., Löffler, L., & Van de Walle, S. (2023a). Public Administration and Digital Transformation: The Road Ahead. *Public Administration Review, 83*(2), 171-179.

Hammerschmid, G., Palaric, E., Rackwitz, M., & Wegrich, K. (2023b). A shift in paradigm? Collaborative public administration in the context of national digitalization strategies. *Governance,* 1–20. https://doi.org/10.1111/gove.12778

Hanelt, A., Bohnsack, R., Marz, D., & Antunes Marante, C. (2021). A Systematic Review of the Literature on Digital Transformation: Insights and Implications for Strategy and Organizational Change. *Journal of Management Studies, 58*(5), 1159–1197. https://doi.org/10.1111/joms.12639

Haug, N., Dan, S., & Mergel, I. (2023). Digitally-induced change in the public sector: A systematic review and research agenda. *Public Management Review,* 1–25. https://doi.org/10.1080/14719037.2023.2234917

Heeks, R., Malik, F., Morgan, S., & Nicholson, B. (2020). Understanding and managing business—development hybrids: an institutional logics case analysis. *Development Studies Research*, *7*(1), 31-49.

Heintze, T., & Bretschneider, S. (2000). Information Technology and Restructuring in Public Organizations: Does Adoption of Information Technology Affect Organizational Structures, Communications, and Decision Making? *Journal of Public Administration Research and Theory, 10*(4), 801–830. https://doi.org/10.1093/oxfordjournals.jpart.a024292

Hodge, I., & Adams, W. (2016). Short-Term Projects versus Adaptive Governance: Conflicting Demands in the Management of Ecological Restoration. *Land, 5(*4), 39. https://doi.org/10.3390/land5040039

Huber, G. P. (1981). The Nature of Organizational Decision Making and the Design of Decision Support Systems. *MIS Quarterly, 5*(2), 1–10. https://doi.org/10.2307/249220

Initiative D21. (2023). eGovernment MONITOR 2023. https://initiatived21.de/uploads/03_Studien-Publikationen/eGovernment-MONITOR/2023/egovernment_monitor_23.pdf

Irfan, M., Khan, S. Z., Hassan, N., Hassan, M., Habib, M., Khan, S., & Khan, H. H. (2021). Role of Project Planning and Project Manager Competencies on Public Sector Project Success. *Sustainability (Basel, Switzerland), 13*(3), 1421-. https://doi.org/10.3390/su13031421

Jack, E. P., & Raturi, A. S. (2006). Lessons learned from methodological triangulation in management research. *Management Research News, 29*(6), 345–357. https://doi.org/10.1108/01409170610683833

Jacobsen, R. (2022). Public Sector Projectification – A Systematic Review of the Literature. *Scandinavian Journal of Public Administration, 26*(4), 91–112.

Jeanes, E. (2019). *A Dictionary of Organizational Behaviour.* Oxford University Press. https://www.oxfordreference.com/view/10.1093/acref/9780191843273.001.0001/acref-9780191843273 https://doi.org/10.1093/acref/9780191843273.001.0001

Jensen, C., Johansson, S., & Löfström, M. (2013). The project organization as a policy tool in implementing welfare reforms in the public sector. *The International Journal of Health Planning and Management, 28*(1), 122–137. https://doi.org/10.1002/hpm.2120

Jensen, C., Johansson, S., & Löfström, M. (2018). Policy implementation in the era of accelerating projectification: Synthesizing Matland's conflict–ambiguity model and research on temporary organizations. *Public Policy and Administration*, *33*(4), 447-465.

Jiang, & Ji (2014). E-Government Web Portal Adoption: The Effects of Service Quality. *E-Service Journal, 9*(3), 43. https://doi.org/10.2979/eservicej.9.3.43

Kallio, H., Pietilä, A.-M., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: developing a framework for a qualitative semi-structured interview guide. *Journal of Advanced Nursing, 72*(12), 2954–2965. https://doi.org/10.1111/jan.13031

Kanter, R. M. (1977). *Men and Women of the Corporation.* New York: Basic Books.

