Mapping Digital Transformation of Municipalities through the Lens of Institutional Isomorphism

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Abstract

This paper examines the role of institutional isomorphism in influencing digital transformation (DT) within municipalities. It addresses the gap in understanding how coercive, mimetic, and normative pressures shape municipal strategies and operations as they adopt and implement digital technologies. Through a systematic literature review and thematic analysis, the study identifies key actors in municipal DT and maps out the domains of action in which institutional pressures are influential. The findings indicate that municipal DT can be seen as a bridging-issues field, where coercive pressures often stem from regulatory mandates requiring compliance with digital standards, where mimetic pressures arise from the need to emulate successful digital practices, and where normative pressures are related to professional standards and expectations within the administrative context. The study concludes that institutional pressures significantly dictate the pace and direction of digital innovation within municipalities. Understanding these pressures is crucial for municipal leaders to effectively manage and implement DT initiatives that are both compliant and innovative. Recommendations for future research include empirical studies to validate theoretical models and explore the variability in DT across different municipalities by considering their unique environments and challenges.

Introduction

Digital transformation (DT) is imperative for municipalities to utilize technology in enhancing operational efficiency, service delivery, and citizen engagement, thus necessitating a strategic approach to digital innovation (Favoretto et al., 2022; Rêgo et al., 2022). Beyond aspiring to become smart cities, municipalities are tasked with formulating comprehensive digital strategies that address citizens' immediate to long-term needs in areas such as retail, education, and public administration (Cone et al., 2022; Cordes & Musies, 2021). This endeavor requires municipalities to consider the multifaceted societal, political, economic, and technological environments in which they operate (Mahula et al., 2022; Mergel et al., 2019; Popescu & González, 2022; Volberda et al., 2021). Despite the growing importance of DT, there remains a significant gap in the understanding of how municipalities navigate the complex interplay between institutional forces during the DT process. Specifically, there is limited research on how institutional isomorphism—comprising coercive, mimetic, and normative pressures—shapes the strategies and actions of municipal actors in adopting and implementing digital technologies (Dillard et al., 2004;

Mignerat & Rivard, 2009; Teo et al., 2003). This paper aims to fill this gap by exploring the influence of institutional isomorphism on municipal DT, identifying key actors, and examining their roles and interactions within the domains of municipal DT. To address this research gap, we conducted a systematic literature review and a thematic analysis to (1) identify the groups of actors shaping and influencing municipal DT; to (2) delineate the domains of action of DT within municipalities; and to (3) elucidate the links between these actors and domains of action, with a particular emphasis placed on institutional isomorphism. Our primary research objective is to deepen the understanding of the links between institutional pressures and municipal actors in aligning DT. We also contribute to the existing body of literature pertaining to applying institutional theory in studies on DT and organizational science, including future research possibilities. We also provide a bridging-issues field approach for municipal DT as a possibility for studying the impact of institutional pressures. This paper is organized as follows: Initially, it establishes a theoretical framework by discussing DT, institutional theory, organizational fields, bridging-issues field, and institutional isomorphism. The methodology section details the phases of design, conduct, data abstraction and analysis, and structuring and mapping. We employ a systematic literature review, a thematic analysis, and a focal action set approach to synthesize findings. Finally, the study concludes by discussing its results, acknowledging limitations, and suggesting research questions for future investigations into the institutionalization of DT in municipalities.

Theoretical Background

In the current era of DT, municipalities are at the forefront of a transformative journey. This journey is characterized by the integration of digital technologies into every aspect of municipal operations, thereby inducing strategic, operational, and structural shifts within municipalities. A rich body of scholarly discourse on DT provides a robust theoretical foundation, thus enabling municipalities to navigate this complex terrain with greater clarity and purpose. The discussion begins with Bharadwaj et al. (2013), who define DT as organizational changes driven by digital technologies and business models with the goal of improving performance. This initial definition emphasizes the strategic nature of DT, emphasizing technology as a driver of superior organizational performance, which is crucial for municipalities seeking efficiency and effectiveness. Building upon this strategic framework, Fitzgerald et al. (2014) introduce a practical perspective on DT, defining it as a process aimed at enhancing an entity's performance or reach by improving business processes with innovative digital technologies. This outcome-oriented perspective of DT, focusing on performance improvement and reach expansion, is essential for municipalities aiming to augment service delivery and citizen engagement. Westerman et al. (2014) provide further insights into the concept of DT as the use of technology to significantly improve enterprise performance or reach. This definition of DT as a tool for enhancing performance and gaining a competitive advantage can serve as a useful model for municipalities looking to optimize public services through digital technologies. Progressing to a more operational- and organizational-change perspective, Matt et al. (2015) describe DT as the profound transformation of business and organizational activities to fully leverage digital technologies. Their comprehensive focus on transformation across the organization resonates with the holistic changes municipalities must undertake in their digitalization efforts. Schallmo et al. (2017) further enrich the discussion by offering a structured approach to understanding DT. They emphasize the transformation of business models, processes, and customer interactions through digital technologies. They highlight the need for innovative and adaptive strategies

for municipalities in the digital age. McConnell (2018) expands the scope of DT to include not just the adoption of digital technologies but also a fundamental transformation of business models, processes, and organizational culture. This shift towards a more agile, innovative, and customer-centric approach of operating underscores the importance of cultural and process-oriented transformation in municipalities, aligning with the goals of enhanced citizen-centric governance. Finally, Vial (2019) synthesizes the extensive literature on DT, conceptualizing DT as a process in which digital technologies induce disruptions, thus necessitating strategic organizational responses. This comprehensive view encapsulates the transformative impact of digital technologies on municipal strategies and structures, advocating for adaptive and responsive governance models. In this context, DT requires a thorough reassessment of how technology, personnel, and processes are integrated in order to significantly improve organizational performance. From an institutional theory perspective, DT can be viewed as a radical institutional change that introduces novel actors, structures, practices, values, and beliefs (Hinings et al., 2018).

Institutional Theory

Institutional theory suggests that organizations, including municipalities, are influenced by a complex interplay between regulative, normative, and cultural-cognitive elements that promote stability and homogeneity (Scott, 2009). Originating from the seminal work of Meyer and Rowan (1977) and DiMaggio and Powell (1983), this theory has significantly advanced our understanding of institutional development and pressures (Beckert, 2010). Municipalities, as social systems, are influenced by institutional forces that dictate legitimate behavior based on societal norms and expectations, thus influencing the practices and strategies within municipalities (DiMaggio & Powell, 1983; Meyer & Rowan, 1977). To understand an organization's actions in this context, it is crucial to consider the organizational field and the critical actors within it (Scott, 2008). These actors, e.g., regulators, professional associations, and media, constitute the institutional infrastructure in this field. They interpret, convey, and monitor compliance with the sociocultural rules that enforce organizational legitimacy (Hinings et al., 2018; Scott, 2008). Compliance with this infrastructure ensures legitimacy—a crucial factor for organizational operations (Suchman, 1995). As municipalities strive to integrate digital technologies into their operations, they encounter various institutional pressures that shape their strategies and approaches (Bennich, 2024). This dynamic interaction between DT efforts and institutional influences underscores the importance of examining how municipalities adapt and innovate within their given institutional infrastructure. Nowadays, the application of institutional theory to the challenge of DT in municipalities is supported by empirical evidence. For instance, studies have found that institutional pressures play a significant role in shaping DT efforts in the public sector. Latif et al. (2020) examined the role of institutional pressures in the adoption of e-government services in municipalities, with an emphasis on the significance of coercive, normative, and mimetic pressures as influential factors. A similar study by Sousa et al. (2022) highlighted how institutional pressures influence the adoption and maintenance of e-government services. Municipalities operating within this institutional environment face different pressures to adopt digital structures and practices in order to maintain legitimacy and ensure organizational survival (Berthod et al., 2018). Sociocultural beliefs play a crucial role in shaping the adoption of innovations and in driving organizational change (Hartl & Hess, 2017). The study of DT from an institutional perspective revolves around understanding how institutional arrangements emerge and diffuse within fields and organizations (Siltaloppi et al., 2016). Researchers must address how these new ideas gain legitimacy and spread

within and across organizational fields (Hinings et al., 2018).

Organization Fields

The concept of organizational fields has been a focal point for understanding the collective dynamics of organizations within a shared institutional environment (DiMaggio & Powell, 1983). DiMaggio and Powell (1983) describe organizational fields as aggregates of organizations constituting recognized areas of institutional life, including key suppliers, resource and product consumers, regulatory agencies, and other similar organizations. This initial definition highlighted the emergence of homogeneity within fields through processes of institutional isomorphism, setting the stage for further explorations into the mechanics of field dynamics and their influence on organizational behavior. Building on this foundation, Scott (1995) expanded the understanding of organizational fields by incorporating cognitive, normative, and regulative pillars. This expansion not only included the organizations themselves but also the institutional logics and practices that inform their behavior and interactions, thereby broadening the scope of influences considered within an organizational field.

This work emphasized the interconnectedness of these elements, illustrating how shared logics and practices define field boundaries and influence organizational conduct within those boundaries. Hoffman's (1999) introduction of a dynamic perspective on organizational fields marked a shift towards understanding how environmental and social issues shape and redefine these fields. His work emphasized the fluidity of fields and the influence of broader societal concerns on field formation and change, highlighting the evolving nature of organizational fields in response to external pressures. Wooten and Hoffman (2008) further explored the evolution of organizational fields, focusing on the mechanisms such as framing, theorization, and diffusion that underlie field evolution and the emergence of new fields. Their analyses provided insight into the processes contributing to the dynamic restructuring of fields, reflecting the role of broader societal concerns in shaping the organization of fields. Adding to the conversation, Lawrence et al. (2011) emphasized the agency of actors within fields to engage in institutional work, thereby playing active roles in the creation, maintenance, and disruption of institutional norms and practices. This perspective sheds light on the capacities of field participants to significantly influence the institutional landscape, challenging deterministic views of field dynamics and highlighting the role of human agency. The emergence of new organizational fields and the role of institutional logics, as discussed by Lounsbury and Ventresca (2003) and further elaborated upon by Thornton et al. (2012), refined the concept of organizational fields.

These works highlighted how innovative practices and dominant logics within fields drive evolution and change, thus facilitating a more dynamic understanding of fields as spaces in which multiple logics may intersect, compete, or evolve. Building on these constructs, Zietsma et al. (2017) provide a nuanced examination of organizational fields, distinguishing between "exchange fields" characterized by transactional relationships among actors and "issue fields" unified by shared concerns or issues that unify field participants beyond mere transactions. The researchers note the emergence of organizational fields in response to societal, technological, and regulatory shifts, thereby emphasizing the fluidity and evolution of these fields driven by changing actor compositions, evolving interactions, and emerging challenges. This perspective is invaluable for recognizing the dynamism

inherent in institutional fields and the potential for new fields to emerge from the confluence of existing ones.

Bridging-Issues Fields

In this context, Zietsma et al. (2017) introduce the bridging-issues field, a concept that encapsulates fields formed around issues that span traditional boundaries and necessitate collaboration across diverse sets of actors. Bridging-issues fields are emblematic of complex interdependent problems that cannot be neatly contained within existing organizational or institutional boundaries. DT in municipalities epitomizes a bridging-issues field, as it encompasses a spectrum of technological, regulatory, and societal challenges and opportunities that transcend traditional municipal operational boundaries (Besson & Rowe, 2012; Zietsma et al., 2017). DT necessitates a reimagining of service delivery, citizen engagement, and infrastructural development, making it a quintessential issue that bridges multiple fields, including technology, governance, and public administration (van der Hoogen et al., 2024; Zietsma et al., 2017). Moreover, DT in municipalities brings together a diverse array of actors, from government officials and technology providers to citizens and regulatory bodies, all of whom must collaborate to navigate the complexities of integrating digital technologies into municipal governance (David et al., 2023; Kurkela et al., 2019). This convergence of actors, issues, and interests underscores the bridging nature of the field, as it necessitates cross-sectoral and interdisciplinary collaboration to achieve transformative outcomes (Zietsma et al., 2017). Building on the comprehensive exploration of organizational fields, particularly the concept of bridging-issues fields, we can now proceed to our first research question: *What characterizes the bridging-issues field of digital transformation within municipalities?* Municipal DT spans technological, regulatory, and societal domains, thereby creating a complex field in which traditional boundaries are crossed and redefined. This setting allows us to examine the interactions and pressures among diverse actors such as public administrators, technology providers, regulatory bodies, and citizens. These interactions form the bridging-issues field, a field in which different sectors collaborate to transform municipal governance and service delivery. By characterizing this bridging-issues field, we aim to identify the defining domains and key actors to provide insights that can guide effective and inclusive DT in public organizations. Following our exploration into the defining features of this field, we shift focus towards the links between key municipal actors and the institutional pressures they face.

