Problems in Public Sector Digitalization Strategies

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Abstract

Digitalization strategies and digital transformation of the public sector display various extents across German municipalities. While strategic approaches are said to be a driving force, many challenges hinder the actual realization of objectives. The disconnection between high-level strategies for digital transformation and subsequent implementation, the lack of communication between different-level institutions, and diverging understandings of shared goals create the need for a systematic investigation. Through ten semi-structured interviews, we identified five clusters of issues, ranging from strategic alignment and resource constraints to cultural resistance and technological hurdles. Although some municipalities demonstrate advanced initiatives, others still struggle with foundational aspects. This work sheds light on problem areas practitioners face, allowing decision-makers to address these issues. Ultimately, researchers, practitioners, and policymakers must collaborate to translate these insights into sustainable and impactful digital transformation.
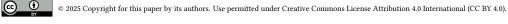
1. Introduction

Digitalization is fundamentally transforming society, reshaping how we communicate, access information, and interact with various services [1]. As private companies adapt their strategies to leverage technology , citizens increasingly expect the same efficiency and innovation from public services [2]. German citizens are not satisfied with the current, inefficient and mostly analog Public Sector (PS) [3]. The statistics prove the citizens right, as Germany is lacking in digitalizing the PS in multiple metrics [4]. Torfing et al. [5, p.195] argue with reference to Ansell et al. [6] that the issue is not a lack of provided improvement plans but that those "are never implemented due to either flawed designs that make the solutions difficult to implement or outright resistance, opposition or sabotage by public delivery agencies or target groups". However, the public service is more complex to digitalize than private sector entities [7]. McBain [7, p.4] mentions in reference to Nutt [8] three areas in this regard, "**environmental factors**", such as politics or social environment instead of "market forces" and "**transactional forces**" due to the compulsiveness of laws, a broader scope than private companies, different needs of ownership, and sociological factors the public sector cannot ignore. Third, the organization's internal perspective differs from the private sector's: it's not profit-driven, performance is harder to measure, and employee motivation varies.

At the governmental level, PS strategies are criticized for being little more than marketing tools rather than actionable plans designed to drive meaningful change [9]. As Bryson argues [10], strategic planning should serve as a process designed to create meaningful public value. When it fails to achieve this, it becomes a wasted effort, reduced to symbolic or procedural requirements rather than innovating. The goal of this work is to identify challenges that municipalities face in their digital transformation and in the translation of strategies into actions. This can enable decision-makers to systematically address them already as early as in the formulation of their strategies and subsequent digital transformation. As the issue presented is not straightforward, but rather fuzzy due to complex (legal) responsibilities,

division of power, and their arising problems [11], we examine strategic problem areas of German municipalities on a holistic level. Hence, the research question explored in this paper is:

What are organizational implementation problems in public sector digitalization strategies at municipality level?

The remainder of this paper is structured as follows: We lay the foundation of our work by elaborating on important aspects of the PS strategy, explaining the situation in Germany, and showing implications of current research (2). We describe our methodology of conducting semi-structured interviews (3), before presenting our results, where we cluster our findings into five problem areas. Section 5 integrates these insights with the literature to derive recommendations. Finally, Section 6 offers our conclusions, limitations and future outlook.

