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Exploring the Interplay of Digital Innovation and Digital Transformation

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Vorgelegt
von
Felicitas Kuch
aus
Stuttgart

"The secret of change is to focus all of your energy not on fighting the old,

but on building the new."

(Socrates, in Dan Millman's 'Way of the Peaceful Warrior')

Für meine Familie – Ihr seid die Besten!
Außerdem vielen Dank an alle Wegbegleiterinnen und Wegbegleiter.

Abstract

Digital technologies are reshaping individuals, organizations, industries, and society, thereby enabling digital innovation (DI) and digital transformation (DT). DI involves using digital technologies as a means or an end to create novel, value-adding solutions, while DT describes the comprehensive reconfiguration of strategies, structures, processes, and cultures within organizations enabled by digital technologies. Both DI and DT create new opportunities for value creation but also introduce complexities and challenges that organizations need to navigate. They blur organizational boundaries, alter business logics and value propositions, often fostering a rethinking of organizational strategies and operations. Further, digital infrastructures and platforms transform established systems and redefine interactions between actors of public as well as private organizations. These developments demonstrate that DI and DT are key drivers of change in the digital age across multiple levels.

Given this context, a more thorough understanding of DI and DT, their differentiation, and how they relate to each other is necessary. Although both concepts are widely discussed, their mutual influence is often ambiguous and insufficiently understood. Existing research frequently describes DI as either a driver of or a support for implementing DT. Yet it is also evident that DT affects which DIs are prioritized, how they are carried out, and how their value is perceived. Therefore, this dissertation considers DI and DT as separate yet interconnected phenomena. To examine their interplay, this study has two main goals: first, to explore how DI influences DT, and second, to analyze how DT impacts DI. Developing integrated knowledge about this relationship not only clarifies the concepts and reduces ambiguity but also lays the groundwork for stronger theories, methods, and practical strategies for managing the dynamic relationship between DI and DT.

The first research objective is explored through three research articles: Research Article #1 introduces the SmartSI Compass, a method for generating smart service ideas. Research Article #2 examines employee-GenAI collaboration during the ideation process, and Research Article #3 analyzes different roles of digital post systems in public administration. Collectively, these studies demonstrate how DI influences DT: DI *drives* DT by creating new value propositions (such as smart services) and it *realizes* DT by providing infrastructures and specific measures for implementation (such as digital post systems). The second research objective is also studied through three research articles: Research Article #4 investigates organizational purpose as a cultural foundation for managing tensions in DT. Research Article #5 explores resource orchestration within the context of boundary blurring in DI, and Research Article #6 presents VAMOS, a method for anticipating the value-in-use of smart services during early stages of DI. Together, these articles show how DT influences DI: DT *enables* DI by shaping the cultural and organizational conditions for innovation (e.g., through purpose), and it *directs* DI by setting priorities and allocating resources (e.g., via value-based assessment methods).

In summary, the studies use qualitative research methods such as case studies and design science research approaches to capture the socio-technical complexity of digital change. The empirical focus lies primarily on incumbents and traditionally product-focused companies, as these are contexts where the challenges of DI and DT are especially prominent. To ensure rigor and relevance, the developed methodological and conceptual knowledge was evaluated through applications in real-world settings and structured assessments against established criteria. Consequently, the six research articles contribute to both academic discourse and managerial practice. Primarily, this dissertation advances existing knowledge on the interplay of DI and DT by conceptualizing four mutual influences: *drive*, *realize*, *enable*, and *direct*. Additionally, it enhances the understanding of DI and DT individually, which involves developing descriptive knowledge to clarify the nature and mechanisms of shaping these phenomena, as well as prescriptive knowledge to offer actionable methods and frameworks for organizations to navigate digital change. Overall, it expands the current body of knowledge and provides practitioners with methods for idea generation, frameworks for human-AI collaboration, guidance on digital infrastructure design, strategies for value-based evaluation, approaches to resource orchestration, and insights into cultural foundations such as purpose.

Taken together, this dissertation demonstrates that DI and DT are not isolated or sequential processes but interconnected and mutually reinforcing. When thoughtfully designed and responsibly managed, they enable organizations to actively shape digital change, foster sustainable competitiveness, and build the foundations to create long-term value for stakeholders.