Institutional Isomorphism

According to DiMaggio and Powell (1983), organizations adopt similar practices in the face of institutional pressures in order to maintain legitimacy. Deephouse (1996) supports this, noting the push for homogeneity to maintain legitimacy, particularly in the public sector, in which adherence to established norms is prevalent. The public sector's tendency towards homogeneity is further documented by Ashworth et al. (2007), Decramer et al. (2012), and Lowndes and Wilson (2003), who observe widespread conformance to accepted behaviors. DiMaggio and Powell (1983) describe three types of isomorphism—*coercive*, *mimetic*, and *normative*—that underlie this trend. Each type can overlap and interact, but each is rooted in distinct environmental conditions and they collectively influence public sector innovation and practices (Lowndes & Wilson, 2003). *Coercive isomorphism* occurs when an organization faces formal or informal pressures from more powerful entities upon which they depend, such as critical sources, customers, governing bodies with legislative power, or other social entities

(DiMaggio & Powell, 1983; Heugens & Lander, 2009; Latif et al., 2020). This pressure prompts the organization to align with certain practices to fulfill the demands of these influential stakeholders (DiMaggio & Powell, 1983). Harcourt et al. (2005) differentiate between competition-driven pressures and those resulting from regulatory mandates. The former pertain to maintaining a competitive edge, while the latter involve adhering to legal standards. Organizations face pressures to adapt in order to avoid exclusion or penalties (Windolph et al., 2014). They do so by aligning their operations with those upon which they depend (Radaelli, 2000). In municipal DT, coercive pressures are often regulatory (Kvashina et al., 2021). For instance, Germany's "Online Access Act" mandates that public administration offer most services digitally by the end of 2022 (German Federal Ministry of the Interior and Community, 2023). Similarly, Spain's "Digital Spain Agenda 2025" aims to enable 50% of public services through mobile applications by 2025 (Ministerio de Asuntos Económicos y Transformatión Digital, 2020). This underscores the fact that coercive isomorphism compels municipalities to adopt digital standards due to regulatory mandates, emphasizing the need for compliance and legitimacy. *Mimetic isomorphism* is a response to organizational uncertainty and ambiguity (DiMaggio & Powell, 1983). It leads entities to imitate successful practices to address unclear goals, shifting public expectations, and rapidly evolving technology (DiMaggio & Powell, 1983; Mizruchi & Fein, 1999). This approach helps organizations, including municipalities, facing complex environments by adopting proven digital technologies, strategies, or e-governance models from peers (Choi et al., 2018; Frennert, 2021). Although there is no guarantee of efficiency, the purpose of this imitation is to gain legitimacy and manage uncertainties effectively (Palad, 2022; Radaelli, 2000). DiMaggio and Powell (1983) note that adoption of these measures can be spontaneous or facilitated by consulting firms or staff changes, highlighting its role as a strategic choice under technological and administrative pressures (Bennich, 2024).

In the field of DT, municipalities must adapt and contextualize practices to their unique local circumstances, thereby potentially driving innovation by tailoring and improving upon the original practices (Battilana & D'Aunno, 2009; DiMaggio & Powell, 1983). Thus, mimetic isomorphism strategically guides municipalities through DT, thereby encouraging innovation and legitimacy by adopting and adapting best practices of peers. *Normative isomorphism* shapes organizations through professionalization and standardization (DiMaggio & Powell, 1983). Driven by formal education and professional networks, it instills normative standards and cognitive frameworks, ensuring a uniform approach across organizations (DiMaggio & Powell, 1983; Gong & Xiao, 2017; Meyer et al., 1993). Beyond efficiency, standardized practices seek legitimacy within professional realms (Austin, 1998; Meyer et al., 1993), with universities, professional associations, and socialization processes collectively playing key roles in legitimizing occupational norms (DiMaggio & Powell, 1983; Radaelli, 2000).

Higher education and professional training are crucial for municipal DT, as they equip public administrators with the skills necessary for digital integration (Weber et al., 2024). Adhering to international standards such as the ISO 37120 series, which set benchmarks for city services and quality of life, highlights the importance of professional norms in guiding digital progress (International Organization for Standardization, 2018). Standards for digital advancements and innovations are disseminated through educational institutions and professional networks. Universities and industry conferences serve as key forums for sharing these innovations (Gil-Garcia et al., 2015). Professional bodies, such as the Smart Cities Council and the Digital Government Society, also promote knowledge exchange on DT among municipalities, thereby promoting mutual learning from the successes and

challenges experienced by others (Meijer & Bolívar, 2016). Municipalities adopt e-government services, open data, and smart technologies under the influence of prevailing norms, as described by Anthopoulos (2015) and Kitchin (2014).

For instance, Amsterdam and New York are committed to sustainability, citizen engagement, and innovation. This commitment is driven by normative pressures to enhance service delivery and foster efficient citizen–government interactions (Anthopoulos, 2015; Kitchin, 2014). Normative isomorphism drives organizations towards standardization and supports municipalities in achieving digital excellence. It integrates professional norms and standards into municipal operations, thereby ensuring that digital efforts are legitimate and meet global best practices and thus influencing the future of urban governance. This theoretical background leads us to our second research question: *Which groups of actors within municipalities face institutional pressures during the digital transformation process?* By identifying these actors, we aim to understand the institutional factors that shape DT in municipalities using DiMaggio and Powell's (1983) seminal work on institutional isomorphism as a basis for our research (see Table 1). This transition highlights how the initial exploration of the bridging-issues field sets the stage for a deeper dive into the roles and challenges of key actors, creating a cohesive narrative that guides our research forward.

Table 1. Institutional Isomorphism and Institutional Factors based on DiMaggio and Powell (1983)

Institutional isomorphism	Institutional factors
Coercive	Formal regulations
	Inter-organizational dependence
	Cultural expectations
Mimetic	Technological uncertainty
	Goal ambiguity
	Environmental change
Normative	Formal education
	Professional network

Methodology

Literature reviews serve as research guides, identifying trends, gaps, intersections, directions, and issues within a broader research context. Consequently, they establish the foundations for future research trajectories (Seuring & Gold, 2012). Systematic literature reviews (SLRs) are recognized as important scholarly contributions as they map, consolidate, synthesize, and refine dispersed knowledge in a specific field, thus playing a crucial role in advancing theoretical frameworks (Khirfan et al., 2020). They also diverge from traditional state-of-the-art reviews in terms of thoroughness, stringency, and structure (Snyder, 2019). Additionally, SLRs represent an independent research method (Okoli, 2015). As stated by Avenier (2010), analyzing the concepts used in the literature through a deductive approach followed by an inductive analysis involving a theory-driven formulation of categories is a crucial step in generalizing the findings relevant to our research questions. Therefore, our research follows Snyder's (2019) semi-systematic literature review framework, refined according to the

recommendations of vom Brocke et al. (2009) and Webster and Watson (2002). This approach enables us to examine a broad range of existing literature in a structured and deductive manner (Webster & Watson, 2002). Furthermore, we improve upon the procedure outlined by Snyder (2019) through the incorporation of a content analysis-based evaluation of research articles. This modification is achieved through an inductive approach that encompasses thematic analysis as introduced by Braun and Clarke (2006). According to Kassarjian (1977), content analysis should follow a distinct, intentional, and structured process. In line with this principle, we have adopted Snyder's (2019) four-phase model, which includes design, conduct, data abstraction, and analysis, as well as structuring and mapping. The following sections explain how we have adjusted these phases to align with our specific research inquiries.

Design

The field of DT in municipalities is often discussed in relation to smart cities. To establish a foundation, we refer to the Smart City Charter (SCC) of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety. This document outlines key principles for the development of smart cities, including a citizen-centric approach, sustainability, innovation, and collaborative governance. Additionally, the charter contains recommendations for implementing these guidelines and is an important resource for public agencies and municipalities (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2017). By adopting this charter as the backbone of our SLR, we ensured that our analysis centered on sociotechnical aspects of urban environments, encompassing the multifaceted nature of DT in municipalities (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2017). To gather pertinent literature, we utilized the SCC's tag cloud, which emphasizes four key areas influencing DT: big data, local economy, governance, and digital integration/inclusion (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2017; vom Brocke et al., 2009). Acknowledging municipalities as complex systems, we expanded our search to include "digital transformation" and synonyms thereof, ensuring a holistic view of DT's impact on municipal structures and processes. The inclusion of "smart city" as a search term aligns with global trends towards integrating digital technologies for improved urban governance and citizen wellbeing, highlighting the critical role of technology in urban development. Thus, our search string, based on the SCC and refined through a targeted selection of terms, ensures that we do not miss crucial literature relevant to the organizational dimensions of DT in municipalities (vom Brocke et al., 2009): *Digitisation OR Digitalisation OR Digitization OR Digitalization OR "Digital Transformation" AND Cit* OR Municipalit* OR "Smart Cit*" AND "Big Data" OR "Local Econom*" OR Governance OR "Digital Integration" OR "Digital Inclusion"*

Conduct

The SLR is based on a search in Scopus and IEEE Xplore. Both databases provide access to high-quality peer-reviewed scientific articles. Scopus is a comprehensive database that covers research output from various fields, including technology and social sciences. IEEE Xplore focuses on specialized literature in the field of engineering and technology, making it relevant to our research objective as it ensures access to leading information systems journals and conferences. To establish a timeframe for our SLR, we considered English-language conference proceedings and journal articles published between January 2017 (publishing date of the SCC) and July 2022

(date of the SLR). The initial search yielded 9,626 results in both databases. Thereof, 31 duplicates were identified and excluded, and nine incomplete datasets were deemed unusable. The results were then refined using filters offered by the databases including "smart cities," "organizational aspects," and "public administration." This process resulted in a final set of 1,360 articles. We deductively analyzed the titles and abstracts of this definitive collection of articles based on our specific inclusion and exclusion criteria (see Table 2) (vom Brocke et al., 2009).

Table 2. Inclusion and Exclusion Criteria

Inclusion	Exclusion
Pertaining to the conceptualization process of DT	Conceptual emphasis is on smart cities with a deficient focus on DT
Incorporating considerations of institutional change	Lacking on organizational logic
Addressing organizational aspects	Addressing specific technologies only

The dataset was reduced significantly via this process, to 80 articles. We conducted a comprehensive review of all these articles in full-text form, focusing on the established criteria. After obtaining our results, we engaged in discussions with researchers from related and adjacent research fields within our department. The purpose of these discussions was to examine our findings and their implications. After this process, we identified and removed 61 papers that did not align with the content and objectives of our study. In the end, we identified 19 articles as pertinent literature (Webster & Watson, 2002). Backward and forward searches for these papers yielded no further results (Webster & Watson, 2002). Figure 1 identifies our review process for this research (Moher et al., 2010).
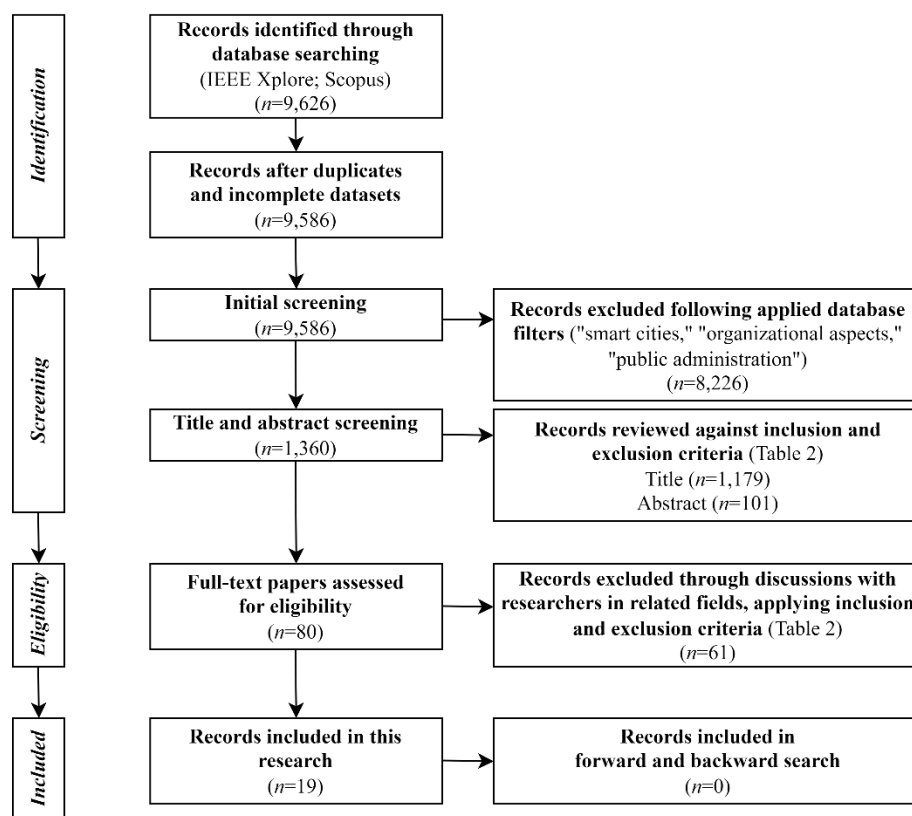
Figure 1. Systematic Literature Review Process according to Moher et al. (2010)

According to Cooper (1988), our selection offers a comprehensive view of the abstract nature of DT in municipalities, as presented in Table 3.