Kapitan, T. (1992). Peirce and the Autonomy of Abductive Reasoning. *Erkenntnis, 37*(1), 1–26. https://doi.org/10.1007/BF00220630

Kassen, M. (2019). Promoting public cooperation in government: Key drivers, regulation, and barriers of the e-collaboration movement in Kazakhstan. *International Review of Administrative Sciences, 85*(4), 743–762.

Katz, D., & Kahn, R.L. (1966). *The social psychology of organizations.* Wiley.

Kaya, T., Sagsan, M., Medeni, T., Medeni, T., & Yildiz, M. (2020). Qualitative analysis to determine decision-makers' attitudes towards e-government services in a De-Facto state. *Journal of Information, Communication and Ethics in Society, 18*(4), 609-629. doi: 10.1108/JICES-05-2019-0052.

Knook, J., Eastwood, C., & Pinxterhuis, I. (2022). Understanding mechanisms that agricultural producers apply in response to evolving social pressures. *Journal of Rural Studies, 89*, 306–315. https://doi.org/10.1016/j.jrurstud.2021.12.009

Kuhlmann, S., Proeller, I., Schimanke, D., & Ziekow, J. (2021). German public administration: Background and key issues. *Public Administration in Germany*, 1-13.

Kuipers, B. S., Higgs, M., Kickert, W., Tummers, L., Grandia, J., & Van Der Voet, J. (2014). The management of change in public organizations: A literature review. *Public Administration*, *92*(1), 1–20. https://doi.org/10.1111/padm.12040

Lappi, T., & Aaltonen, K. (2017). Project governance in public sector agile software projects. *International Journal of Managing Projects in Business, 10*(2), 263–294. https://doi.org/10.1108/IJMPB-04-2016-0031

Lappi, T. M., Aaltonen, K., & Kujala, J. (2019). Project governance and portfolio management in government digitalization. *Transforming Government: People, Process and Policy, 13*(2), 159–196. https://doi.org/10.1108/TG-11-2018-0068

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry.* Sage.

Lindkvist, L. (2008). Project organization: Exploring its adaptation properties. *International Journal of Project Management, 26*(1), 13–20. https://doi.org/10.1016/j.ijproman.2007.08.011

Lundin, R. A., & Söderholm, A. (1995). A theory of the temporary organization. *Scandinavian Journal of Management, 11*(4), 437–455. https://doi.org/10.1016/0956-5221(95)00036-u

Mahura, A., & Birollo, G. (2021). Organizational practices that enable and disable knowledge transfer: The case of a public sector project-based organization. *International Journal of Project Management, 39*(3), 270–281. https://doi.org/10.1016/j.ijproman.2020.12.002

March, J. G., & Heath, C. (1994). *A primer on decision making : How decisions happen*. Free Press.

Marcus, B., Weigelt, O., Hergert, J., Gurt, J., & Golléri, P. (2017). The use of snowball sampling for multi source organizational research: Some cause for concern. *Personnel Psychology, 70*(3), 635–673. https://doi.org/10.1111/peps.12169

McGrath, S. K., & Whitty, S. J. (2015). Redefining governance: From confusion to certainty and clarity. *International Journal of Managing Projects in Business, 8*(4), 755–787. https://doi.org/10.1108/IJMPB-10-2014-0071

Meier, K. J., & O'Toole, L. J. (2011). Comparing Public and Private Management: Theoretical Expectations. *Journal of Public Administration Research and Theory*, *21*(suppl_3), i283–i299. https://doi.org/10.1093/jopart/mur027

Mergel, I., Edelmann, N., & Haug, N. (2019). Defining digital transformation: Results from expert interviews. *Government Information Quarterly, 36*(4), 101385. https://doi.org/10.1016/j.giq.2019.06.002

Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American journal of sociology*, *83*(2), 340-363.