2. Background

2.1. Public Sector Strategy

PS strategy consists of[12]: (1) directing and prioritizing public functions and activities towards the long-term strategic direction and its viability with a "systematic, coherent, and effective approach to establishing, attaining, monitoring, and updating an agency's strategic objectives" [12, p. 308]; (2) Developing the capabilities [13] in order to (3) achieve common goals and to (4) include internal and external factors of the environment they are embedded in [14]. The decisions are further cascaded onto tactical and operational levels [12]. "[S]trategy is what organizations [(intend to)] do and [...] which is sometimes documented and manifested in strategy documents and plans"[15, p. 76], while Nording recommending structured strategic documenting to those "remain relevant, effective, and responsive to the ever-changing demands" [15]. Public strategizing thus differs from general management strategy, which aims at steering businesses, dealing with competitive advantages, value chains, and long term viability in a competitive environment [15]. The public sector's focus, however, is not tailored to generate profit or maintaining competitive advantage [15], but implementing laws and regulations, providing the derived services and public value [5]. Further, the public service serves its citizens, whereas organizations can freely choose their business partners [7]. Hence, the "management dimensions" [7] political, cooperation, and operations differ from established broader strategy literature [7]. While they are commonly used interchangeably, the terms digitization, digitalization, and digital transformation describe different degrees of development towards e-government [16]. Digitization is the process of having digital forms, files, or documents, hence digital delivery channels [16]. Digitalization extends this by the development of new, Information Technology (IT)-supported processes [16]. Digital transformation refers to the most advanced and comprehensive stage, where organizational change is included, moving beyond the focus on digital processes and documents [16]. It enables new services and interactions and results in value creation for the public sector [16]. While strategies guide the development of digital transformation, cascading implications to organizational levels require the definition of specific implementation approaches starting with digitization and digitalization [15].

2.2. Context of German Public Sector

Germany is a democratic federal state in the European Union, characterized by a comprehensive social-welfare system and stringent regulations [17, 18]. Public services are predominantly delivered at the local level, with their scope and resources varying according to each state's size, financial capacity and governing coalition's priorities [17, 11]. A strong tradition of family-owned enterprises, high unionization and cohesive communities further shape the german landscape.

Germany's federal structure resulted in a fragmented administrative system, with services provided by various national, state, regional and local authorities that operate independently based on national and subnational laws as well as regional and local statutes [19]. This leads to varying processes and systems among neighboring municipalities, making it difficult to establish a standardized e-Government framework [18, 5]. The lack of uniformity complicates the integration and coordination of digital services

and creates dissatisfaction for citizens interacting with different authorities [20]. Thus, multiple authors point out that Germany is staying behind in the progress of digitalization compared to more advanced (northern) European countries, such as Estonia [4, 21]. Problems like power play in governmental institutions are already acknowledged as issues with recommendations "convincing decision-makers to coordinate and centralize their digitalization efforts" [19, p. 13]. Political endeavors required revision, as almost no implementation was successful within the given deadline. A prominent example for this is the Online Access Act (OAA), a law dictating the public sector to make their services digitally accessible within a given time [18]. Centralizing public services across federals states is highly encouraged in literature, often referring to blended approaches[18]. The demand of the citizen for digital government services, however, remains unquestioned [3, 22].

2.3. Current Research

Strategic aspects in public service are a fairly under-researched research topic [23, 24]. We could not identify any work that holistically addresses multiple strategic issues of digitalization across different municipalities. However, literature still offers some valuable insights to consider. Scholta et al. [19] address issues of political structures of federal countries in strategyzing. Wehmeier [18] outlines the current state of German PS digitalization, but with a focus on political structures, especially in tax. Hofmann et al. [25] develop a framework for analyzing national digital strategies and apply it to Germany, but do not focus on issues of implementation. Poláková-Kersten et al. [26] discuss aspects such as hierarchy, human dynamics, strategic change, and challenges of digitalization and misalignment but they focus solely on high-reliability organizations, such as for water or energy. While Broccardo et al. [22] investigate the digitalization degree in PS organizations, they focus on the progress rather than challenges. Bektas et al. [27] discuss stakeholder engagement in strategy development of municipal administrations as "Open Strategy". Busch [24] identified the topics digital government acceptance, digital government success, organizational transformation, digital training, information uncertainty, trust, e-governance competence, digital government acceptance and IT outsourcing as relevant for public service strategies. Melin et al. [28, p. 99] "identified five bureaucratic roles: The automated bureaucrat, the self-servicing citizen, the front office employee,the back-office employee, and the specialized bureaucrat."

Still, a gap in research on strategic implementation was identified. While studies highlight several relevant issues, they lack a broad, integrated examination of structural, political, technical, and social challenges within a single, comprehensive approach. Specifically, no work was found that holistically addresses the strategic dimensions of digitalization across multiple municipalities.