Table 3. Results of the Systematic Literature Review

Reference	Area of study	Categories	Context
Abdalla et al. (2019)	Management of smart city initiatives	Smart cities, urban management, technological challenges	Challenges in implementing smart city initiatives, including technical and governance issues
Anthony Jnr et al. (2021)	Enterprise architecture framework for smart cities	Smart cities, pervasive systems, enterprise architecture	Integration and management of digital services and platforms for urban smart transformation
Canedo et al. (2020)	Digitization and automation of public services	Digital government, public service automation, citizen engagement	Perception of Brazilian citizens towards digitization and automation of public services and its impacts
Chiriac et al. (2021)	Digitalization of public services in Romania	Digital transformation, public administration, e-government	Advancements and challenges in digitalization of Romania's public service
Datta (2020)	Digital transformation in Italian public administration	Digital government, public administration reform, technology management	Digital transformation initiatives in Italian public administration, focusing on challenges and impacts
Dobrolyubova (2021)	Digital transformation in public administration	Digital governance, e-government, public administration evaluation	Assessment of outcomes of digital transformation in public administration, evaluation of benefits and risks

Reference	Area of study	Categories	Context
Dorofeeva et al. (2019)	Smart cities infrastructure in Russia	Urban planning, smart cities, infrastructure development	Influence of regional infrastructure on the development of smart cities in Russia
Hatuka and Zur (2020)	Smart cities and smart social urbanism	Urban planning, smart cities, sociotechnological ecosystems	Interaction between digital companies and municipalities in developing smart city strategies
Leão and Canedo (2018)	Digitization of public services	Digital government, citizen engagement, public service digitization	Methodologies and best practices for digitizing public services with a focus on citizen participation
Leão et al. (2018)	Digitization of government services	E-government, service digitization, process mapping	Improvement and standardization of digitizing government services with societal involvement
Kuhlmann and Heuberger (2021)	Digital transformation in local public administration	E-government, administrative reforms, local government analysis	Examination of the impact and challenges of digital transformation in local governments in Germany
Lytras and Serban (2020)	E-government in smart cities in the EU	E-government, smart cities, regulatory impact	Role of EU regulations in shaping e-government services within smart cities
Pereira et al. (2020)	Governance innovations and digital transformation in smart cities	Smart cities, digital governance, public value generation	Interplay between smart city technologies and governance innovations for public value creation

Reference	Area of study	Categories	Context
Reis et al. (2021)	ICT governance in smart cities	Applied computing, computing in government, e-government	Focus on ICT governance practices in Brazilian smart cities in the context of digital transformation
Runardotter et al. (2020)	Digital participation and inclusion in rural areas	Digital transformation, digital inclusion, public administration	Challenges in achieving inclusive digital participation in rural areas
Semyachkov (2020)	Social media's role in smart city development	smart cities, social media, urban development	Impact of citizen activity in social networks on smart city development processes
Tangi et al. (2021)	E-maturity in local governments	E-government, local government studies, public administration technology	Assessment of digital advancement in local governments, factors influencing e-maturity, impact on service delivery
Todorut and Tselentis (2018)	Digitization in public administration	Digital governance, e-government, public administration reform	The impact of digital technologies on the modernization of public administration and public value creation
Yudatama et al. (2017)	IT governance implementation	IT governance, organizational management, success factors	Examination of benefits and barriers as critical success factors in IT governance implementation

Data Abstraction and Analysis

We employed a thematic analysis according to Braun and Clarke (2006) to systematically analyze and interpret

meanings and patterns within our dataset. This method was specifically chosen for its effectiveness in uncovering nuanced themes crucial to understanding the complex institutional dynamics of DT in municipalities. The robustness of thematic analysis facilitated a comprehensive exploration of intricate datasets, making it ideal for our research objectives (Nowell et al., 2017). Each article was thoroughly analyzed to extract and understand the detailed content, focusing on the authors' research questions, methodologies, key arguments, and primary constructs, as recommended by Thorpe et al. (2005) and Braun and Clarke (2006). We tagged and sorted identified phrases into groups based on thematic relevance (Braun & Clarke, 2006). Following Braun and Clarke (2006), we used a mind-mapping approach to generate and develop codes into themes. This meticulous process ensured that our coding scheme was solidly grounded in the theoretical frameworks of the articles (Ryan & Bernard, 2003). Figure 2 illustrates a developed thematic mind map showing one main theme.
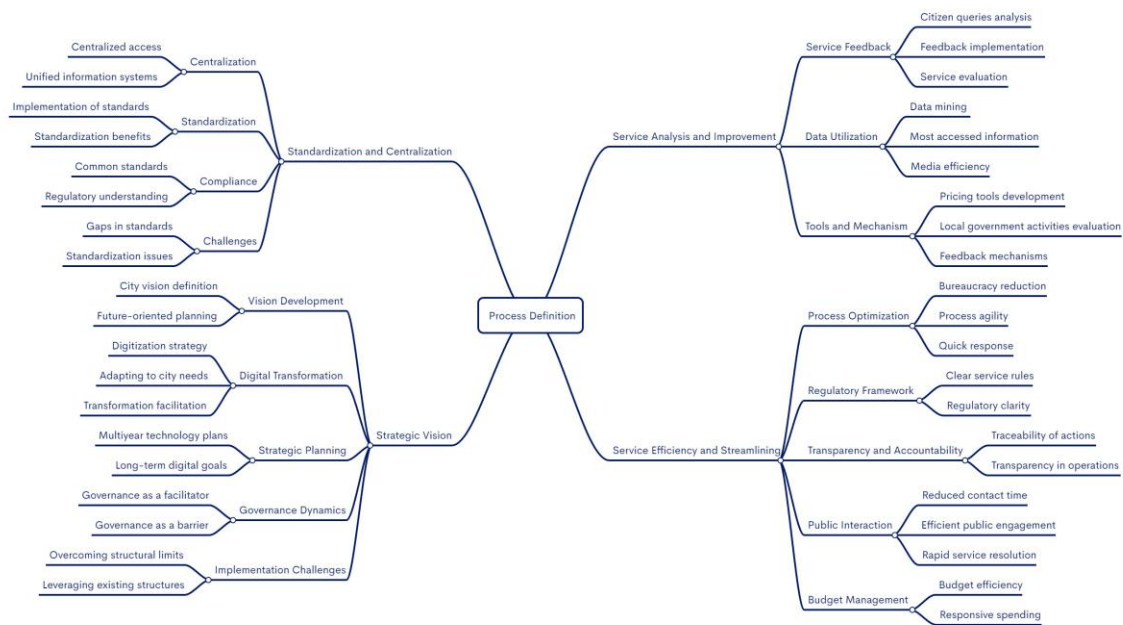

Figure 2. Exemplary Thematic Mind Map

We utilized a customized Excel workbook for data organization and analysis. This setup, equipped with templates and formulas, allowed for efficient categorization and consistent thematic tracking, thereby enhancing and centering our analytical precision and trustworthiness (Richards & Hemphill, 2018). Discrepancies in theme identification were consequently addressed through structured discussions among our research team (Richards & Hemphill, 2018). If needed, a third-party expert was consulted to maintain the objectivity and integrity of our findings, in alignment with best practices for qualitative research (Liñán & Fayolle, 2015). Throughout the study, we continuously refined our thematic framework, incorporating emerging themes and adapting our coding schema as needed (Braun & Clarke, 2006). This iterative process, supported by regular cross-referencing of the results, ensured the accuracy and consistency of our thematic designations, as emphasized by Braun and Clarke (2006). This approach not only aligns with our research objectives but also significantly deepens our understanding of the bridging-issues field that characterizes DT.

Results

Thirteen overarching main themes emerged from this iterative process. These were refined, categorized, and synthesized in accordance with the method proposed by Braun and Clarke (2006). The emerging themes were classified into three *groups of actors* (GOAs), i.e., *government & administration*, *citizens*, and *business & economy*, and ten *domains of actions* (DOAs), i.e., *process definition*, *communication/participation*, *collaboration*, *digital skills*, *value creation*, *policies*, *digital infrastructure*, *quality of digitalization*, *knowledge transfer*, and *inclusion*. Each GOA was linked to one or more DOAs, illustrating the interconnectedness within our dataset. To systematically represent these relationships, we utilized a concept-centric matrix as described by Webster and Watson (2002) (see Figure 3).

Authors	Groups of actors			Domains of actions									
	Citizens	Government & administration	Business & economy	Communication/ Participation	Collaboration	Process definition	Digital infrastructure	Digital skills	Value creation	Policies	Quality of digitalization	Knowledge transfer	Inclusion
Abdalla et al. (2019)	x	x			x	x				x			
Anthony Jnr et al. (2021)	x	x	x				x			x			
Canedo et al. (2020)		x		x	x	x			x				x
Chiriac et al. (2021)	x			x		x					x		
Datta (2020)	x	x	x				x	x	x				x
Dobrolyubova (2021)	x	x	x	x	x	x			x	x	x	x	
Dorofeeva et al. (2019)	x	x	x			x		x	x				
Hatuka and Zur (2020)	x	x	x		x	x				x		x	x
Leão and Canedo (2018)	x	x		x			x			x			
Leão et al. (2018)	x	x			x			x		x	x		x
Kuhlmann and Heuberger (2021)	x	x						x			x		
Lytras and Serban (2020)	x	x					x	x	x				
Pereira et al. (2020)	x	x		x		x		x	x				
Reis et al. (2021)		x		x								x	
Runardotter et al. (2020)	x	x		x	x			x					
Semyachkov (2020)	x	x	x	x	x	x	x		x			x	
Tangi et al. (2021)		x									x		
Todorut and Tselentis (2018)	x	x		x	x	x	x			x		x	
Yudatama et al. (2017)		x				x							
Total	**15**	**18**	**6**	**9**	**7**	**11**	**6**	**7**	**7**	**7**	**5**	**5**	**4**

Figure 3. Concept-Centric Matrix according to Webster and Watson (2002)

This matrix marked each occurrence of a DOA associated with a GOA, thereby demonstrating their relevance within the analyzed texts. The matrix also included cumulative counts at the bottom quantifying the prevalence of each theme across the literature, thus providing a measurable overview of the thematic concentrations in our study.

Groups of Actors

The GOA themes are divided into 20 sub-actor themes to accurately depict the spectrum of actors in municipal DT (see Table 4). Each subtheme includes entities both influencing and influenced by this transformation, thus

ensuring that the classification represents authentic interactions and dynamics among these groups. This organization of sub-actors is directly informed by the data in order to maintain relevance to actual municipal contexts.

Table 4. List of Groups of Actors and Sub-Actors

Group of actors	Sub-actors
Government & administration	Local government officials
	Federal government
	Municipal decision-makers
	EU policymakers
	Government agencies
	Public sector employees
	Urban planners
	IT professionals
	City administrators
	Public service entities
Citizens	Rural and urban residents
	Citizens involved in DT initiatives
	End-users and participants
Business & economy	Small and medium enterprises
	Local companies
	Technology experts
	IT managers
	IT consultants
	Corporate executives
	Digital technology providers

The *government & administration* is responsible for managing public affairs in various locales, including cities, towns, and counties, which are often grouped under the terms "municipalities" or "regional administrations" (Canedo et al., 2020; Kuhlmann & Heuberger, 2021; Pereira et al., 2020). Despite their collective nomenclature, each entity (e.g., city, town, or country) carries distinct responsibilities and operates within a unique governmental structure (Datta, 2020). A key aspect of their role involves the development and provision of necessary digital infrastructure and processes as well as the formulation of usage policies, as corroborated by studies conducted by Hatuka and Zur (2020), Abdalla et al. (2019), Leão and Canedo (2018), and Leão et al. (2018). This GOA encompasses a spectrum of key entities and personnel who collectively facilitate this evolution within municipal frameworks. At the core, officials at various levels of government, from local to federal, along with policymakers across the European Union , play strategic roles in shaping and guiding the DT process (Leão & Canedo, 2018; Lytras & Serban, 2020). These individuals, alongside dedicated government agencies and public sector

employees, are tasked with implementing and overseeing the transition towards digitally enabled municipal environments (Semyachkov, 2020; Tangi et al., 2021). Integral to this collective are urban planners and IT professionals, whose expertise in technical and infrastructural design advances the transformation agenda (Anthony Jnr et al., 2021; Dorofeeva et al., 2019; Yudatama et al., 2017). Additionally, city administrators and entities responsible for public services contribute to operationalizing digital strategies (Dobrolyubova, 2021; Pereira et al., 2020). This convergence of roles ensures that DT is not only conceptualized but also practically applied, thus enhancing the efficiency, accessibility, and quality of municipal services (Reis et al., 2021). Their affiliation is rooted in a shared mission to modernize governance and public administration, which aims to meet the evolving demands of an increasingly digital society.