Table of Contents

List of Figures

List of Tables

Acronyms

AI	Artificial Intelligence
DI	Digital Innovation
DSR	Design Science Research
DT	Digital Transformation
EDDI	Employee-Driven Digital Innovation
GenAI	Generative Artificial Intelligence
IoT	Internet of Things
IS	Information Systems
ROAM	Resource Orchestration Actions for Managing boundary blurring
SmartSI	Smart Service Innovation
VAMOS	Value Assessment Method fOr Smart services

Writing assistance tools

Writing assistance tools (e.g., ChatGPT, DeepL, Grammarly) were used to enhance the clarity and readability of this dissertation. I take full responsibility for its content and have carefully reviewed, revised, and edited all parts to ensure accuracy and consistency.

1. Introduction

1.1 Motivation

Digital technologies profoundly reshape and influence individuals, organizations, industries, and society (Hund et al., 2021; Yoo et al., 2012). The speed and depth of these changes are unprecedented (Yoo et al., 2010) and lead to digital innovation (DI) and digital transformation (DT) (Oberländer et al., 2021; Weritz et al., 2024). DI describes the use of digital technologies to create new value propositions (Hund et al., 2021), while DT is the ongoing process of fundamental organizational change driven by digital technologies (Hanelt et al., 2021). Arising from DI and DT, individuals, organizations, or governments can profit from new opportunities but are also confronted with challenges. On the individual level, technologies such as artificial intelligence (AI) are fundamentally altering how people work, interact, and create value (Enholm et al., 2022; Jia et al., 2024). On the organizational level, DI blurs organizational and industrial boundaries, changes business logics, and enables new value propositions that are essential for long-term competitiveness (Hund et al., 2021; Nambisan et al., 2017). As a consequence, traditionally product-focused organizations are investing in smart, connected products and services that reconfigure entire business models (Struwe & Slepniov, 2023). For example, Caterpillar, a global manufacturer of construction machinery and heavy equipment, increasingly relies on digital services, with service revenues now making up 39% of its total machinery, energy, and transportation business (Brohan, 2025). On the industry and societal level, transformations are equally profound. For example, public administrations are implementing large-scale digital infrastructures, such as digital post and identity systems, which enhance digital service delivery and enable new forms of citizen-government interaction, but also transform administrative work (Amard et al., 2024; Pawlowski & Scholta, 2023). Taken together, these examples illustrate that DI and DT are drivers of systemic change across multiple levels.

Against this backdrop, the information systems (IS) domain carries a particular responsibility in the digital age, with many scholars emphasizing the need for renewed theorizing to better grasp the evolving role of digital technologies, innovations, and transformations in shaping organizations and society (e.g., Grisold et al., 2023; Yoo et al., 2012; Baiyere et al., 2020). Therefore, a more precise understanding of DI and DT is needed to delineate their role in shaping change. On the one hand, DI is defined "as the creation or adoption, and exploitation of an inherently unbounded, value-adding novelty (e.g., product, service, process, or business model) through the incorporation of digital technology" (Hund et al., 2021, p. 6). Leveraging the unique characteristics of digital technologies such as reprogrammability or convergence, DI creates new solutions and personalized customer experiences (Ciriello et al., 2018; Yoo et al., 2010). Existing research stresses that DI is inherently socio-technical, as well as distributed and combinatorial in nature (Beverungen et al., 2018; Ciriello et al., 2018). As such, DI involves not only the application of digital technologies but also the orchestration of multiple actors and resources (Hund

et al., 2021; Lokuge et al., 2025). Due to its generativity, i.e., the ability of digital technologies to enable continuous recombination and reconfiguration of resources, DI creates an unlimited innovation space for developing new or enhancing existing solutions (Vega & Chiasson, 2019; Yoo et al., 2010).

On the other hand, DT is defined as a "process that aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication, and connectivity technologies" (Vial, 2019, p. 121). Unlike DI, which focuses on discrete innovations, DT refers to the comprehensive reconfiguration of strategies, structures, processes, and cultures (Hanelt et al., 2021; Soluk & Kammerlander, 2021). DT leads to technological change but also organizational and institutional shifts expressed by, for example, an altered organizational identity, changed governance structures, and stakeholder relationships (Wessel et al., 2021). DT can be seen as a systemic, "ongoing process of strategic renewal" (Warner & Wäger, 2019, p. 338) requiring the development of new capabilities and strategies (Hess et al., 2016).

DI and DT present similar challenges and threats, as both involve complex socio-technical change requiring the orchestration of diverse actors, resources, and infrastructures (Baiyere et al., 2020). Organizations often struggle to manage the "growing landscape of digital initiatives" (Chanias et al., 2019, p. 17) while simultaneously navigating tensions between old and new elements, such as legacy systems versus emerging technologies (Drechsler et al., 2020). Environmental dynamics and constantly changing customer needs further intensify these challenges, requiring organizations to build upon and abandon existing knowledge while at the same time developing new knowledge and capabilities (Drechsler et al., 2020; Porter & Heppelmann, 2014).