2.4. Public Sector Frames

Hill & Hupe [29] frame policy implementation as a governance process operating across three loci (policy design, delivery system, "street level"), three vertical layers (within agencies, between agencies, across jurisdictions), and three analytical levels (institutional rules, organizational cultures, individual interactions). Pollitt & Bouckaert [17] complement this by portraying administrative reform as forces (socio-economic, political, unforeseen crisis and disasters, inherent structures and routines) shape strategic choices, which in turn determine implementation tools and produce measurable outputs and outcomes [17]. There, they touch upon discussions of standardization, (de)-centralization and slightly address the public image and competencies [17]. Combined, these frameworks yield a hybrid governance model: strategic directives flow vertically from policymakers to frontline implementers [17], while locally exercised discretion and networked feedback move horizontally, ensuring that high-level goals adapt to on-the-ground realities and generate public-value outcomes [29].

3. Methodology

To acquire relevant insights, it was chosen to conduct semi-structured interviews with employees in German municipalities. Semi-structured interviews are one of three types of qualitative interviews and prevalent for research in Information Systems [30]. Throughout the preparation, conduction, and analysis of the interviews, the guidelines of Myers & Newman [30] and Kvale & Brinkmann [31] were consulted, offering rigorous steps for qualitative research:

First, a consensus about the purpose and topics of the interviews was created, including a clarification of the research question, background knowledge and understanding of the context. Second, the interview was designed, individuals were contacted, and 10 interviews were conducted. As suggested by Kvale & Brinkmann [31], an interview script was prepared to set the stage. Seven main areas were identified in preparation, addressing various aspects of PS digitalization strategies. These included the relevant aspects presented in 2.3 and were divided into known issues, digitalization strategies, centralization (of IT and decision-making), standardization, responsibilities (also addressing different stakeholders), hierarchies (referring to political structures), and motivations (including change management and employees). At the beginning of each, the topic and goal were briefly introduced, it was asked for permission to record the interview, and any initial questions were clarified. For each topic, one to three questions were developed to ensure that all relevant aspects for the research question were considered. However, following the concept of semi-structured interviews, the interviewees were encouraged to describe their points of view, extending certain aspects. The questions centered around their understanding of strategy, the biggest problems & pain points, and changes required for a holistic public service digital transformation. Depending on the answers of the interviewees, the interview questions were adjusted accordingly.

The ten interviewees worked in offices, authorities, and departments within municipalities primarily located in Western Germany, ranging from digital strategists and IT-leaders to public service clerks. They represented nine different municipalities ranging from smaller, rural locations to large city-areas. They displayed different levels of responsibilities within the PS, concerning strategic or operational work and have various professional backgrounds, such as administration, management, IT, Information Systems (IS), or psychology.

In the next step, the recordings were automatically transcribed using noScribe [32] as well as manually reviewed and corrected. The following analysis was conducted by both authors independently, focusing on semantic meaning and coding for the purpose of the research. Afterward, the insights were compared, discussed, and merged into the final results. The initial interview script suggested a deductive analysis approach following the seven prepared topics. However, during the process of coding, more appropriate categorizations were identified. It was thus agreed on five clusters, namely *Management & Strategy, (Organizational) Change & Transformation, Structural Issues, Data & Systems* and *Politics & Regulatory Laws.* Finally, the verification and reporting of the findings will be presented in the following.

4. Results

Based on insights from the interviews, five clusters of strategic implementation problems were identified, which are displayed in Fig. 1. Within each cluster, the interviewees discussed related subtopics and problems regarding digitalization and strategic management of the PS. The areas are discussed in the respective sections. In the following, the interviewees are denoted as I{id}, e.g. I2.