Citizens, as defined in our research, are individuals legally recognized as members of a municipality and actively engaged in civil society, encompassing a spectrum from rural and urban residents to IT professionals (Pereira et al., 2020; Semyachkov, 2020; Todorut & Tselentis, 2018). This GOA collective is not merely the recipient of digitalized services but also acts as a participatory force in DT initiatives (Leão & Canedo, 2018; Lytras & Serban, 2020). The citizens' contribution is multifaceted: as end-users, they provide critical usage data and feedback, thus enhancing service adaptability, while as IT experts, they contribute to the development and refinement of e-government services (Chiriac et al., 2021; Datta, 2020). The amalgamation of these roles underscores a transition towards a more collaborative, user-driven model of public service digitalization, where the citizen is both a collaborator in and co-creator of the digital milieu (Abdalla et al., 2019; Leão et al., 2018).

Lastly, *business & economy* in the DT process revolves around collaboration and value creation, involving a dynamic interplay between various specialized entities ranging from burgeoning small and medium businesses to established local companies (Datta, 2020; Hatuka & Zur, 2020). These entities, guided by technology experts and IT managers, are pivotal in orchestrating the shift towards advanced digital operations (Anthony Jnr et al., 2021; Semyachkov, 2020). IT consultants and governance professionals provide strategic oversight, ensuring adherence to best practices and fostering innovation (Datta, 2020; Hatuka & Zur, 2020). Corporate executives and digital technology providers further drive this evolution, integrating cutting-edge solutions into the municipalities and shaping the digital infrastructure of urban areas (Dobrolyubova, 2021; Semyachkov, 2020). Collectively, these GOA form a robust ecosystem, propelling economic growth and resilience through digital advancement. This synergy is essential for creating a competitive and technologically adept market that responds with agility to the demands of the digital age.

Domains of Actions

The DOA themes comprise 35 set-of-activities subthemes that provide a comprehensive structure for understanding the nature of DT in municipalities (see Table 5). Extracted directly from data, these sets of activities address critical aspects necessary for effective digital adoption and integration, spanning foundational elements such as process definition and digital infrastructure to more nuanced areas such as digital literacy and inclusion. Organized into ten interconnected fields, this structure aids in systematically analyzing and improving DT efforts by offering a holistic view that supports strategic advancements and policymaking.

Table 5. List of Domains of Actions and Sets-of-activities

Domains of actions	Set-of-activities
Process definition	Service analysis and improvement
	Service efficiency and streamlining
	Standardization and centralization
	Strategic vision
Communication/Participation	Public engagement
	Open governance
	Inclusive service design and delivery
	Digital tools and platforms
	Participative interactions
Collaboration	Digital tools and platforms
	Public–private partnerships
	Stakeholder engagement and mapping
	Open innovation and business opportunities
Digital literacy	Digital skills
	Employee capacity challenges
	Cross-theme capacity building
Value creation	Service enhancement
	Innovation and technology
	Daily life digital service
Policies	Privacy and surveillance
	Security and data protection
	Incentives and design principles
Digital infrastructure	Digital connectivity
	Service management
	Interoperability and integration
	Operational models
	Data management and analytics
	Enterprise architecture framework (EAF)
Quality of digitalization	Digital maturity
	Service efficiency and effectiveness
	Transparency and accountability

Domains of actions	Set-of-activities
Knowledge transfer	Support and education Transparency
Inclusion	Sociodemographic insights Digital equity

Process definition encapsulates a multifaceted approach to organizational optimization (Pereira et al., 2020). It blends analysis (Leão et al., 2018; Semyachkov, 2020; Todorut & Tselentis, 2018) and enhancement of existing frameworks with a focus on efficiency (Canedo et al., 2020; Chiriac et al., 2021) and unification (Todorut & Tselentis, 2018) as guided by a clear strategic vision (Hatuka & Zur, 2020) amidst financial and resource considerations (Abdalla et al., 2019; Dobrolyubova, 2021; Dorofeeva et al., 2019; Yudatama et al., 2017). This amalgamation ensures sustainable, streamlined operations, which are crucial for adaptive and resilient systems in a dynamic environment (Dorofeeva et al., 2019). *Communication/participation* captures all distinct examples, merging democratic engagement (Leão & Canedo, 2018), transparent governance (Dobrolyubova, 2021; Leão & Canedo, 2018), and inclusive service strategies (Todorut & Tselentis, 2018). It emphasizes the synergy between modern technology (Chiriac et al., 2021) and participatory practices (Pereira et al., 2020; Reis et al., 2021), thereby enhancing decision-making and service delivery (Semyachkov, 2020). This integration fosters a responsive, accountable, and citizen-centric approach (Canedo et al., 2020), which is crucial for progressive, transparent, and effective governance (Runardotter et al., 2020). *Collaboration* integrates diverse elements to create a cohesive framework for progressive and efficient organizational ecosystems (Abdalla et al., 2019; Todorut & Tselentis, 2018). It combines the strengths of cross-sector partnerships (Canedo et al., 2020; Runardotter et al., 2020), strategic engagement of varied interests (Hatuka & Zur, 2020), and innovative approaches to create new opportunities (Dobrolyubova, 2021). This synergy optimizes resource utilization, fosters innovation, and drives growth by embodying a holistic approach to modern challenges (Runardotter et al., 2020; Semyachkov, 2020).

Digital literacy encapsulates the essential progression of competencies within a community setting (Datta, 2020; Dorofeeva et al., 2019), thereby blending personal capability development (Lytras & Serban, 2020) with workforce adaptation strategies (Pereira et al., 2020; Runardotter et al., 2020). It underscores the importance of aligning individual skills with organizational needs (Kuhlmann & Heuberger, 2021; Leão et al., 2018), thus ensuring a harmonious growth trajectory that meets the demands of an increasingly digital societal framework (Datta, 2020). V*alue creation* embodies a comprehensive approach to optimizing societal benefits (Semyachkov, 2020) through efficient resource utilization (Dobrolyubova, 2021), innovative technology adoption (Dorofeeva et al., 2019), and enhanced service delivery (Canedo et al., 2020). It integrates strategic coordination and responsiveness to everyday needs (Lytras & Serban, 2020), thereby fostering an environment where progress and efficiency converge to generate significant tangible value in everyday life and public services (Datta, 2020; Pereira et al., 2020). *Policies* represents a nuanced approach to regulatory frameworks (Anthony Jnr et al., 2021; Todorut & Tselentis, 2018), blending considerations of individual rights (Leão et al., 2018), data security (Dobrolyubova, 2021), and governance challenges with strategic incentivization (Hatuka & Zur, 2020). This combination ensures

a balanced, effective policy landscape, addressing contemporary complexities while fostering an environment conducive to responsible innovation and societal trust in evolving digital domains (Abdalla et al., 2019; Leão & Canedo, 2018).

Digital infrastructure characterizes an integrated approach to building a robust and cohesive technological ecosystem (Leão & Canedo, 2018). It combines seamless access (Lytras & Serban, 2020), efficient service management (Semyachkov, 2020), and harmonious systems integration with data-centric strategies, all underpinned by comprehensive architectural frameworks (Anthony Jnr et al., 2021). This convergence facilitates a dynamic, interconnected, and data-driven operational landscape, which is essential for modern digital advancements (Datta, 2020; Todorut & Tselentis, 2018). *Knowledge transfer* encompasses the facilitation of information flow and understanding across diverse groups (Reis et al., 2021). It focuses on creating an environment conducive to learning and engagement (Semyachkov, 2020), thereby fostering clear communication and active involvement (Dobrolyubova, 2021). This approach ensures the effective dissemination and utilization of knowledge that is vital for collective progress and informed decision-making (Todorut & Tselentis, 2018). *Quality of digitalization* is anchored in the interplay between advanced technological maturity (Kuhlmann & Heuberger, 2021; Tangi et al., 2021), optimization of service delivery (Dobrolyubova, 2021), and a commitment to transparency and accountability (Leão et al., 2018). This convergence is crucial for enhancing the effectiveness of digital services, ensuring that they are both efficient and responsibly managed, thereby fostering trust and reliability in digital systems (Chiriac et al., 2021). *Inclusion* integrates a comprehensive understanding of diverse societal facets, emphasizing the importance of recognizing and addressing varied cultural, demographic, and economic factors (Datta, 2020; Leão et al., 2018). This approach ensures equitable access and participation in the digital sphere (Canedo et al., 2020), thereby fostering a more inclusive and representative environment that respects and responds to a range of needs and perspectives (Hatuka & Zur, 2020).

Groups of Actors and Domains of Actions

GOAs are defined by their roles or responsibilities in organizational processes, referring to the individuals, teams, or departments within or associated with a municipality. This includes local government officials, rural and urban residents, and SMEs, each playing distinct roles in the DT process (see Table 4). GOAs often interact across and within DOAs, facilitating the dynamic flow of activities and information crucial for successful task implementation and overall objectives. Their influence is shaped by their knowledge, authority, and resources. DOAs are defined by their scope of work or the objectives they aim to achieve within a municipality, referring to specific areas or fields where distinct activities, processes, or operations are carried out. In municipal DT, DOAs might include policies or digital infrastructure (see Table 5). Each DOA encompasses activities related to specific functional aspects, such as ensuring the effectiveness and efficiency of technological implementations (see Table 5). DOAs are critical in strategic planning, where they help to organize efforts and resources efficiently across the organization's operations.

The main difference between DOAs and GOAs lies in their focus and function within the organizational structure (see Table 6). DOAs focus on the areas of activity or the specific aspects of the municipal operation in DT, i.e.,

what needs to be done. In contrast, GOAs focus on the individuals or groups involved in or responsible for these activities, i.e., who is doing it. DOAs are more about structural aspects and the functional dynamics of a municipality, mapping out the operations or tasks within an area. GOAs, on the other hand, deal more with personal or group dynamics and analyze the roles and interactions of different actors within these operations. DOAs are structural elements of a municipality, defining the configuration of tasks and responsibilities in DT. GOAs represent the social elements, highlighting the human resources and their relationships that drive the functionality within these structures.

Table 6. Difference between GOAs and DOAs

Criteria	Groups of actors	Domains of actions
Focus	Individuals and groups	Operational tasks
Dynamics	Personal and group dynamics within operations	Functional dynamics within a structured framework
Elements	Social; highlighting relationships and human resources	Structural; configuring tasks and responsibilities

Structuring and Mapping

The success of DT is based on the creation of innovation networks (Appio et al., 2021). These networks link different actors and fields and encapsulate temporal, cognitive, normative, and territorial aspects (Amin & Thrift, 1992; Kogut & Zander, 1992; Uzzi & Spiro, 2005). Mapping these links helps us to visualize the roles and interactions of these actors within a bridging-issues field. Therefore, to structure and map our findings, we use the innovation network approach and combine it with institutional isomorphism. The success of these networks hinges on organizational and systemic methodologies, as well as on the critical roles of institutional and spatial factors (McKitterick et al., 2016; Sternberg & Arndt, 2001).

The focal action set framework of Conway and Steward (1998) is particularly effective for analyzing both individual organizations and the overarching network structure. Following Conway and Steward (1998), our approach involves structuring and mapping the network through the selection and abstraction of specific aspects of our field of interest. First, we define a focus based on the actors' attributes and links, which leads to an exploration of DOAs and GOAs (Conway & Steward, 1998).

This enables identification of enduring relational patterns and commonalities within the DOAs and GOAs and of how types of isomorphism influence network structuring and functioning (Fombrun, 1982). Second, our definitional focus centers around DT within municipalities, adopting the ego-centered nodal-anchoring approach (Conway & Steward, 1998). Third, we align and graphically represent the GOA within the provided framework of a DOA. Additionally, we place each GOA sub-actor thoughtfully, considering its roles and the institutional pressures it experiences (Conway & Steward, 1998).