The terms DI and DT are often mentioned side by side, and sometimes even used interchangeably. Limited research has explored the distinction and relationship between DI and DT, which remain ambiguous and are often discussed broadly rather than in detail (e.g., Drechsler et al., 2020; Hinings et al., 2018). Regarding differentiation, research highlights that DI and DT have different scopes: DI is described as a discrete, partial phenomenon, while DT is seen as comprehensive, systemic change. For example, Hund et al. (2021) describe DI as processes through which new ideas, products, and services are developed, whereas Vial (2019) frames DT as the integration of such innovations into organizational structures and societal systems. Concerning their relationship, many studies define DI as a component of DT (Wessel et al., 2021; Shen et al., 2021; Hanelt et al., 2021). For example, Hinings et al. (2018) define DI mainly as the creation of new value propositions (such as in the form of products, services, processes, or customer experiences), whereas DT refers to the "combined effects of several digital innovations bringing about novel actors (and actor constellations), structures, practices, values, and beliefs that change, threaten, replace, or complement existing rules of the game within organizations and fields" (Hinings et al., 2018, p. 52). Researchers like Vial (2019), Rouw et al. (2025), and Drechsler et al. (2020) view DI as a driving force behind change that triggers DT or for which answers are found during DT. Additionally, DI is considered an important success factor for DT, as related capabilities (e.g., networking, organizational agility, customer-centricity) assist in exploring market trends,

generating new ideas, and developing digital infrastructures necessary for implementing transformational efforts (Weritz et al., 2024).

The influence of DT on DI is usually subtle in existing research and can only be inferred between the lines. Baiyere et al. (2020) note that "Digital transformation is partly explained by the opportunities that the company sees in repositioning itself to leverage the potentials of creating digital innovations." (Baiyere et al., 2020, p. 248). From this, one can conclude that DT shapes which DIs emerge, how they are prioritized, and how they are ultimately utilized. Strategies developed within the realm of DT influence the deployment of digital technologies as well as the prioritization of projects and initiatives (Rouw et al., 2025; Vial, 2019; Warner & Wäger, 2019), which ultimately impacts DI (Kohli & Melville, 2019). Further, Wessel et al. (2021) define a changed organizational identity as an outcome of DT. Since DI is influenced by culture and business practices (Kohli & Melville, 2019), this organizational identity resulting from DT also affects DI. DT "oftentimes manifests itself in terms of the shift from linear value chains toward digital ecosystems that result from platform-based business model innovation" (Drechsler et al., 2020, p. 527), which promotes DI and influences how DI is thought and implemented. Lastly, the case study of Chanias et al. (2019) underlines that the introduction of a DT strategy elevated DI from a low organizational priority to a key instrument for realizing transformational goals.

In summary, previous research has not yet clearly defined how DI and DT interact, what impact DI has on DT and vice versa, and whether the relationship is reciprocal. Both theory and practice benefit from understanding how DI and DT relate to each other. From a theoretical perspective, analyzing the interplay of DI and DT eliminates conceptual ambiguity and brings clarity. This improved clarity enhances theories and methods while also deepening our understanding of DI and DT individually and how they reinforce each other. Meanwhile, practice must recognize the connection between DI and DT to align them intentionally and manage them more effectively. Based on previous research and identified gaps, this dissertation views DI and DT as distinct but interconnected phenomena that mutually influence each other. Specifically, two primary influences of DI on DT and two primary influences of DT on DI can be identified (see Figure 1) and are substantiated by the following research articles.

Influence DI → DT

- *DI drives DT*. DI acts as a trigger for DT by introducing new value propositions and digital technologies that, for example, foster customer interactions or enhance internal ways of working. DIs such as smart services often compel organizations to undertake deeper transformation, restructuring their strategies and operations.

- *DI realizes DT*. By creating digital artifacts, infrastructures, or processes, DI provides tangible measures for change. Therefore, DI supports the implementation of DT, carries out DT strategies, and puts them into practice to accomplish DT goals.

Influence DT → DI

- *DT enables DI*. It shapes the cultural and organizational context where DI takes place, providing the organizational foundation for DI to thrive. By fostering mindsets and developing capabilities that support innovation, DT affects how innovation is viewed, justified, and implemented.

- *DT directs DI*. DT strategies set priorities and allocate resources that decide which innovations are pursued. DT agendas thus offer top-down guidance for DI, ensuring that innovation efforts align with strategic goals.