Meyer, R. E., Egger-Peitler, I., Höllerer, M. A., & Hammerschmid, G. (2014). Of bureaucrats and passionate public managers: institutional logics, executive identities, and public service motivation. *Public Administration, 92*(4), 861–885. https://doi.org/10.1111/j.1467-9299.2012.02105.x

Miner, J.B. (2006). *Organizational Behavior 2: Essential Theories of Process and Structure* (1st ed.). Routledge. https://doi.org/10.4324/9781315702001

Munck af Rosenschöld, J., & Wolf, S. A. (2017). Toward projectified environmental governance?. *Environment and Planning: Economy and Space, 49*(2), 273–292. https://doi.org/10.1177/0308518X16674210

Mustafa, G., Solli-Sæther, H., Bodolica, V., Håvold, J. I., & Ilyas, A. (2022). Digitalization trends and organizational structure: bureaucracy, ambidexterity or post-bureaucracy? *Eurasian Business Review, 12*(4), 671–694. https://doi.org/10.1007/s40821-021-00196-8

Nuzhat, N., Fozia, G., & Mahnaz, A. (2022). Development of Qualitative Semi-Structured Interview Guide for Case Study Research. *Competitive Social Science Research Journal, 3*(2), 42–52. Retrieved from https://cssrjournal.com/index.php/cssrjournal/article/view/170

OECD (2023). Digital Government. Retrieved from https://goingdigital.oecd.org/theme/1

Pache, A.C., & Santos, F. (2013). Inside the Hybrid Organization: Selective Coupling as a Response to Competing Institutional Logics. *Academy of Management Journal, 56*(4), 972–1001. https://doi.org/10.5465/amj.2011.0405

Packendorff, J., & Lindgren, M. (2014). Projectification and its consequences : narrow and broad conceptualisations. *South African Journal of Economic and Management Sciences*, *17*(1), 7–21. https://doi.org/10.4102/sajems.v17i1.807

Pettigrew, A. M. (1990). Longitudinal Field Research on Change: Theory and Practice. *Organization Science (Providence, R.I.), 1*(3), 267–292.

Pfaffl, C., Czernich, N., Falck, O., Zimmermann, V., Demary, V., Goecke, H., Schönert, S., Hess, T., Egle, C., & Krcmar, H. (2022). Digitale transformation – wie kann deutschland zu den führenden nationen aufschließen? *Ifo Schnelldienst, 75*(2), 3-23

Pinsonneault, A., & Kraemer, K. L. (1997). Middle Management Downsizing: An Empirical Investigation of the Impact of Information Technology. *Management Science, 43*(5), 659–679. http://www.jstor.org/stable/2634402

Plekhanov, D., Franke, H., & Netland, T. H. (2022). Digital transformation: A review and research agenda. *European Management Journal.* https://doi.org/10.1016/j.emj.2022.09.007

Reay, T., Hinings, C.R. (2009). Managing the Rivalry of Competing Institutional Logics. *Organization Studies, 30*(06), 629-653. DOI: 10.1177/0170840609104803

Rohlfing, I. (2009). Vergleichende Fallanalysen. In: Methoden der vergleichenden Politik- und *Sozialwissenschaft. Wiesbaden: VS Verlag für Sozialwissenschaften,* 133–151.

Ruge, K., & Ritgen, K. (2021). Local Self-Government and Administration. In S. Kuhlmann, I. Proeller, D. Schimanke, & J. Ziekow (Eds.), *Governance and public management. Public administration in Germany* (pp. 123–141). Palgrave Macmillan. https://doi.org/10.1007/978-3-030-53697-8_9

Sarantis, D., Smithson, S., Charalabidis, Y., & Askounis, D. (2010). A Critical Assessment of Project Management Methods with Respect to Electronic Government Implementation Challenges. S*ystemic Practice and Action Research, 23*(4), 301–321. https://doi.org/10.1007/s11213-009-9161-9

Sarta, A., Durand, R., & Vergne, J.-P. (2021). Organizational Adaptation. *Journal of Management, 47*(1), 43-75. https://doi.org/10.1177/0149206320929088

Schedler, K., Guenduez, A. A., & Frischknecht, R. (2019). How smart can government be? Exploring barriers to the adoption of smart government. *Information Polity, 24*(1), 3–20. https://doi.org/10.3233/IP-180095

Schulz, D., & Newig, J. (2015). Assessing Online Consultation in Participatory Governance: Conceptual framework and a case study of a national sustainability-related consultation platform in Germany. *Environmental Policy and Governance, 25*(1), 55–69.