Consequently, the segmentation of the external environment of our focal actor creates ten segments according to

our DOA. The upper section of the figure is organized into policies, digital infrastructure, quality of digitalization, communication/participation, and collaboration. The lower section includes process definition, inclusion, value creation, knowledge transfer, and digital literacy. This concept is illustrated in Figure 4.
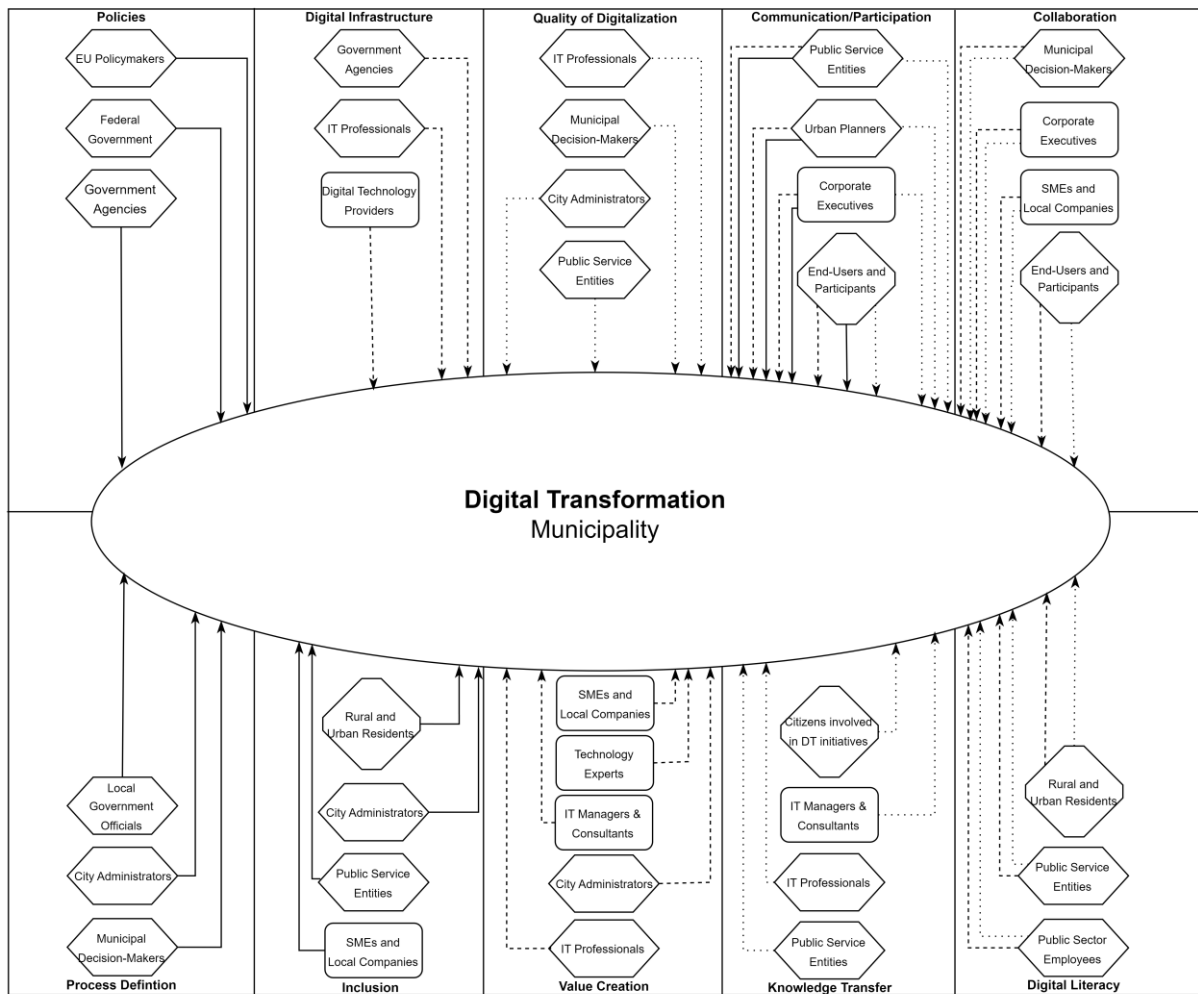

Figure 4. Digital Transformation of the Municipality Focal Action Set

Figure 5 shows the variety of body types, institutional pressures, and directions of flow which are used in Figure 4.
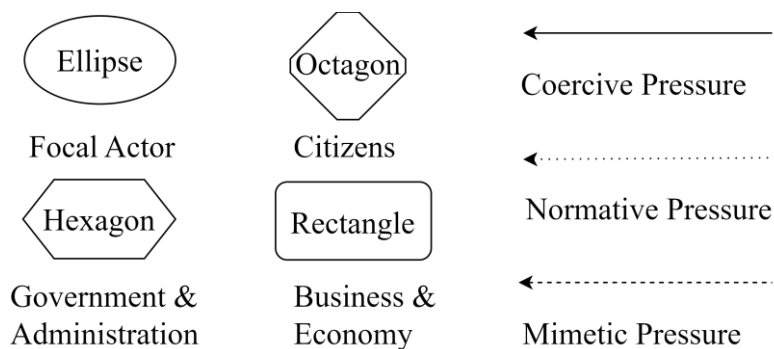

Figure 5. Variety of Body Types, Institutional Pressures, and Directions of Flow

We used a hexagon for governmental and administrative bodies, an octagon for the citizen bodies, and a rectangle for business and economy bodies (Conway & Steward, 1998). The ellipse represents our focal actor in this system, i.e., DT in the municipality. For a better understanding of the institutional pressures, we connected the shapes with lines and arrows (Conway & Steward, 1998). Solid lines indicate coercive pressures, dotted lines represent normative pressures, and dashed lines show mimetic pressures. The direction of flow is also depicted through the use of arrowheads (Conway & Steward, 1998).

The final step in mapping an innovation network based on the focal action set according to Conway and Steward (1998) is to describe the links between the GOAs, their institutional pressures, and DT within municipalities. This research will adopt a holistic perspective informed by the results of our SLR.

Policies establish the regulatory backbone for all digital activities, ensuring compliance with legal standards and strategic objectives (Anthony Jnr et al., 2021; Datta, 2020). Municipal DT is governed by a policy framework set forth by EU policymakers as well as federal and local government agencies (Dorofeeva et al., 2019; Kuhlmann & Heuberger, 2021; Lytras & Serban, 2020). These entities exert coercive pressures that mandate compliance with established DT guidelines, thereby ensuring adherence to higher governance standards (Datta, 2020; Pereira et al., 2020). Digital infrastructure forms the technological foundation necessary for implementing digital services (Canedo et al., 2020; Semyachkov, 2020). Government agencies, IT professionals, and technology providers are responsible for building this robust infrastructure (Reis et al., 2021; Semyachkov, 2020; Yudatama et al., 2017). Mimetic pressures from successful models encourage municipalities to emulate proven infrastructural frameworks, thus fostering innovation and efficiency (Pereira et al., 2020; Semyachkov, 2020). Quality of digitalization focuses on maintaining high standards of digital implementations (Dobrolyubova, 2021).

This aspect involves IT professionals, municipal decision-makers, and city administrations, who are guided by normative pressures to uphold high standards in digital services, thus ensuring that the services meet established industry norms and ethical guidelines (Datta, 2020; Pereira et al., 2020). Communication/participation engages stakeholders in the DT process, which is crucial for ensuring that the initiatives are well received and utilized (Leão & Canedo, 2018; Lytras & Serban, 2020). DT processes are enhanced by the active participation of stakeholders, including public services, urban planners, corporate executives, and citizens as the end-users of digital services (Chiriac et al., 2021; Datta, 2020). This engagement is shaped by a blend of coercive, normative, and mimetic pressures, which together foster a responsive and inclusive DT environment (Canedo et al., 2020; Semyachkov, 2020). Collaboration enhances the cooperation between various municipal departments and external entities, which is crucial for the holistic implementation of digital projects (Abdalla et al., 2019; Todorut & Tselentis, 2018). Collaborative efforts across corporate sectors, SMEs, municipal decision-makers, and the citizens seen as end-users are fundamental in advancing municipal DT (Canedo et al., 2020; Hatuka & Zur, 2020). Normative and mimetic pressures here promote the adoption of collaborative practices that leverage diverse expertise and resources (Anthony Jnr et al., 2021; Semyachkov, 2020).

Process definition sets clear procedures and standards for digital operations, thereby ensuring consistency and efficiency in service delivery (Pereira et al., 2020; Reis et al., 2021). Local government officials, city

administrators, and municipal decision-makers are influenced by normative pressures to define clear and effective DT processes, thus aligning municipal operations with best practice standards (Kuhlmann & Heuberger, 2021; Leão & Canedo, 2018). Inclusion focuses on ensuring that all community segments can access and benefit from digital services (Runardotter et al., 2020). DT policies must ensure inclusivity to integrate the perspectives of both rural and urban residents (Lytras & Serban, 2020; Reis et al., 2021). Coercive pressures enforce inclusive practices, thus guaranteeing that DT benefits are accessible to all demographic segments (Abdalla et al., 2019; Leão & Canedo, 2018). Value creation aims to deliver tangible benefits from digital initiatives, thereby enhancing residents' quality of life (Dobrolyubova, 2021; Semyachkov, 2020). In the creation of value, city administrators and IT professionals adopt best practices out of business & economy influenced by mimetic pressures, which drives the adoption of innovative solutions that have proven successful in other contexts (Dobrolyubova, 2021; Semyachkov, 2020). Knowledge transfer promotes the dissemination of knowledge to sustain innovation and adaptation (Chiriac et al., 2021; Semyachkov, 2020). Knowledge sharing is critical in DT, involving the citizens involved in technological initiatives, IT professionals, IT managers, consultants, and public service entities and driven by normative pressures to foster a culture of continuous learning and improvement (Dobrolyubova, 2021; Hatuka & Zur, 2020; Runardotter et al., 2020). Digital literacy increases the digital competence of all citizens, public sector employees, and public service entities, enabling effective participation in digital initiatives (Lytras & Serban, 2020; Semyachkov, 2020). Efforts to enhance digital literacy are shaped by mimetic and normative pressures, whereby successful educational models inform the development of training programs tailored to diverse municipal needs (Datta, 2020; Pereira et al., 2020).

Discussion

Our study reveals that GOAs encounter institutional pressures that shape their contributions to the DT process in municipalities. This complexity necessitates collaborative efforts and cross-sectoral partnerships within DOAs to foster successful digital activities, underscoring the need for a unified approach that transcends traditional boundaries. Addressing our first research question—*What characterizes the bridging-issues field of digital transformation within municipalities?*—our findings identify DT in municipalities to be a prime example of a bridging-issues field according to Zietsma et al. (2017). It is characterized by multifaceted interactions across various institutional realms requiring holistic and interconnected approaches, e.g., process definition, inclusion, value creation, knowledge transfer, and digital literacy (see Table 5) (Zietsma et al., 2017). These DOAs show that DT involves redefining processes, engaging diverse stakeholders, creating substantial benefits, enhancing digital competencies, and disseminating knowledge across governmental layers. Collaboration among diverse GOAs, each bringing unique resources, expertise, and perspectives, is essential. This collaboration aligns with DiMaggio and Powell's (1983) institutional isomorphism, where the adoption of practices across different fields is driven by mimetic, coercive, and normative pressures. These pressures are crucial for achieving diverse goals and addressing multi-stakeholder governance challenges. Moreover, effective governance and adaptable policy frameworks are critical for managing this bridging-issues field. Policies must evolve to accommodate new technologies and data paradigms.

Coercive pressures from higher government tiers often mandate digital standards, highlighting the need for policy

frameworks that adapt rapidly while ensuring compliance, security, and public trust. The strategic nature of municipal digital strategies reflects the long-term orientation typical of a bridging-issues field (Zietsma et al., 2017). Municipalities are integrating digital technologies into their infrastructure, thereby initiating significant transformations in service delivery, citizen engagement, and operational efficiencies. This strategy requires a forward-looking approach that prioritizes long-term benefits over immediate gains and necessitates ongoing adjustments to the evolving technological landscape. DT also invariably impacts societal norms and practices, altering how citizens interact with their government. These shifts challenge traditional governance and engagement methods, leading to new digital interfaces and communication protocols. Such transformations enhance transparency, increase citizen participation, and improve government responsiveness. From a practical standpoint, these insights highlight the need for municipal leaders to adopt comprehensive DT strategies that consider technological, human, social, and policy-related factors. Prioritizing user-centric design, stakeholder engagement, and continuous feedback mechanisms is crucial to ensuring that DT initiatives align with and respond to community needs and expectations. While the concept of a bridging-issues field effectively captures the multifaceted nature of DT within municipalities, it is important to critically assess the variability in the capacity of different municipalities to engage with digital innovations and technologies. For instance, disparities in resources, expertise, and infrastructure can significantly influence the extent to which different municipalities can implement and benefit from DT strategies. Larger cities may have more resources and better access to technology, allowing for more comprehensive integration of digital solutions, whereas smaller towns might struggle with limited budgets and expertise. Additionally, institutional isomorphism provides a valuable lens through which to view the adoption of digital practices. However, this perspective may oversimplify the complex sociopolitical and cultural dynamics that shape a bridging-issues field. For example, the theory does not fully address the resistance that may come from within municipal administrations or from citizens who are wary of changes to traditional services and governance methods. Such resistance can stem from a variety of sources, including a fear of job displacement, privacy concerns, and a lack of trust in digital systems.