Together, these four influences, i.e., *drive*, *realize, enable*, and *direct,* illustrate that DI and DT are not separate or sequential phenomena but dynamically intertwined processes. The interplay of these influences forms the foundation for understanding how organizations can navigate digital change effectively.
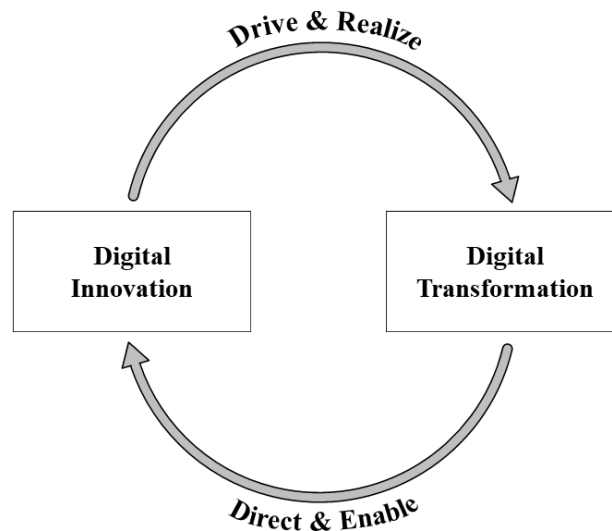
Figure 1. Influences of Digital Innovation on Digital Transformation and Vice Versa

Overall, two main observations motivate this dissertation. First, DI and DT can create new opportunities for value generation, innovation, and competitiveness. However, to fully unlock this potential, actors must overcome challenges related to complexity, uncertainty, and resource management, and they often lack clear guidance on how to address these challenges effectively. Therefore, a deeper understanding and development of both theoretical and practical knowledge about DI and DT individually are necessary. Second, the interplay of DI and DT remains mainly unexplored from a conceptual perspective. While previous research frequently highlights DI as a driver of DT, other viewpoints suggest that DT also fundamentally influences DI. This mutual relationship is seldom studied and needs cross-contextual investigation.

1.2 Research Objectives

The overarching objective of this dissertation is to advance knowledge on how organizations can shape change in the digital age (Grisold et al., 2023). This change is inherently tied to two interrelated phenomena: DI and DT. Both are critical for organizational competitiveness in an environment increasingly defined by technological disruption, shifting customer demands, and uncertainty. Yet, despite their relevance, both private and public organizations continue to face substantial challenges in understanding, implementing, and aligning DI and DT.

Prior research remains particularly vague about the mutual influences of DI and DT, creating conceptual ambiguity and limiting the effectiveness of both theoretical and practical insights. To address these challenges, this dissertation aims to synthesize findings across six research articles to theorize the reciprocal influences between DI and DT. Thereby, it pursues two research objectives: First, the dissertation seeks to build knowledge of the influence of DI on DT, showing how DI *drives* and *realizes* DT. Second, this dissertation identifies the influences of DT on DI, investigating how DT *enables* and *directs* DI. Rather than isolated processes, DI and DT are understood as embedded in organizational systems and ecosystems, where their interplay determines the trajectory of digital change.

In pursuing these objectives, the dissertation seeks to advance understanding of DI and DT by developing both descriptive and prescriptive knowledge. Descriptive knowledge creates conceptual clarity by explaining *what* phenomena occur and *why* (Gregor, 2006). For example, examining the impact of specific digital technologies, infrastructures, or framework conditions forms a theoretical foundation for cumulative knowledge development for DI and DT. Prescriptive knowledge, in turn, translates these insights into actionable guidance and methods, answering the *how* (Gregor & Hevner, 2013; Hevner et al., 2004). For instance, actionable methods supporting specific phases of DI and DT processes support practical decision-making and implementation. Together, descriptive and prescriptive knowledge ensure rigor and relevance by connecting theoretical understanding with practical application, which is particularly important in complex domains such as DI and DT. Consequently, this dissertation contributes to both academic discourse with new perspectives on DI and DT and to managerial practice by providing actionable frameworks for public and private organizations seeking to leverage DI and DT.