4.1. Management & Strategy

Our municipal informants had a varying **understanding of digitalization**. It ranged from clerks referring to their every day's work representing their analog work digitally via applications up to strategists, which actively differentiated the term's digitization, digitalization and digital transformation. In sum, every interviewed person highlighted digitalization as a general improvement, such as for their

Management & Strategy	(Organizational) Change & Transformation	Data & Systems
• Understanding and Consensus • Availability of Strategy • Standardization • Centralization • Citizen-Centricity • Public Image	• Progress of Digitalization • Change Management • Motivation of Employees • Competencies & Training • Organizational Roles • Process Thinking	• DMS • Best-Practice Documentation • E-File • Data Protection / Privacy • (purpose-bound) Earmarking • Media Breaks

Structural Issues	Politics & Regulatory Laws
• IMC / OFA • Federalism • Formation of Silos • Responsibilities / Jurisdiction • Hierarchies	• Political Influence • Law Restrictions • Online Access Act (OAA)

Figure 1: Clusters of Strategic Implementation Problems in the PS

daily work. However, the extent varied from technological update or digitization to broad overarching digital transformation.

Whereas all agreed with the need for digitalization, only eight demonstrated a clear **consensus** on the importance of digitalization strategies. The other ones were skeptical regarding strategy documents up to I6, who shared that the focus should be on *"implementing agile, instead of planning every step"*. Some participants lacked knowledge regarding a digitalization strategy and their aims, showing communication deficiencies and raise problems of *"obstructionism"* (I9). Other strategies were not up-to-date or not carried out. The **availability of digitalization strategies** varied significantly in terms of awareness, public accessibility, and internal reach. Six of the respondents were aware of the existence of a digitalization strategy. In many cases, strategies were recognized internally, such as I3, where an IT strategy aligned with higher-level guidelines was acknowledged, or I4, where a detailed digitalization strategy was actively updated and communicated. However, for others, there was little to no awareness of a formalized strategy, nor a distinction between strategies or strategizing Only a few strategies were explicitly public-facing or widely accessible outside (core) internal stakeholders. For I5, the strategy existed but remained underutilized due to its perceived little practical relevance. In regard to strategies for municipalities, the participants agreed on **standardization and centralization** on a holistic basis. All the interviewees mentioned the importance of standardization, either directly or as a necessity to address inefficiencies. Five respondents emphasized the need for flexible standardization to address diverse local requirements. Four highlighted successful inter-municipal collaboration as a way to enhance standardization. Yet seven interviews highlighted challenges, such as federalism, political dynamics, or cultural resistance, as major obstacles. Standardization was perceived across the interviews as critical, yet challenging. One highlighted a tension between the standardization and wished to *"do their own customization"* (I3). The **citizen-centric perspective** was extensively highlighted, with all interviewees noting that citizens preferred online interactions. Digitalization was seen as inclusive and beneficial for efficiency. Participants criticized solutions like BundID, a unified identifier for all digital services, for being too complex. Two interviewees criticized the bad **public image** of the public service and called for action regarding communication, such as *"Amtsfluencer"* [1] – internally and externally on a strategic level (I7).

4.2. (Organizational) Change & Transformation

The municipalities showed very different **progress in digitalization**. All interviewees viewed digitalization as an ongoing process. Some considered their processes largely digitalized and their digital

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[1]Meaning: Public Function Influencer, displaying public functions in a positive way

transformation highly advanced, while others acknowledged digitalization but did not see it as a major transformative force, resulting in limited emphasis in activities and decision-making.

There were divergent views on the desired outcome of digitalization. Half of the municipalities aimed for a holistic transformation, encompassing organizational and cultural changes and fully digital services. In contrast, multiple interviewees did not understand digitalization as an end in itself, but as a tool to improve services for their citizens and as a foundation. Multiple interviewees mentioned a lack of resources to digitalize all processes and services, necessitating prioritization. One interviewee referred to a hybrid approach as *"the worst thing ever"* (I4). Additionally, many barriers to complete digitalization were identified, and support for digital development was often less than anticipated.

Four interviewees discussed **change management** as essential for addressing employee fears, resistance, and skepticism towards digitalization. As reasons for hesitancy of adopting new technologies, the interviewees mentioned various reasons, particularly demographic shifts, the different mindsets of newer generations towards technology, and a lack of support in developing new competencies. **Process-thinking** was prevalent in almost all interviews viewing services as processes. While three interviewees specifically emphasized workflows, others had a holistic approach. Standardizing processes was widely agreed upon, but one interviewee stressed maintaining citizen individuality. The issues of **employee motivation**, hierarchical aspects, and competencies was addressed: *"Empowerment - but, of course, empowerment only works if you have the **competence** to act"* (I2). Further, there were different opinions prevalent whether the task of digitalization should be managed by administration or by IT.