Our second research question—*Which groups of actors within municipalities face institutional pressures during the digital transformation process?*—reveals that institutional isomorphism critically shapes the actions and reactions of GOAs. Each of these GOAs (see Table 4) faces distinct institutional pressures that not only influence their operational approaches but also dictate the broader trajectory of the DT sets-of-activities (see table 5) within municipalities. Government and administrative bodies, which encompass both local and federal levels, operate primarily under coercive pressures stemming from their regulatory mandates. These actors are entrusted with the enforcement of compliance to digital standards, such as the General Data Protection Regulation in the European Union. Their decisions are largely directed by higher governmental or international directives, thereby positioning them as pivotal enforcers within the digital policy arena. While this regulatory authority empowers government bodies to set the pace and scope of DT, it also immerses them in substantial bureaucratic and legal complexities. This paradox highlights a critical dynamic: while coercive pressures ensure standardization and legal compliance, they can also inadvertently hinder localized innovation, thus suggesting the need of a balanced approach that accommodates both compliance and flexibility. Simultaneously, the business & economy GOA, particularly in digital technology sectors, responds significantly to mimetic pressures. These entities often emulate successful digital practices observed within and outside their immediate industrial landscapes, driven by the desire to

maintain or enhance competitive standing. This tendency not only promotes the diffusion of proven technologies into municipal DT strategies through public–private partnerships but also risks a uniformity that may overlook localized needs. The influence of mimetic pressures necessitates a discerning approach from municipalities, in which the replication of digital solutions is carefully evaluated to ensure suitability beyond their surface success. At the front line of DT's impact are the citizens, whose normative pressures are informed by their expectations of digital service delivery. As digital platforms become integral to public service frameworks, citizens increasingly demand transparency, accessibility, and efficiency. The escalation in digital literacy and active engagement in these platforms further amplifies these expectations, thereby pressing municipalities to prioritize user-centric and inclusive digital innovations. Here, normative pressures serve as a double-edged sword: they propel municipalities towards high standards of service delivery, yet they also impose a challenge to harmonizing these services with diverse citizens' needs and varying levels of digital accessibility. Together, these dynamics illustrate a complex interplay between institutional pressures across different actor groups, emphasizing the nuanced ways in which coercive, mimetic, and normative forces shape municipal DT. Recognizing the distinct yet interconnected impacts of these pressures is crucial for crafting strategies that not only align with the theoretical underpinnings of institutional isomorphism but also respond pragmatically to the real-world challenges of digital governance. By addressing these pressures in a balanced and context-aware manner, municipalities can better navigate the multifaceted landscape of DT, thus enhancing both the efficacy and inclusivity of their digital initiatives. The challenges of institutional isomorphism within municipal DT necessitate strategic approaches and policy implementations tailored to accommodate both regulatory demands and the needs for local innovation. Municipalities must develop adaptive policy frameworks capable of responding to rapid digital changes while also reflecting the unique characteristics of local communities. This includes crafting policies that leverage technological advancements but also remain attuned to local cultural, economic, and social contexts. Enhancing public–private partnerships is also critical. By strategically engaging businesses that bring proven digital technologies, municipalities can gain access to essential resources and expertise. However, these collaborations must align with long-term municipal goals, thus enhancing service delivery without compromising the distinct needs of each community.

Limitations of the Study

Our study on DT in municipalities, while comprehensive, acknowledges several limitations that impact its applicability and relevance. These limitations are critical for interpreting the findings and contextualizing them within broader municipal settings. Firstly, the generalizability of the analysis is limited. Since the study primarily utilizes generalized theoretical models and SLR, it might not capture specific nuances and exceptions across diverse municipal contexts. Municipalities vary widely due to differences in governance structures, cultural attitudes towards technology, and economic conditions, which can significantly influence the effectiveness and reception of DT initiatives. Secondly, the dynamic nature of technology and policy poses a challenge. DT is evolving rapidly, influenced by technological advancements, political shifts, and changes in public policies. Therefore, the influence levels and strategic relevance of certain observations may become outdated, necessitating ongoing adjustments to municipal strategies. Thirdly, the study's reliance on theoretical and secondary data introduces a degree of subjectivity and potential bias. The lack of primary empirical data means that the findings

are not substantiated by quantitative measures specific to each stakeholder, which would provide a more precise measure of influence levels and the impact of institutional pressures. Additionally, the rapid evolution of technology means that the strategies and technologies discussed might quickly become obsolete. Continuous research is necessary to keep pace with technological advancements and to ensure that municipal governance strategies remain relevant and effective. Lastly, while the study attempts to integrate insights from various disciplines, the complexity of DT could be further enriched by perspectives from fields such as business informatics, environmental studies, and behavioral science. This would provide a more holistic understanding of the challenges and opportunities presented by DT. Addressing these limitations in future research would enable scholars and practitioners to develop better-tailored and more effective DT strategies for municipalities, thereby enhancing the sustainability and impact of these initiatives.

Practical Implications

This research reveals how different forms of institutional isomorphism play distinct roles in shaping municipal digital strategies. Here, we propose practical recommendations for municipal leaders, policymakers, and practitioners that are aimed at optimizing the management of institutional pressures to foster successful DT. Given the impact of coercive isomorphism, municipalities must align their digital initiatives with prevailing regulations while maintaining flexibility to innovate. We recommend the establishment of a dedicated regulatory liaison function within municipal governments. This role would focus on continuously monitoring regulatory changes and ensuring that digital strategies are adapted proactively to meet these changes without stifling innovation. Our analysis indicates that mimetic isomorphism drives municipalities to emulate successful digital practices from peers. To leverage this effectively, municipalities should establish formal benchmarking processes. These processes could involve participating in networks or consortia that facilitate knowledge sharing about successful DT strategies. Additionally, creating a DT case study library could help municipalities to learn from the successes and challenges of others. Addressing normative isomorphism, there is a clear need for ongoing professional development in the digital realm. Municipalities should invest in continuous training programs for their staff, focusing on the latest digital technologies and transformation strategies. Partnerships with academic institutions and technology providers can facilitate workshops, seminars, and courses designed to keep municipal employees at the forefront of digital innovation. To effectively manage the broad range of stakeholder expectations influenced by all types of isomorphism, municipalities should implement comprehensive stakeholder-engagement strategies. These strategies should include regular consultations with citizens, business communities, and other relevant stakeholders to ensure that DT efforts align with the needs and expectations of all community members. Finally, our findings suggest the need for dynamic and adaptive policy frameworks that can rapidly respond to the evolving landscape of digital technologies. Municipalities should consider establishing a DT advisory board composed of a diverse group of stakeholders. This board would provide guidance on digital policies, ensuring that they remain flexible and responsive to technological advancements and societal needs.

Research Agenda

Considering our findings and the extant literature, we propose a detailed research agenda to further explore the

institutionalization and implementation of DT within municipalities. This agenda is structured around the critical areas outlined in Table 7, each aiming to deepen our understanding of DT's integration into municipal governance and operations. The first area investigates how municipal definitions of DT influence its integration into governance structures and identifies the factors driving and hindering DT adoption. This inquiry is crucial for understanding how DT becomes entrenched within municipal operations by examining the roles of existing governance structures and the specific challenges faced during this transformative process. Secondly, we evaluate DT initiatives by exploring how various stakeholders—citizens, administration, and businesses—define and measure success. This analysis assesses the impact of these perceptions on the continuation and scaling of DT projects, with the goal of identifying best practices for outcome evaluation to ensure the effectiveness of DT efforts. Our agenda also recognizes the essential role of collaboration among diverse stakeholders for successful DT implementation. We plan to study the interdependencies between city administrations, affiliated entities, citizens, and the local economy, aiming to identify key stakeholder groups that shape DT efforts and strategies to enhance collaboration.

Table 7. Summary of Opportunities for Future Research

Research field	Research question
Institutionalization of DT	• How do municipal definitions of DT influence its integration into governance structures? • What are the key factors driving or hindering DT adoption in municipalities?
Understanding success	• How do municipal actors define and measure DT success? • How do perceptions of success impact the continuation and scaling of DT projects?
Stakeholder interdependencies	• How do interdependencies between city administration, affiliated entities, citizens, and the local economy affect DT initiatives? • Which are the most influential stakeholder groups shaping DT efforts?
Future relevance of DT	• Which emerging technologies and business models are most likely to impact future municipal operations? • How can municipalities effectively integrate DT into long-term strategies?
Technical options	• Is there a shared understanding among municipal actors about the need for DT initiatives? • What criteria do actors use to select technical solutions for DT?

Additionally, the agenda addresses the future relevance of DT by considering the impact of emerging technologies and business models on municipal operations. It explores how municipalities can integrate DT into long-term strategic planning, thereby ensuring preparedness and adaptability to ongoing technological changes. Finally, we

examine the practical aspects of implementing DT initiatives, including whether a shared understanding exists among municipal actors regarding the need for such initiatives and the criteria used by different actors to select technical solutions. This focus will help to identify practical tools and strategies for achieving consensus and effectively implementing DT. Overall, this research agenda provides a comprehensive framework for understanding the multifaceted aspects of DT in a municipal context spanning institutionalization, evaluation, collaboration, and future relevance.

Conclusion

Our study provides an exploration of DT within municipalities, focusing on the impact of institutional isomorphism across various dimensions—coercive, mimetic, and normative pressures—and its interaction with DOAs (process definition, communication/participation, collaboration, digital literacy, value creation, policies, digital infrastructure, quality of digitalization, knowledge transfer) and GOAs (government & administration, citizens, business & economy) in the context of a bridging-issues field. Our findings indicate that coercive pressures mainly derive from legislative mandates which require municipalities to align with national and international digital standards, thus impacting DOAs such as policies and digital infrastructure. Mimetic pressures are evident as municipalities aim to emulate successful DT practices observed in peer cities, thus influencing DOAs such as collaboration and quality of digitalization, to foster innovative approaches and enhance service efficiency. Normative pressures are shaped by professional and societal expectations, thereby promoting standardized practices within municipalities that directly affect DOAs such as process definition and knowledge transfer. These pressures ensure that digital strategies are not only efficient but also ethically sound and professionally endorsed.

The concept of a bridging-issues field has proven essential in understanding the multifaceted nature of municipal DT. It allows for an analysis of how various institutional pressures interact across different DOAs and GOAs, leading to a comprehensive strategy for DT that transcends traditional municipal operations and governance boundaries. For instance, the interaction between GOAs such as government & administration and business & economy with DOAs such as digital literacy and inclusion highlights the necessity for cross-sector collaboration to achieve a holistic transformation.

The implications of this study are significant for municipal leaders and policymakers, who must adeptly navigate these institutional pressures to harmonize compliance with innovation. By leveraging insights from the bridging-issues field, municipalities can strategically align their digital initiatives with broader institutional dynamics, thereby ensuring that DT efforts are both sustainable and impactful. Future research should focus on empirical studies that validate the interactions between different pressures and their concrete effects on municipal operations. Such studies could provide a clearer roadmap for municipalities to effectively manage the complex landscape of DT by considering the unique contexts and capabilities of different municipalities. Further exploration into the variability in DT capabilities across municipalities could also yield insights into customizing approaches that cater to specific local needs and conditions.