Scott, W. R. (1983). Healthcare organizations in the 80s: The convergence of public and professional control systems. In Meyer, J., & Scott, W. R. (Eds.), *Organizational environments: Ritual and rationality.* (pp. 99–114). Beverly Hills, CA: Sage.

Scott, J. (1990). *A Matter of Record: Documentary Sources in Social Research*. Cambridge: Polity.

Simon, H. A. (1960). *The new science of management decision.* Harper & Brothers.

Skelcher, C., & Smith, S. R. (2015). Theorizing hybridity: institutional logics, complex organizations, and actor identities: the case of nonprofits. *Public Administration, 93*(2), 433–448. https://doi.org/10.1111/padm.12105

Storbjörk, S., & Isaksson, K. (2014). "Learning is our Achilles heel". Conditions for long-term environmental policy integration in Swedish regional development programming. *Journal of Environmental Planning and Management*, *57*(7), 1023-1042.

Tansey, O. (2007). Process Tracing and Elite Interviewing: A Case for Non-probability Sampling. PS, *Political Science & Politics, 40*(4), 765–772.

Thornton, P. H., Ocasio, W., & Lounsbury, M. (2012). *The Institutional Logics Perspective: A New Approach to Culture, Structure and Process*. OUP Oxford.

Thunberg, S., & Arnell, L. (2022). Pioneering the use of technologies in qualitative research - A research review of the use of digital interviews. *International Journal of Social Research Methodology*, *25*(6), 757–768. https://doi.org/10.1080/13645579.2021.1935565

Tomás, L., & Bidet, O. (2023). Conducting qualitative interviews via VoIP technologies: reflections on rapport, technology, digital exclusion, and ethics. *International Journal of Social Research Methodology*, 1–13. https://doi.org/10.1080/13645579.2023.2183007

Willem, A., & Buelens, M. (2006). Knowledge Sharing in Public Sector Organizations: The Effect of Organizational Characteristics on Interdepartmental Knowledge Sharing. *Journal of Public Administration Research and Theory, 17*(4), 581–606. https://doi.org/10.1093/jopart/mul021

Wirick, D. (2009). *Public-sector project management.* Wiley. https://doi.org/10.1002/9780470549131

Young, M. M. (2020). Implementation of Digital-Era Governance: The Case of Open Data in U.S. Cities. *Public Administration Review, 80*(2), 305–315. https://doi.org/10.1111/puar.13156

Zwikael, O., Meredith, J. R., & Smyrk, J. (2019). The responsibilities of the project owner in benefits realization. *International Journal of Operations & Production Management, 39*(4), 503–524. https://doi.org/10.1108/IJOPM-02-2018-0086

Appendices Overview

Appendix 1 – E-File

To understand the e-file, it is important to know about the Online Access Act (OAA). The 2017 OAA lays the legal foundation for the digital transformation of the German public administration at all levels. Specifically, it aims to accelerate the digital transformation by obligating the administration to offer most of its services digitally until the end of 2022. Implementing the OAA constitutes one of the largest modernization projects for the German public administration since the founding of the Federal Republic of Germany (German Federal Ministry of the Interior & Community, 2023). The OAA does not only demand the public administration to digitalize its services, but also to streamline and optimize its administrative processes. To ensure a functional realization across all of Germany, the law obliges the public administration to introduce common standards and a modern IT infrastructure. Furthermore, according to the OAA, the public administration should become more user-friendly and accessible to enable all citizens and businesses to interact with the public administration from anywhere (Ministry of Justice, 2017). Users should reach all services from the portal network within three mouse clicks. Resources freed up by the more efficient processing of files are intended to support citizens with advice and individual services (German Federal Ministry of the Interior & Community, 2023).