Another aspect was the use of **roles as an organizational framework**, hence as strategic instruments. This means that one employee can hold multiple roles with different responsibilities, thus orchestrating tasks on a role-related basis instead of an employee-level.

4.3. Structural Issues

Everyone stated they made use of **Inter-municipal collaboration (IMC)** among municipalities and participate in coordination activities, whereas their extent and success varied. Many criticized that One-for-All (OFA) solutions were often not applicable, as the solutions were too strongly tailored made to their institution so that a generalization to the broader public of municipalities was not, or only with high effort, possible. Seven actively addressed **federalism** and historically grown structures as an issue for digitization endeavors. While laws were the same, informants implied that people might be treated differently – just because of varying regional implementation. No matter, if regional or federally organized, interviewees described inhibiting, structural factors.

On top of that, **silo thinking** was described by three participants as an issue within municipal organization: *"When I go into a large municipality, they are such silos, the walls are so thick that they don't even know where the others are. And I think it's also very difficult for the citizens to know who is responsible"* (I2). The interviewees raised many issues regarding **jurisdiction** and work steps, whereas seven raised that jurisdiction was not clear. In these aspects, centralization demands were heavily discussed, which was elaborated in 4.1.

Similarly, **hierarchical** aspects within public service work posed comparable challenges. These involved internal municipal hierarchies and the hierarchy among federal public service functions. Clerks and service personnel interviewed reported that their views on daily work and digitalization ideas were not sufficiently heard, leading to dissatisfaction with the process. In contrast, strategists stated that they consistently incorporate the opinions of service personnel, recognizing them as process experts. Multiple interviewees referred to the OAA in this regard, which will be addressed in section 4.5.

4.4. Data & Systems

A **Document Mangement System (DMS)** was implemented to varying degrees across the municipalities. Multiple interviewees reported that the DMS handled both service-related files and files containing meta-knowledge and notes. While four interviewees mentioned the use of a digital DMS, two municipalities were still in the early stages of digitalizing their DMS. One interviewee mentioned employee

hesitance in adopting the DMS. As the DMS enables the centralized storing of **meta-knowledge and best practices**, transfer of knowledge was addressed. While there was a consensus on the importance, the interviewees perceived a lack of documentation of experience and informal internal knowledge. They also cited a lack of resources, like time, personnel, and knowledge, for entering documents into the DMS. These challenges were being addressed by an increasing focus on internal knowledge documentation within the DMS and the use of process maps, which was perceived as strategic component. By using a DMS, the basis for **e-files** was created. The implementation of e-files was addressed in six interviews and overall, the interviewees viewed fully digital handling of files as the goal to aim for. However, only four interviewees assessed their DMS implementation progress as advanced or (partially) completed, whereas two described theirs as started, but still in its infancy.

Data protection and privacy was perceived as an important issue across the interviews. Six interviewees explicitly described data protection regulations in Germany as a barrier for digitalization, preventing municipalities from a holistic use of centralized systems, accessing necessary data, or achieving the full potential of digitalization. Strict regulations were also seen as a disadvantage compared to other countries. As one interviewee summarized (I7): *"The issue of data protection is something that makes life difficult for us".* Related to data protection and privacy, the aspect of **earmarking** was addressed as a prevalent issue in public services. *"Even internally in our office, I can't get all the information for data protection reasons. I can justifiably ask [...], but that is always a barrier"* (I5). As German regulations require purpose-bound access and use of data, additional barriers to digitalization emerge. The interviewees stressed that earmarking created isolated departments and fragmented systems, preventing a holistic and centralized use of data in a shared DMS.