Figure 2 illustrates the dissertation's conceptual framework, which is based on insights from existing literature and drawn from cross-contextual and cumulative findings across the research articles. The framework places the papers within the two main research objectives, linking them to the identified influences: drive (RA#1, RA#2), realize (RA#3), enable (RA#4), and direct (RA#5, RA#6). The assignments reflect the primary contributions of each study within the framework.
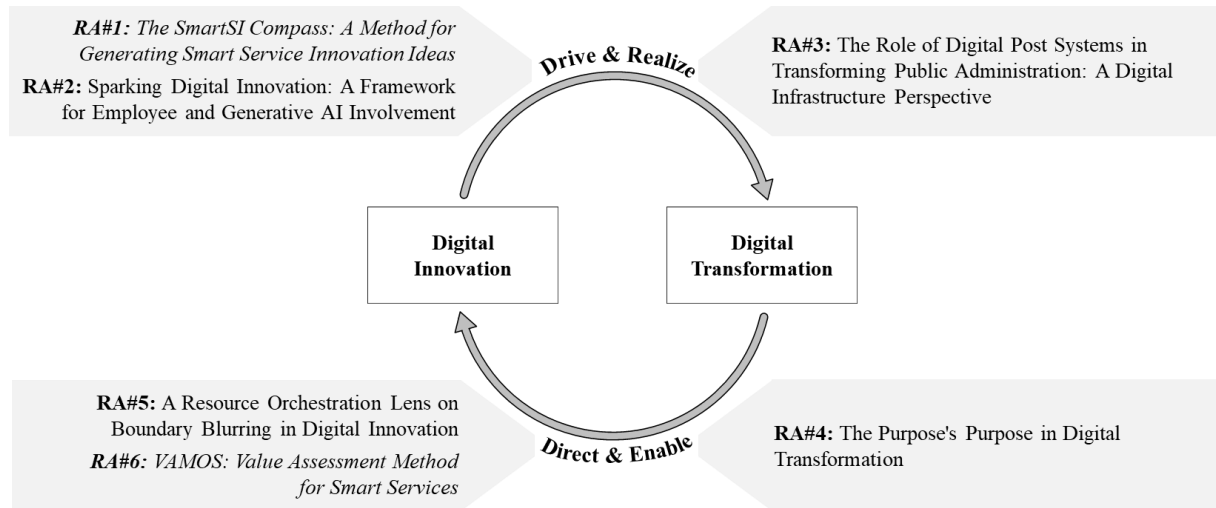
Figure 2. Assignment of the Research Articles to the Key Research Areas of this Thesis

Note. *Italics* indicate prescriptive knowledge; roman text indicates descriptive knowledge.

1.3 Structure of the Thesis and Embedding of the Research Articles

This dissertation comprises six research articles that are aligned with the objectives introduced in Section 1.2. Table 1 provides an overview of the research articles and their positioning within the dissertation. The remainder of this section outlines the overall structure of the dissertation.

Section 1 explains the relevance of DI and DT for the long-term success of private and public organizations, highlights research gaps regarding the mutual influence of DI and DT, and presents the two overarching research objectives. Section 2 targets the first research objective and examines how DI can *drive* and *realize* DT. Research Article #1 contributes prescriptive knowledge to the initiation phase of DI, illustrating how new value propositions, such as smart services, can *drive* DT. Research Article #2 offers descriptive insights into idea generation for DI, showing how employee-GenAI collaboration ultimately *drives* DT. Research Article #3 provides descriptive knowledge on the distinct roles that digital infrastructures can assume to *realize* DT in the public sector. Section 3 turns to the second research objective and the influence of DT on DI, focusing on how DT *enables* and *directs* DI. Research Article #4 develops descriptive knowledge on the link between purpose and DT, demonstrating that an overarching strategic vision or shared mindset provided by DT *enables* DI. Research Article #5 presents descriptive knowledge on the orchestration of resources and actors required for DI. Thereby, DT *directs* which resources are allocated and which DI initiatives are prioritized. Research Article #6 contributes prescriptive knowledge on value-based decision-making between smart service ideas, thereby exemplifying how DT *directs* prioritization within DI and shapes how value is defined.

Section 4 consolidates the main findings of the dissertation, highlights their theoretical and practical significance, and acknowledges limitations. Section 5 contains references, and Section 6, the appendix, offers an overview of the research articles, author contributions, and full article versions.