References

Abdalla, W., Renukappa, S., Suresh, S., & Al-Janabi, R. (2019). Challenges for Managing Smart Cities Initiatives: An Empirical Study. *3rd International Conference on Smart Grid and Smart Cities (ICSGSC)*, 10–17. https://doi.org/10.1109/ICSGSC.2019.00-26

Amin, A., & Thrift, N. (1992). Neo-Marshallian Nodes in Global Networks *International Journal of Urban and Regional Research*, *16*(4), 571–587. https://doi.org/10.1111/j.1468-2427.1992.tb00197.x

Anthony Jnr, B., Abbas Petersen, S., Helfert, M., Ahlers, D., & Krogstie, J. (2021). Modeling pervasive platforms and digital services for smart urban transformation using an enterprise architecture framework. *Information Technology & People*, *34*(4), 1285–1312. https://doi.org/10.1108/ITP-07-2020-0511

Anthopoulos, L. G. (2015). Understanding the Smart City Domain: A Literature Review. In M. P. Rodríguez-Bolívar (Ed.), *Public Administration and Information Technology. Transforming City Governments for Successful Smart Cities* (Vol. 8, pp. 9–21). Springer International Publishing. https://doi.org/10.1007/978-3-319-03167-5_2

Appio, F. P., Frattini, F., Petruzzelli, A. M., & Neirotti, P. (2021). Digital Transformation and Innovation Management: A Synthesis of Existing Research and an Agenda for Future Studies. *Journal of Product Innovation Management*, *38*(1), 4–20. https://doi.org/10.1111/jpim.12562

Ashworth, R., Boyne, G., & Delbridge, R. (2007). Escape from the Iron Cage? Organizational Change and Isomorphic Pressures in the Public Sector. *Journal of Public Administration Research and Theory*, *19*(1), 165–187. https://doi.org/10.1093/jopart/mum038

Austin, B. (1998). The Role of the Administrative Sciences Association of Canada in Institutionalizing Management Education in Canada. *Canadian Journal of Administrative Sciences / Revue Canadienne Des Sciences De L'administration*, *15*(3), 255–266. https://doi.org/10.1111/j.1936-4490.1998.tb00166.x

Avenier, M.-J. (2010). Shaping Constructivist View of Organizational Design Science. *Organization Studies*, *31*(9-10), 1229–1255. https://doi.org/10.1177/0170840610374395

Battilana, J., & D'Aunno, T. (2009). Institutional work and the paradox of embedded agency. In T. B. Lawrence, R. Suddaby, & B. Leca (Eds.), *Institutional Work* (pp. 31–58). Cambridge University Press. https://doi.org/10.1017/CBO9780511596605.002

Beckert, J. (2010). Institutional Isomorphism Revisited: Convergence and Divergence in Institutional Change. *Sociological Theory*, *28*(2), 150–166. https://doi.org/10.1111/j.1467-9558.2010.01369.x

Bennich, A. (2024). The digital imperative: Institutional pressures to digitalise. *Technology in Society*, *76*, 102436. https://doi.org/10.1016/j.techsoc.2023.102436

Berthod, O., Grothe-Hammer, M., & Sydow, J. (2018). *Inter-organizational ethnography: promises and problems* (Vol. 1). Oxford University Press. https://doi.org/10.1093/oso/9780198796978.003.0011

Besson, P., & Rowe, F. (2012). Strategizing information systems-enabled organizational transformation: A transdisciplinary review and new directions. *The Journal of Strategic Information Systems*, *21*(2), 103–124. https://doi.org/10.1016/j.jsis.2012.05.001

Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. (2013). Digital Business Strategy: Toward a Next Generation of Insights. *MIS Quarterly*, *37*(2), 471–482. https://doi.org/10.25300/MISQ/2013/37:2.3

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Bundesinstitut für Bau-, Stadt- und Raumforschung. (2017). *Smart City Charta: Making digital transformation at the local level sustainable.*

Canedo, E., Tives, H., & Cerqueira, A. (2020). Citizen's Perception of Public Services Digitization and Automation. In *Proceedings of the 22nd International Conference on Enterprise Information Systems.* SCITEPRESS - Science and Technology Publications. https://doi.org/10.5220/0009409507540761

Chiriac, A.-M., Mocanu, S., & Popa, C. (2021). Onto Digitalization of Public Services. In *2021 12th International Symposium on Advanced Topics in Electrical Engineering (ATEE).* IEEE. https://doi.org/10.1109/atee52255.2021.9425172

Choi, M., Lee, J., & Hwang, K. (2018). Information Systems Security (ISS) of E-Government for Sustainability: A Dual Path Model of ISS Influenced by Institutional Isomorphism. *Sustainability*, *10*(5), 1555. https://doi.org/10.3390/su10051555

Cone, L., Brøgger, K., Berghmans, M., Decuypere, M., Förschler, A., Grimaldi, E., Hartong, S., Hillman, T., Ideland, M., Landri, P., van de Oudeweetering, K., Player-Koro, C., Bergviken Rensfeldt, A., Rönnberg, L., Taglietti, D., & Vanermen, L. (2022). Pandemic Acceleration: Covid-19 and the emergency digitalization of European education. *European Educational Research Journal*, *21*(5), 845–868. https://doi.org/10.1177/14749041211041793

Conway, S., & Steward, F. (1998). Mapping Innovation Networks. *International Journal of Innovation Management*, *02*(02), 223–254. https://doi.org/10.1142/S1363919698000110

Cooper, H. M. (1988). Organizing knowledge syntheses: A taxonomy of literature reviews. *Knowledge in Society*, *1*(1), 104–126. https://doi.org/10.1007/BF03177550

Cordes, A.-K., & Musies, N. (2021). Accelerating the transformation? The impact of COVID-19 on the digital maturity of retail businesses. In *2021 IEEE 23rd Conference on Business Informatics (CBI)* (pp. 102–110). IEEE. https://doi.org/10.1109/CBI52690.2021.00021

Datta, P. (2020). Digital Transformation of the Italian Public Administration: A Case Study. *Communications of the Association for Information Systems*, 252–272. https://doi.org/10.17705/1CAIS.04611

David, A., Yigitcanlar, T., Li, R. Y. M., Corchado, J. M., Cheong, P. H., Mossberger, K., & Mehmood, R. (2023). Understanding Local Government Digital Technology Adoption Strategies: A PRISMA Review. *Sustainability*, *15*(12), 9645. https://doi.org/10.3390/su15129645

Decramer, A., Smolders, C., Vanderstraeten, A., & Christiaens, J. (2012). The Impact of Institutional Pressures on Employee Performance Management Systems in Higher Education in the Low Countries. *British Journal of Management*, *23*(S1). https://doi.org/10.1111/j.1467-8551.2012.00820.x

Deephouse, D. L. (1996). Does Isomorphism Legitimate? *Academy of Management Journal*, *39*(4), 1024–1039. https://doi.org/10.2307/256722

Dillard, J. F., Rigsby, J. T., & Goodman, C. (2004). The making and remaking of organization context. *Accounting, Auditing & Accountability Journal*, *17*(4), 506–542. https://doi.org/10.1108/09513570410554542

DiMaggio, P. J., & Powell, W. W. (1983). The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. *American Sociological Review*, *48*(2), 147. https://doi.org/10.2307/2095101

Dobrolyubova, E. (2021). Measuring Outcomes of Digital Transformation in Public Administration: Literature Review and Possible Steps Forward. *NISPAcee Journal of Public Administration and Policy*, *14*(1), 61–86. https://doi.org/10.2478/nispa-2021-0003

Dorofeeva, L., Rodionov, D., & Velichenkova, D. (2019). Infrastructure Potential of Creating "Smart Cities", 1–7. https://doi.org/10.1145/3372177.3373314

Favoretto, C., Mendes, G. H. d. S., Filho, M. G., Gouvea de Oliveira, M., & Ganga, G. M. D. (2022). Digital transformation of business model in manufacturing companies: challenges and research agenda. *Journal of Business & Industrial Marketing*, *37*(4), 748–767. https://doi.org/10.1108/JBIM-10-2020-0477

Fitzgerald, M., Kruschwitz, N., Bonnet, D [D.], & Welch, M. (2014). Embracing digital technology: A new strategic imperative. *MIT Sloan Management Review*.

Fombrun, C. J. (1982). Strategies for Network Research in Organizations. *Academy of Management Review*, *7*(2), 280. https://doi.org/10.2307/257307

Frennert, S. (2021). Hitting a moving target: Digital transformation and welfare technology in Swedish municipal eldercare. *Disability and Rehabilitation. Assistive Technology*, *16*(1), 103–111. https://doi.org/10.1080/17483107.2019.1642393

German Federal Ministry of the Interior and Community. (2023). *What is the Online Access Act?* https://www.digitale-verwaltung.de/Webs/DV/EN/ozg/ozg-node.html;jsessionid=029845F87891905F3FE26C77AD26AAA0.live882

Gil-Garcia, J. R., Pardo, T. A., & Nam, T. (2015). What makes a city smart? Identifying core components and proposing an integrative and comprehensive conceptualization. *Information Polity*, *20*(1), 61–87. https://doi.org/10.3233/IP-150354

Gong, T., & Xiao, H. (2017). The Formation and Impact of Isomorphic Pressures: Extravagant Position-Related Consumption in China. *Governance*, *30*(3), 387–405. https://doi.org/10.1111/gove.12242

Harcourt, M., Lam, H., & Harcourt, S. (2005). Discriminatory practices in hiring: institutional and rational economic perspectives. *The International Journal of Human Resource Management*, *16*(11), 2113–2132. https://doi.org/10.1080/09585190500315125

Hartl, E., & Hess, T. (2017). *The role of cultural values for digital transformation: Insights from a Delphi study* (8th ed.). AMCIS 2017 Proceedings. https://core.ac.uk/download/pdf/301371796.pdf

Hatuka, T., & Zur, H. (2020). From smart cities to smart social urbanism: A framework for shaping the socio-technological ecosystems in cities. *Telematics and Informatics*, *55*, 101430. https://doi.org/10.1016/j.tele.2020.101430

Heugens, P. P. M. A. R., & Lander, M. W. (2009). Structure! Agency! (And Other Quarrels): A Meta-Analysis Of Institutional Theories Of Organization. *Academy of Management Journal*, *52*(1), 61–85. https://doi.org/10.5465/AMJ.2009.36461835

Hinings, B., Gegenhuber, T., & Greenwood, R [Royston] (2018). Digital innovation and transformation: An institutional perspective. *Information and Organization*, *28*(1), 52–61. https://doi.org/10.1016/j.infoandorg.2018.02.004

Hoffman, A. J. (1999). INSTITUTIONAL EVOLUTION AND CHANGE: ENVIRONMENTALISM AND THE U.S. CHEMICAL INDUSTRY. *Academy of Management Journal*, *42*(4), 351–371. https://doi.org/10.2307/257008

International Organization for Standardization (2018). *ISO 37120: Sustainable cities and communities -- Indicators for city services and quality of life*. https://www.iso.org/obp/ui/en/#iso:std:iso:37120:ed-2:v1:en

Kassarjian, H. H. (1977). Content Analysis in Consumer Research. *Journal of Consumer Research*, *4*(1), 8. https://doi.org/10.1086/208674

Khirfan, L., Peck, M., & Mohtat, N. (2020). Systematic content analysis: A combined method to analyze the literature on the daylighting (de-culverting) of urban streams. *MethodsX*, *7*, 100984. https://doi.org/10.1016/j.mex.2020.100984

Kitchin, R. (2014). The real-time city? Big data and smart urbanism. *GeoJournal*, *79*(1), 1–14. https://doi.org/10.1007/s10708-013-9516-8

Kogut, B., & Zander, U. (1992). Knowledge of the Firm, Combinative Capabilities, and the Replication of Technology. *Organization Science*, *3*(3), 383–397. https://doi.org/10.1287/orsc.3.3.383

Kuhlmann, S., & Heuberger, M. (2021). Digital transformation going local: implementation, impacts and constraints from a German perspective. *Public Money & Management*, 1–9. https://doi.org/10.1080/09540962.2021.1939584

Kurkela, K., Virtanen, P., Tuurnas, S., & Stenvall, J. (2019). The Actors Involved in Innovation Processes and Collaboration – A Case Study of Eight Finnish Municipalities. *Lex Localis - Journal of Local Self-Government*, *17*(2), 247–266. https://doi.org/10.4335/17.2.247-266(2019)

Kvashina, O., Vinokhodova, I., Belskya, O., Fadeeva, S., & Kudryavtseva, O. (2021). Public Management System Transformation in the Conditions of Digitalization. *SHS Web of Conferences*, *93*, 5005. https://doi.org/10.1051/shsconf/20219305005

Latif, B., Mahmood, Z., Tze San, O., Mohd Said, R., & Bakhsh, A. (2020). Coercive, Normative and Mimetic Pressures as Drivers of Environmental Management Accounting Adoption. *Sustainability*, *12*(11), 4506. https://doi.org/10.3390/su12114506

Lawrence, T., Suddaby, R [Roy], & Leca, B. (2011). Institutional Work: Refocusing Institutional Studies of Organization. *Journal of Management Inquiry*, *20*(1), 52–58. https://doi.org/10.1177/1056492610387222

Leão, H., & Canedo, E. (2018). Best Practices and Methodologies to Promote the Digitization of Public Services Citizen-Driven: A Systematic Literature Review. *Information*, *9*(8), 197. https://doi.org/10.3390/info9080197

Leão, H., Canedo, E. D., & Souza, J. C. F. (2018). Digitization of Government Services: Digitization Process Mapping. In (pp. 3–20). Springer, Cham. https://doi.org/10.1007/978-3-030-02610-3_1