Also, **media breaks** were addressed while talking about e-files: *"Administrative processes are a pure media disruption"* (I6). Only one interviewee assessed media breaks in their public services as very low. A consistently high number of media breaks was attributed to the previously mentioned data protection issues.

4.5. Politics & Regulatory Laws

Political influence was addressed as an issue. Eight interviewees highlighted how political influence hindered public administration by slowing law adoption displaying a lack of communication between government and administration. Decision makers often prioritized political interests over the needs of public services. Also, the interviewees criticized the lack of collaboration within political parties, making digitalization efforts difficult to implement at the municipal level. However, some interviewees saw political influence as an opportunity to establish clear goals and accountability in public administration. The adoption of the **OAA** elicited mixed reactions among municipalities. Five interviewees felt the law had minimal impact at the municipal level. They cited unrealistic deadlines, insufficient resources, and unclear objectives as major issues. Additionally, poor communication across hierarchies and the exclusion of frontline expertise were problematic. However, two interviewees viewed the new regulation as a facilitator to create pressure and make municipalities digitally more visible.

As there are strict laws and regulations in place in Germany, one of the interview questions aimed to investigate the **perception of laws**. Two prevalent perspectives emerged throughout the interviews: Laws restrict or can enable digitalization. Decisions on government level offer more options to handle a lack of resources, define goals, and put pressure to act accordingly. In the words of a practitioner: *"If it wasn't for the OAA we wouldn't be anywhere near where we are now. This has already created a certain amount of pressure, highlighted opportunities, and a certain dynamic has developed as a result"* (I8). Conversely, seven interviewees perceived regulations in Germany either as restrictions or as not feasible to implement at the municipal level. Regulations and laws from above often impacted the lowest level at a municipality and left them struggling to implement the requirements. As one interviewee stated, there is a need for regulations that are digitally feasible and adaptable to each municipality.

5. Discussion

Our findings both corroborate Pollitt and Bouckaert [17] and extend their problem typology into the digital age. Prior tensions of standardization and centralization of tasks are highlighted by the growing perceived complexity of digital technologies and processes. Whereas [29] discuss decentralization, out interview partners prefer centralized approaches due to synergy effects of data processing and uniformity. We also document enduring challenges around hierarchical decision-making and political intervention, alongside more prominent issues of the public image and development of digital competencies [29]. These observations not only align with established public-management scholarship, but also demonstrate how digitalization reshapes prior governance dilemmas.

When examining the **strategy definition** mentioned in 2.1, we can observe two key aspects: (1) the PS-strategy definition is supported by the interview findings and (2) the interviews collectively demonstrate a strong understanding of PS-strategy. The informants highlighted several positive advantages of public service compared to the private sector, aligning with McBain & Smith [7]. In particular, environmental factors [7, p. 4] were emphasized. Collaborative culture and resource sharing were praised by half of the interviews. They described it as easing their digitalization efforts by joining forces and working more effectively. However, approaches like IMC and OFA are established, but only insufficiently support cooperation. *"Politics is both a lever and a problem"* (I10). Political influence was mentioned in both positive and negative ways, seen as an enabler and a limiter of digitalization efforts, see chapter (4.5). This contradiction presents a relevant field of tension. The need for effective de-bureaucratization and improved use of resources, as well as a better separation of political and administrative positions, were proposed during the interviews. With that, they are in line with literature [5]. Hence, a collaborative effort to co-create both framework conditions in an interplay between politics and public service, as in Denmark, emerges as a promising solution [5].

Significant attention is given to the internal perspective on organization, the third aspect of McBain & Smith [7]. Here, the whole second cluster *Organizational Change* discusses these aspects, especially employee motivation, competencies & training, and roles [33]. Innovative ideas such as using a performance-oriented payment demonstrate incentives to tackle the problems of motivation and performance faced by public services [7].

As shown in the results, strategy documents are perceived differently. The criticism that strategy documents remain meaningless if they are not actively utilized is supported by the interviews [9]. One interviewee stated that strategy documents were very helpful for creating roadmaps, communicating with stakeholders, and securing budgets. In contrast, others felt that these documents were underutilized and not seen as helpful since they were too vague and primarily used for public communication or as standalone deliverables.