Table 1. Structure of the Thesis and Embedding of the Research Articles

1.	**Introduction**	
2.	**The Influence of Digital Innovation on Digital Transformation**	
2.1	New Value Propositions as *Drivers* of Digital Transformation	
	RA#1	**The SmartSI Compass: A Method for Generating Smart Service Innovation Ideas** *Kuch, F.; Lindenthal, A.-K.; Oberländer, A.M.; Cortenraad-Wenninger, A.; Buck, C.*
	RA#2	**Sparking Digital Innovation: A Framework for Employee and Generative AI Involvement** *Kuch, F.; Lane, C.; Oberländer, A.M.; Sauer, M.*
2.2	Innovative Digital Infrastructures to *Realize* Digital Transformation	
	RA#3	**The Role of Digital Post Systems in Transforming Public Administration: A Digital Infrastructure Perspective** *Kuch, F.; Jung, C.; Kreuzer, T.; Oberländer, A.M.; Maronna-Aigner, K.*
3.	**The Influence of Digital Transformation on Digital Innovation**	
3.1	Digital Transformation *Enables* Cultural Foundations for Digital Innovation	
	RA#4	**The Purpose's Purpose in Digital Transformation** *Kuch, F.; Lazar, A.; Oberländer, A.M.; Thuer, L.*
3.2	Digital Transformation *Directs* Decision-making for Digital Innovations	
	RA#5	**A Resource Orchestration Lens on Boundary Blurring in Digital Innovation** *Grüneke, T.; Kuch, F.; Kreuzer, T.*
	RA#6	**VAMOS: Value Assessment Method for Smart Services** *Jonas, C.; Kuch, F.; Oberländer, A.M.*
4.	**Conclusion**	
5.	**References**	
6.	**Appendix**	

2. The Influence of Digital Innovation on Digital Transformation

As outlined in Section 1, prior research has already indicated connections between DI and DT. Building on this foundation, the present section focuses on the influences of DI on DT and examines two primary influences: DI can *drive* DT by initiating new customer interactions through innovative products or services (Hinings et al., 2018), and it can *realize* DT by, e.g., providing digital infrastructures required to implement DT (Weritz et al., 2024).

These influences are examined across three research articles in the following. Section 2.1 presents Research Article #1, which develops prescriptive knowledge on how new value propositions, such as smart services, act as *drivers* of DT. Additionally, Section 2.1 includes Research Article #2, which provides descriptive insights into the role of employee-GenAI collaboration during DI idea generation, which also *drives* DT. These studies also advance knowledge on DI itself, particularly the complex initiation phase (Kohli & Melville, 2019; Marx et al., 2020), by contributing conceptual as well as methodological knowledge to the identification of opportunities and to support the generation of ideas. Section 2.2 presents Research Article #3 that explores the role of digital infrastructures in *realizing* DT in the public sector context. Beyond illustrating how DI implements DT, the article advances understanding of DI and digital infrastructures as an outcome of DI. It extends the view of DI into the public sector, where infrastructures create unique opportunities and constraints (e.g., strict regulations) for innovation (Lindgren et al., 2019).

Each of the three research articles is introduced and summarized below. First, the rationale for its assignment to one of the identified influences (i.e., *drive*, *realize*) is briefly explained. Subsequently, the motivation and research question, methodological approach, key findings, and theoretical as well as practical contributions are summarized. For more detailed information, including the full articles and supplementary materials, please refer to the appendix.

2.1 New Value Propositions as *Drivers* of Digital Transformation

Research Article #1 contributes to the understanding of DI in the form of smart services as a *driver* of DT (Drechsler et al., 2020; Hinings et al., 2018; Vial, 2019). By introducing new value propositions based on digital technologies, smart services initiate and accelerate organizational transformation and structural change (Ebel et al., 2022). Positioned as product-service-systems, smart services offer manufacturing companies opportunities to innovate within their ecosystem and to reconfigure their business models towards DT (Anke et al., 2020; Marx et al., 2020).

Research Article #1 targets developing smart service innovations that fit an organization's context, product portfolio, and resources while also meeting customer needs. This is a major challenge, particularly for product-oriented organizations that struggle with the new logic of digital servitization

and with building the necessary capabilities (Baines et al., 2009; Koldewey et al., 2020). From an innovation process perspective, idea generation is a critical yet poorly understood phase (Kohli & Melville, 2019), and existing approaches, e.g., known from product-focused innovation, are insufficient to address the complexity of smart service innovations (Henfridsson et al., 2014; Wiesböck et al., 2020). Although IS research has provided valuable insights into smart service innovations, existing knowledge is fragmented, often focused on design rather than initiation, and lacks accessible, practice-oriented guidance (Heinz & Anke, 2023; Marx et al., 2020). Against this backdrop, Research Article #1 addresses the following research question: *How can organizations systematically generate smart service innovation ideas?*

As a result, Research Article #1 synthesizes and extends methodological knowledge by developing the *SmartSI Compass*s, a method to systematically support smart service idea generation. The method was developed and evaluated based on a Design Science Research (DSR) approach (Gregor & Hevner, 2013; Venable et al., 2016) combined with consortium research (Österle & Otto, 2010). The consortium was composed of four manufacturing organizations. The manufacturing industry faces complex challenges related to DI, such as a shift toward digital servitization or the legacy of product-centric innovation structures. Alongside empirical insights, the *SmartSI Compass* draws from and synthesizes current knowledge around smart services, DI, and idea generation (Beverungen et al., 2019; Kohli & Melville, 2019; Paukstadt et al., 2019; Yoo et al., 2010). The *SmartSI Compass*s provides practical step-by-step guidance for generating smart service ideas in a structured and resource-efficient manner. It consists of four activities and five smart service innovation dimensions (see Figure 3).