Liñán, F., & Fayolle, A. (2015). A systematic literature review on entrepreneurial intentions: citation, thematic analyses, and research agenda. *International Entrepreneurship and Management Journal*, *11*(4), 907–933. https://doi.org/10.1007/s11365-015-0356-5

Lounsbury, M., & Ventresca, M. (2003). The New Structuralism in Organizational Theory. *Organization*, *10*(3), 457–480. https://doi.org/10.1177/13505084030103007

Lowndes, V., & Wilson, D. (2003). Balancing revisability and robustness? A new institutionalist perspective on local government modernization. *Public Administration*, *81*(2), 275–298. https://doi.org/10.1111/1467-9299.00346

Lytras, M. D., & Serban, A. C. (2020). E-Government Insights to Smart Cities Research: European Union (EU) Study and the Role of Regulations. *IEEE Access*, *8*, 65313–65326. https://doi.org/10.1109/ACCESS.2020.2982737

Mahula, S., Lindquist, M., Norström, L., & Lindman, J. (2022). Digital transformation in local government organisations: empirical evidence from blockchain initiatives. In L. Hagen, M. Solvak, & S. Hwang (Eds.), *DG.O 2022: The 23rd Annual International Conference on Digital Government Research* (pp. 336–345). ACM. https://doi.org/10.1145/3543434.3543474

Matt, C., Hess, T., & Benlian, A. (2015). Digital Transformation Strategies. *Business & Information Systems Engineering*, *57*(5), 339–343. https://doi.org/10.1007/s12599-015-0401-5

McConnell, J. (2018). *The organization in the digital age: A foundational framework, the heart of digital transformation*. https://www.organization-digital-age.com/

McKitterick, L., Quinn, B., McAdam, R., & Dunn, A. (2016). Innovation networks and the institutional actor-producer relationship in rural areas: The context of artisan food production. *Journal of Rural Studies*, *48*, 41–52. https://doi.org/10.1016/j.jrurstud.2016.09.005

Meijer, A., & Bolívar, M. P. R. (2016). Governing the smart city: a review of the literature on smart urban governance. *International Review of Administrative Sciences*, *82*(2), 392–408. https://doi.org/10.1177/0020852314564308

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. P., Allen, N. J., & Smith, C. A. (1993). Commitment to organizations and occupations: Extension and test of a three-component conceptualization. *Journal of Applied Psychology*, *78*(4), 538–551. https://doi.org/10.1037/0021-9010.78.4.538

Meyer, J. W., & Rowan, B. (1977). Institutionalized Organizations: Formal Structure as Myth and Ceremony. *American Journal of Sociology*, *83*(2), 340–363. https://doi.org/10.1086/226550

Mignerat, M., & Rivard, S. (2009). Positioning the Institutional Perspective in Information Systems Research. *Journal of Information Technology*, *24*(4), 369–391. https://doi.org/10.1057/jit.2009.13

Ministerio de Asuntos Económicos y Transformatión Digital. (2020). *Digital Spain 2025*. https://espanadigital.gob.es/sites/agendadigital/files/2022-01/Digital-Spain-2025.pdf

Mizruchi, M. S., & Fein, L. C. (1999). The Social Construction of Organizational Knowledge: A Study of the Uses of Coercive, Mimetic, and Normative Isomorphism. *Administrative Science Quarterly*, *44*(4), 653–683. https://doi.org/10.2307/2667051

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2010). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *International Journal of Surgery (London, England)*, *8*(5), 336–341. https://doi.org/10.1016/j.ijsu.2010.02.007

Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic Analysis. *International Journal of Qualitative Methods*, *16*(1), 160940691773384. https://doi.org/10.1177/1609406917733847

Okoli, C. (2015). A Guide to Conducting a Standalone Systematic Literature Review. *Communications of the Association for Information Systems*, *37*. https://doi.org/10.17705/1CAIS.03743

Palad, J. B. (2022). Strategies for Improving Organizational Efficiency, Productivity, and Performance through Technology Adoption. *Journal of Management and Administration Provision*, *2*(3), 88–94. https://doi.org/10.55885/jmap.v2i3.230

Pereira, G. V., Luna-Reyes, L. F., & Gil-Garcia, J. R. (2020). Governance innovations, digital transformation and the generation of public value in Smart City initiatives. In *Proceedings of the 13th International Conference on Theory and Practice of Electronic Governance.* ACM. https://doi.org/10.1145/3428502.3428592

Popescu, C. R. G., & González, A. L. (2022). Digital Transformation Impact on Organizations' Culture and Employees' Motivation. In A. Batisha & C. R. G. Popescu (Eds.), *Practice, Progress, and Proficiency in Sustainability. Positive and Constructive Contributions for Sustainable Development Goals* (pp. 114–130). IGI Global. https://doi.org/10.4018/978-1-6684-7499-0.ch008

Radaelli, C. M. (2000). Policy Transfer in the European Union: Institutional Isomorphism as a Source of Legitimacy. *Governance*, *13*(1), 25–43. https://doi.org/10.1111/0952-1895.00122

Rêgo, B. S., Jayantilal, S., Ferreira, J. J., & Carayannis, E. G. (2022). Digital Transformation and Strategic Management: a Systematic Review of the Literature. *Journal of the Knowledge Economy*, *13*(4), 3195–3222. https://doi.org/10.1007/s13132-021-00853-3

Reis, L. C. D., Bernardini, F. C., Bacellar Leal Ferreira, S., & Cappelli, C. (2021). ICT Governance in Brazilian Smart Cities:: An Integrative Approach in the Context of Digital Transformation. *The 22nd Annual International Conference on Digital Government Research*, 302–316. https://doi.org/10.1145/3463677.3463682

Richards, K. A. R., & Hemphill, M. A. (2018). A Practical Guide to Collaborative Qualitative Data Analysis. *Journal of Teaching in Physical Education*, *37*(2), 225–231. https://doi.org/10.1123/jtpe.2017-0084

Runardotter, M., Chronéer, D., Lindberg, J., & Ståhlbröst, A. (2020). A Digital Society for All: A complicated endeavour. In *Proceedings of the 11th Nordic Conference on Human-Computer Interaction: Shaping Experiences, Shaping Society.* ACM. https://doi.org/10.1145/3419249.3421241

Ryan, G. W., & Bernard, H. R. (2003). Techniques to Identify Themes. *Field Methods*, *15*(1), 85–109. https://doi.org/10.1177/1525822X02239569

Schallmo, D., Williams, C. A., & Boardman, L. (2017). Digital Transformation of Business Models — Best Practice, Enablers, and Roadmap. *International Journal of Innovation Management*, *21*(08), 1740014. https://doi.org/10.1142/S136391961740014X

Scott, W. R. (1995). *Institutions and organizations. Foundations for organizational science*. SAGE. http://www.loc.gov/catdir/enhancements/fy0658/95010016-d.html

Scott, W. R. (2008). Approaching adulthood: the maturing of institutional theory. *Theory and Society*, *37*(5), 427–442. https://doi.org/10.1007/s11186-008-9067-z

Scott, W. R. (2009). *Institutions and organizations: Ideas and interests* (3. ed. [Nachdr.]. SAGE.

Semyachkov, K. (2020). Toolkit of Social Media in a Smart City Development, 263–270. https://doi.org/10.34190/ESM.20.020

Seuring, S., & Gold, S. (2012). Conducting content-analysis based literature reviews in supply chain management. *Supply Chain Management: An International Journal*, *17*(5), 544–555. https://doi.org/10.1108/13598541211258609

Siltaloppi, J., Koskela-Huotari, K., & Vargo, S. L. (2016). Institutional Complexity as a Driver for Innovation in Service Ecosystems. *Service Science*, *8*(3), 333–343. https://doi.org/10.1287/serv.2016.0151

Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, *104*, 333–339. https://doi.org/10.1016/j.jbusres.2019.07.039

Sousa, A. de, Henrique, Klein, L., & Bernardes Voese, S. (2022). The Impact of Institutional Pressures on the Use and Maintenance of E-Commerce in Brazilian Micro and Small Enterprises (MSEs). *Review of Business Management*, *24*(2), 366–382. https://doi.org/10.7819/rbgn.v24i2.4174

Sternberg, R., & Arndt, O. (2001). The Firm or the Region: What Determines the Innovation Behavior of European Firms? *Economic Geography*, *77*(4), 364–382. https://doi.org/10.1111/j.1944-8287.2001.tb00170.x

Suchman, M. C. (1995). Managing Legitimacy: Strategic and Institutional Approaches. *Academy of Management Review*, *20*(3), 571. https://doi.org/10.2307/258788

Tangi, L., Soncin, M., Agasisti, T., & Noci, G. (2021). Exploring e-maturity in Italian local governments: Empirical results from a three-step latent class analysis. *International Review of Administrative Sciences*, 002085232110127. https://doi.org/10.1177/00208523211012752

Teo, Wei, & Benbasat (2003). Predicting Intention to Adopt Interorganizational Linkages: An Institutional Perspective. *MIS Quarterly*, *27*(1), 19. https://doi.org/10.2307/30036518

Thornton, P. H., Ocasio, W., & Lounsbury, M. (2012). *The Institutional Logics Perspective*. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199601936.001.0001

Thorpe, R., Holt, R., Macpherson, A., & Pittaway, L. (2005). Using knowledge within small and medium-sized firms: A systematic review of the evidence. *International Journal of Management Reviews*, *7*(4), 257–281. https://doi.org/10.1111/j.1468-2370.2005.00116.x

Todorut, A. V., & Tselentis, V. (2018). Digital Technologies and the Modernization of Public Administration. *Journal of Management Systems*, *19*(165), 73–78.

Uzzi, B., & Spiro, J. (2005). Collaboration and Creativity: The Small World Problem. *American Journal of Sociology*, *111*(2), 447–504. https://doi.org/10.1086/432782

van der Hoogen, A., Fashoro, I., Calitz, A. P., & Luke, L. (2024). A Digital Transformation Framework for Smart Municipalities. *Sustainability*, *16*(3), 1320. https://doi.org/10.3390/su16031320

Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems*, *28*(2), 118–144. https://doi.org/10.1016/j.jsis.2019.01.003

Volberda, H. W., Khanagha, S., Baden-Fuller, C., Mihalache, O. R., & Birkinshaw, J. (2021). Strategizing in a digital world: Overcoming cognitive barriers, reconfiguring routines and introducing new organizational forms. *Long Range Planning*, *54*(5), 102110. https://doi.org/10.1016/j.lrp.2021.102110

vom Brocke, J., Simons, A., Niehaves, B., Riemer, K., Plattfaut, R., & Cleven, A. (2009). Reconstructing the giant: On the importance of rigour in documenting the literature search process. *ECIS 2009 Proceedings*(161).

Weber, P., Wyczisk, A., Patalon, M., & Borowicz, I. (2024). FROM IVORY TOWERS TO RURAL POWERS: HIGHER EDUCATION INSTITUTIONS AS KNOWLEDGE PARTNERS IN DIGITAL TRANSFORMATION. In L. Gómez Chova, C. González Martínez, & J. Lees (Eds.), *INTED Proceedings, INTED2024 Proceedings* (pp. 1521–1530). IATED. https://doi.org/10.21125/inted.2024.0441

Webster, J., & Watson, R. T. (2002). Analyzing the past to prepare for the future: Writing a literature review. *MIS Quarterly*, *26*(2). https://www.jstor.org/stable/4132319

Westerman, G., Bonnet, D [Didier], & McAfee, A. (2014). *Leading digital: Turning technology into business transformation*. Harvard Business Review Press.

Windolph, S. E., Harms, D., & Schaltegger, S. (2014). Motivations for Corporate Sustainability Management: Contrasting Survey Results and Implementation. *Corporate Social Responsibility and Environmental Management*, *21*(5), 272–285. https://doi.org/10.1002/csr.1337

Wooten, M., & Hoffman, A. J. (2008). Organizational fields: Past, present and future. In R. Greenwood, C. Oliver, T. B. Lawrence, & R. Suddaby (Eds.), *The SAGE Handbook of Organizational Institutionalism* (pp. 130–147). SAGE Publications Ltd.

Yudatama, U., Nazief, B. A. A., & Hidayanto, A. N. (2017). Benefits and barriers as a critical success factor in the implementation of IT governance: Literature review. In *2017 International Conference on ICT For Smart Society (ICISS)*. IEEE. https://doi.org/10.1109/ictss.2017.8288869

Zietsma, C., Groenewegen, P., Logue, D. M., & Hinings, C. R. (2017). Field or Fields? Building the Scaffolding for Cumulation of Research on Institutional Fields. *Academy of Management Annals*, *11*(1), 391–450. https://doi.org/10.5465/annals.2014.0052

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