The interviews highlight differing levels of strategizing within organizations, revealing three key themes: (1) Some participants issued strategizing for its advantages, (2) others acknowledged that while strategies are developed, they are not executed, and (3) a few prioritized implementation over the creation of strategic documents. This variability aligns with existing research, suggesting a widespread deficiency in effective strategizing, but also distinct documents [15]. To address this, it is recommended to utilize strategy papers to aid in prioritization and budget allocation, as participants agreed [9, 15]. Also, it is crucial to communicate this internally and as well as externally. Overall, the interviews show that without internal communication about the direction, the strategy lacks alignment and the municipality common ground.

The **issues in Germany**, outlined in 2.2, are also backed by the interviews. The interviewees highlighted the multiple solutions and challenging collaboration with various stakeholders, such as other governmental institutions, politics, and software providers [20, 18]. The dissatisfaction with governmental services [20] were also mirrored extensively.

The issues raised during the interviews align with findings from **recent literature**. For instance, as Scholta et al. [19] state, federalism is perceived as barrier for digitalization across the municipalities. Issues concerning the clusters of *Structural Issues* and *Strategic Aspects* presented in our results support these insights. Poláková-Kersten et al. [26] discuss strategic misalignment in high-reliability organiza-

tions, and our findings indicate that similar issues affect the public sector at the municipal level. Digital transformation is hindered by a lack of consensus, the need for internal IT-expertise, behavioral change, documentation of tacit knowledge, and effective change management — all aspects frequently mentioned by interviewees. While there is consensus on the lack of documentation, interviewees expressed varying views on the documentation of tacit knowledge and best practices. Interestingly, interviewees stressed contradictory opinions on certain aspects. For instance, perspectives on regulations varied significantly, with some viewing laws and federal structures as barriers to digitalization restricting the scope of actions, while others saw them as enablers setting the stage for a unified and shared approach. This contrast reflects differing interpretations within the context of Scholta et al. [19]. Furthermore, opinions diverged on whether digitalization should be holistic or operational, highlighting varying approaches to change management and mindsets toward comprehensive digital transformation among the interviewees. Addressing barriers such as hierarchical communication gaps, vague action plans, and limited public transparency is critical for effective digitalization strategies. The interviews highlight significant deficits in strategizing, as common strategic goals remain unclear, and implementation efforts are not aligned, thereby diminishing the impact of these strategies. Silo thinking based on hierarchies - people often only think in their métier - is not a public sector specific issue, but can be found in many, especially historically grown organizations that did not do much of restructuring or organizational development. In the *Structural Issues*, it is apparent that most informants like OFA-solutions and IMC, but show the flaws of the approach. A too narrowly tailored software to one specific use case or the lack of solutions to host and maintain software was prevalent throughout all interviews. Instead, central development of software, that can be extended to local needs, is necessary. This aspect extends explicitly to the holistic sphere of *Data & Systems*. For all of that, appropriate collaboration is necessary, but also requires an entity that enforces decisions. Likewise, as recommended in the literature [4, 18], restructuring not only municipalities in their current structure, but the way services are reproduced and offered, seems appropriate. Regulated aspects should be done on a central level, like issuing ID cards, while personal contact might still be required. Hybrid solutions such as a digital kiosk with an included parcel station, which one of the interviewees suggested, can be a way of achieving efficiency gains. With that, the needs for personal contact are maintained, while those requesting PS digitally can access online services. Melin et al.'s [28] roles of self-service solutions for citizens, front-office, hybrid, and back-office employees are consistent with the interviewees suggestion. At the same time, it would - in principle - be possible for back-office staff to work independently of their current location, but to handle standardized cases from all over Germany. Flexible allocation of cases could thus efficiently allocate workload in the PS as a whole. Specialists could be deployed sensibly in this way, but also offer an additional career level and development opportunity. Likewise, the demographic aging in the PS, mentioned by both, interviewees and literature, can be addressed.