The e-file is of central importance to fulfil the obligations for digital transformation under the OAA of 2017. It was introduced in Germany since the end of 2018 and is a comprehensive, structured filing system that enables the digital management of files and information along administrative processes. The e-file can be categorized as information and communication technology and is offered by multiple specialized companies in Germany as a software solution. Before the e-file was established, all electronic or digital communication that was relevant for filing had to be printed and filed in a haptic folder. The e-file contains all documents relevant to the file in digital form (Deutscher Landkreistag, 2017). However, the e-file is not just digital storage but allows parallel editing files which enables easier and quicker access to information and procedures independent of location which increases transparency, shorter processing times and overall efficiency. The e-file is also relevant for all communicative administrative processes that must be documented. Moreover, the e-file software can guide and support the employees of the municipal administrations by coordinating the sequence of action steps or by providing formulation aids and suggestions (Bauer et al., 2020). Thus, it represents a central element of the efforts to digitalize the services of the

German public administration. Without the e-file, the processing of even already digital services such as emails would include printing and filing of paper, constituting a very inefficient mix of digital and analogue work practices(Deutscher Landkreistag, 2017). In some cases, the whole procedure is still in paper-based form. This mainly entails classified information, information relevant to personnel files and litigation files (Federal Ministry of Education and Research, 2017).

The impact of the e-file on a successful transformation of the German public administration is mixed, as it has successfully digitalized some back-end processes and created further digitalization potential through the possibility of process-linkage (Bizer, 2019). On the other hand, many front-end services that include citizens are still waiting to become digital and some processes still involve paper. This can be explained by the overall burdensome implementation process of the e-file. In 2021, only 28% of the administrations in Germany have fully implemented the e-file (MSG Group, 2022). This might be because the implementation of the e-file is not just a technical project but an overhaul of many procedures and structures within the German public administration. Introducing the e-file means a comprehensive reorganization of many administrative processes, as it encompasses all processes that must be documented within a file.

To be able to comprehensively implement the e-file, a detailed File Plan is necessary. This File Plan covers all topics in which the administration is active into areas and sub-areas in a hierarchical manner. It can be understood as an instrument to systematically categorize and orders documents that must be attributed to specific files. An up-to-date File Plan is a prerequisite for the introduction of an e-file system as the e-file software must be responsive towards the specific needs of a municipal administration which is reflected in the structure of the individual File Plan. Before the e-file is implemented, the creation of a File Plan allows to gain an overview over the administrative unit and helps to identify processes that can be optimized.

To illustrate the File Plan, an exemplary File Plan from the municipal administration can be found below. The File Plan connects a file reference to an administrative topic. This excerpt focuses on the File Plan for the area of school (area 08) only. The area of the school consists of three sub-levels. On the level below school, there are seven sub-items ranging from school supervision (with the specific file reference 08.01) over human resources (08.02) to quality analyses at schools (08.07). On the next lower level, which is already the lowest level for some items, there are for example Quality standards/assurance of training programs (08.01.06). On

the lowest level are specific subcategories – in the case above it would be for instance quality standards for the primary school education program (08.01.06.01). The File Plan ensures that the e-file software is customized according to the individual municipality's needs. Here, it would be essential that the correct file structures are reflected in the software so that processes can be transferred to digital without interruption. The file references amongst municipalities are likely to have overarching similarities due to standardization of administrative structures but will remain different in every municipality as all municipalities are subject to individual practices and structural factors such as federalism.