The five smart service innovation dimensions (i.e., customer, service, product, organization, digital infrastructure) were derived from three relevant perspectives (i.e., technological, value creation, systems perspective) and serve as a theory-based structure underlying the method: The organization dimension addresses internal resources, while the service and product dimensions capture existing or future offerings that act as carriers of value propositions. The customer dimension focuses on customers and their needs. Within the *SmartSI Compass*, the status quo, challenges, and opportunities of these dimensions are examined as different starting points of the method, providing structured guidance for idea generation. The digital infrastructure dimension includes technological infrastructure, data, and software, enabling combinatorial innovation and serving as a connector between components and actors within smart services. Taken together, the five dimensions represent the key actors and components of smart service innovations, ensuring a holistic perspective and forming the foundation for developing viable ideas (Beverungen et al., 2019; Marx et al., 2020).
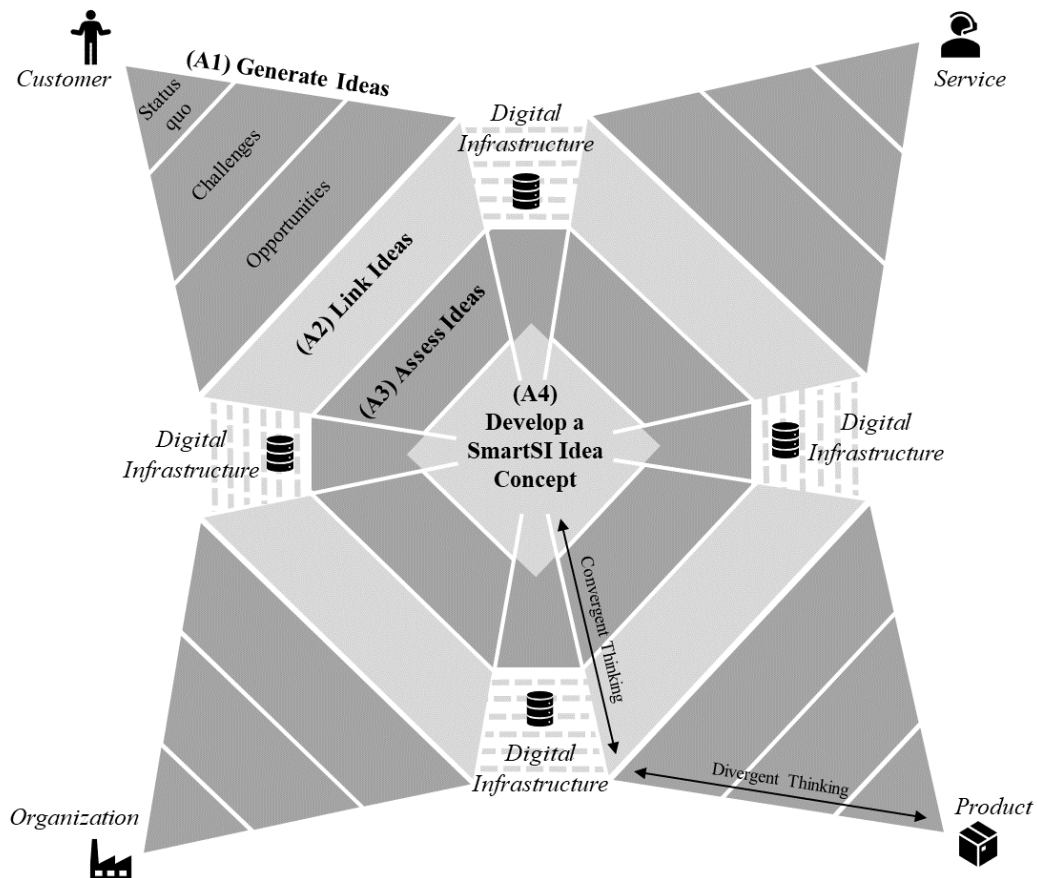
Figure 3. Overview of the *SmartSI Compass*

Note. AX refers to Activity X of the SmartSI Compass. Customer, service, product, organization, and digital infrastructure refer to the smart service dimensions from technological, value creation, and systems perspectives.