A high consensus among the interviewees demonstrates that standardization is essential. However, implementing standardization faces significant structural and cultural barriers. While some respondents viewed standardization as a way to enhance collaboration and efficiency, others were concerned that rigid systems may not address local needs. This tension between top-down mandates and bottom-up flexibility is a recurring theme. Balancing standardization with maintaining personal contact and local adaptability is crucial. Instead of reacting to inquiries coming from citizen, the public service could shape into proactive actions, as discussed by one interview partner. This way they can also create meaningful public value, as discussed in the literature [5]. This approach could reframe the PS by proactively engaging with citizens. Compared to the private sector, the public sector possesses unique advantages, though these are often underemphasized. Emphasizing collaboration and creating public value could shift perceptions toward a more positive image, as suggested by some interviewees. While federalism initially helped distribute power effectively at the local level, its negative aspects in the digital age have become more apparent. This necessitates the centralization and standardization of laws, municipal structures, and public services to ensure efficiency, consistency, and seamless digital integration across regions.

This work offers new insights to existing research. While various issues are in accordance to literature, we also identified certain areas of tension. A divergence of opinions across municipalities and strategic

positions offers new insights on the applicability of other research on this specific context, raising the need for more focus on the municipality level of federal states. The results present an overview of multiple areas of concern for strategic digitalization of the PS. Pointing out the specific character of the sector and the various challenges at municipality level, the foundation is created to systematically address issues. By considering strategic implementation holistically, these issues can be addressed and digitalization progress advanced.

6. Conclusion

Digitalization strategies and digital transformation of the public sector display various extents across German municipalities. While strategic approaches are said to be a driving force, numerous challenges hinder the actual implementation of set objectives. With our approach of investigating the issues using semi-structured interviews, we were able to identify and present five clusters, where public services show problems in their digital transformation. They include challenges in (1) Management and Strategy, (2) (Organizational) Change and Transformation, (3) Structural Issues, (4) Data and Systems, and (5) Politics and Regulatory Laws. These clusters reflect issues ranging from strategic alignment and resource allocation to cultural resistance and technological constraints. Our findings indicate that, although some municipalities demonstrate advanced stages of digital transformation and have successfully addressed certain challenges, a substantial number still struggles with foundational aspects, such as streamlined governance models or interdepartmental collaboration. Overall, the research and informants suggest a centralized and standardized approach, unifying software, processes and services provided across Germany. We suggest to even broaden the perspective and look for advanced European collaborations. The digital transformation of the PS should be viewed as an investment to our society and citizen and their perception of the public sector, not as a burden.

Although our semi-structured interviews provided rich, detailed insights, several limitations should be noted. The restricted sample of ten interviews within Western Germany may not capture the full spectrum of experiences, particularly those of Eastern German municipalities with distinct historical contexts. A self-selection bias likely led to participation of municipalities already interested in and somewhat advanced in digital transformation, leaving less-progressive or resource-constrained localities underrepresented. While we present the identified aspects in distinct clusters, the underlying issues and thus potential solution approaches might be interrelated and not detachable from each other as clearly.

In this paper, we focused on the problem areas practitioners face on a holistic level. Within the discussion, we shed light on potential solutions to the inherent problems presented. Future research could employ a Design Science approach to create and evaluate frameworks or toolkits designed to mitigate the identified problem areas systematically. Additionally, expanding the scope to include operational challenges, like IT infrastructure demands and cross-department data sharing, would provide a more comprehensive perspective. Comparative work across different regions or countries could further clarify how specific contexts shape digitalization strategies. In addition, publicly available strategy documents could be analyzed to generate more insights on current ways of practice. Ultimately, collaborative efforts between researchers, practitioners, and policymakers will be necessary to translate these insights into sustainable and impactful digital transformation initiatives.

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Declaration on Generative AI

During the preparation of this work, the author(s) used ChatGPT-4o and LanguageTool in order to: Grammar and spelling check and improve writing style. NoScribe was used to pre-transcribe the

conducted interviews. After using these tool(s)/service(s), the authors reviewed and edited the content as needed and take full responsibility for the publication's content.

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