Exemplary File Plan from a municipal administration:

File Reference	Subject
08	School
08.01	School Supervision
08.01.01	Supervision of Schools
08.01.02	Supervision of the Ministry
08.01.03	Supervision of School Boards
08.01.04	Coordination with School Authorities
08.01.05	School Inspection
08.01.06	Quality Standards/Assurance of Training Programs
08.01.06.01	Primary School Education Program
08.01.06.02	Special Needs Schools
08.01.06.03	Secondary Modern Schools
08.01.06.04	Secondary Schools
08.01.06.05	Secondary School Program

References (Appendix 1 – e-File)

Bizer, J. (2019). Die Digitalisierung in der Verwaltungspraxis – wir sind weiter als gedacht. In: Schmid, A. (eds) Verwaltung, eGovernment und Digitalisierung. Springer Vieweg, Wiesbaden. https://doi.org/10.1007/978-3-658-27029-2_9

Deutscher Landkreistag. (2017). The introduction of the e-file in the district administration. https://www.landkreistag.de/images/stories/publikationen/Bd.%20132.pdf

Federal Ministry of Education and Research. (2017). Guide to working with the e-file. https://shorturl.at/lyHJ1

German Federal Ministry of the Interior. (2023) Digital Administration in Germany. https://www.digitale-verwaltung.de/Webs/DV/EN/home/home-node.html

Ministry of Justice. (2017) Act to improve online access to administrative services. https://www.gesetze-im-internet.de/ozg/

MSG Group. (2022). Between e-file, specialist procedure and digitization platform. https://www.msg.group/images/Public-Sector/Publikationen/20220525_Studie-Prozesse.pdf

Appendix 2 – Interview Guide

Introduction	- Short personal introduction - Introduction into our research project - GDPR & Consent form
Responsibilities and Organizational Structure	- What is your role in the organization? What is your role/responsibility in the implementation process of the e-file? - Could you please locate yourself within the visualizations of the organizational structure of your municipality? - How were your responsibilities defined at the beginning of the e-file implementation? By whom were the responsibilities and tasks distributed for the e-file implementation? - How has your role and responsibility changed during the e-file implementation process? - What decision did you take in the course of the implementation? Which decisions could you not take?
E-File Implementation Process	- How many digitalization projects are ongoing in the organization at the moment? - Can you describe the current project scope and objectives of the project? - What steps have you taken so far to enable the implementation of the e-file (in your office)? - How were organizational resources (budget, personnel, training) allocated and managed for the implementation? - Which stakeholders and roles were involved in each step and why? - How are decision made during the implementation process and by whom?
Internal Communication & Collaboration	- How did you collaborate with different colleagues in your team, office or municipality in the e-file implementation process? - What mechanisms were put in place to ensure that all relevant stakeholders worked together effectively?
Performance measurement	- Have organizational performance metrics been established to evaluate the success of the e-file implementation? - What impact has the implementation of the e-file had on how the administration operates?
Challenges and Sucesses	- Which successes have you already witnessed in the e-file implementation? - What strategic and operational challenges were encountered during the e-file implementation and how were they overcome?
Outlook for the Future	- What is the future strategic direction of e-file implementation in your municipality? - Are there any planned upcoming developments or initiatives regarding the e-file implementation? - What organizational recommendations do you have based on your experience with e-file implementation?
Next Steps	- Reference to colleagues mentioned before: Could you help us get in touch with your colleague who was also involved in the e-file implementation?

Appendix 3 – Declaration of Use of DeepL and Grammarly

In preparing this academic study, we utilized two AI tools, Grammarly and DeepL, to aid in spelling checks and translating aspects of the writing process. These tools were employed as supplementary aids and did not affect the research process of this study.

Grammarly is a writing assistance tool that was used for grammar and spelling checks. Its role was limited to identifying linguistic errors. The tool's suggestions were considered and applied where appropriate to enhance the clarity and readability of the text.

DeepL was employed for translating tasks. DeepL was used, for example, to accurately translate administrative terms into English. DeepL's use was restricted to providing preliminary translations, and its outputs were reviewed and refined for accuracy. This ensured that the translated material remained true to the original content and context.

The AI tools mentioned were used only as aids in the writing and translation process and did not influence the academic integrity or the originality of our work. It is important to clarify that the content of this study is the result of our independent research and intellectual effort. The acknowledgement of these tools is made in the spirit of transparency and does not imply animpact on the study's development.