The four activities guide users systematically from idea generation to concept development. Activity 1 stimulates creativity by collecting information and generating ideas across four smart service dimensions (i.e., customer, product, service, organization), while also considering first links to digital infrastructure. Activity 2 expands these ideas by combining them with technological opportunities and linking ideas and dimensions through the digital infrastructure dimension. Activity 3 introduces a first evaluation step, where ideas are scored against defined criteria to enable prioritization. In Activity 4, the most promising ideas are further developed into concrete concepts. Together, the activities alternate between divergent and convergent thinking, fostering creativity while ensuring structured progress, with opportunities for iteration throughout the process (Cropley, 2006). To ensure a repeatable execution of the activities of the method, the research article provides defined roles, outputs, techniques, and tools, as well as details on the execution for each activity (Braun et al., 2005) (see Table 2).

Table 2. Overview of the *SmartSI Compass'* Activities

Activities (i.e., tasks of the method)	Techniques (i.e., detailed instructions how to execute activities)	Tools (i.e., means supporting execution of activities)	Roles (i.e., actors executing activities)	Outputs (i.e., results of activities)
Activity 1: Generate Ideas	- Derive ideas along the dimensions customer, product, service, and organization - Consider the status quo, challenges, and opportunities for each dimension	- Smart service dimensions - Guiding questions - (Online) Whiteboard and template	- Project team, i.e., project leader and project members - (Optional: external experts)	Compilation of information and longlist of ideas based on existing resources, products, services, and customer's needs
Activity 2: Link Ideas	- Reconsider the ideas of A1 - Develop ideas based on the digital infrastructure dimension - Find linkage opportunities between these ideas with the help of the digital infrastructure dimension - Identify connected and comprehensive smart service innovation ideas	- Guiding questions - (Online) Whiteboard and template	- Project team - (Optional: external or internal IT experts or members of digitalization initiatives)	Shortlist of comprehensive ideas
Activity 3: Assess Ideas	- Select criteria appropriate for the organization - Assess to which extent the comprehensive ideas of A2 fulfill the criteria - Create a ranking and select the most promising idea(s) for further development	- Guiding questions - Assessment template - Evaluation criteria	- Project team - (Optional: Controlling, Senior Executive)	Assessed and prioritized shortlist of comprehensive ideas
Activity 4: Develop a SmartSI Idea Concept	- Create an initial idea concept for the idea(s) selected in A3 including a summary, next steps, and definition of responsibilities	- Guiding questions - Smart service dimensions - Idea concept template	- Project team - (Optional: Senior Executive)	Idea concept as a structure to pursue (i.e., develop and implement) the idea(s) selected in A3

The *SmartSI Compass* advances DI and smart service research with prescriptive knowledge, contributing in two ways: it extends methodological knowledge by addressing the critical initiation phase of DI and synthesizing fragmented insights into a validated method for smart service idea generation (Heinz & Anke, 2023; Kohli & Melville, 2019). Thereby, generating innovative value propositions based on recombining resources and ideas is encouraged and highlighted as being crucial for smart service innovation (Beverungen et al., 2018). Further, the method integrates technological, value creation, and systems perspectives to derive five key smart service innovation dimensions, i.e., customer, service, product, organization, and digital infrastructure (Beverungen et al., 2019; Dreyer et al., 2018; Geum et al., 2016). These dimensions serve as theoretical anchors for idea generation. From a managerial perspective, the *SmartSI Compass* provides step-by-step guidance that helps organizations reduce uncertainty, align smart service ideas with their specific context, and strengthen competitiveness. By explicitly incorporating digital infrastructure as both a source of inspiration and a connector for resources and actors, it enables managers to identify opportunities for combinatorial innovation and to systematically develop promising smart service ideas.

In sum, smart services illustrate the shift in value creation logics in the digital age, moving toward value co-creation that emerges through the interplay of physical and digital components and the collaboration of multiple actors (Beverungen et al., 2019). As such, smart service offerings represent innovative value propositions that entail transformational efforts and *drive* DT.

Research Article #2 also focuses on the initiation phase of DI but approaches it from a different angle. While the *SmartSI Compass* provides methodological guidance for generating smart service ideas, Research Article #2 develops a descriptive framework that highlights how employees and GenAI can jointly contribute to ideation. By distinguishing different involvement types, the article emphasizes the roles of both humans and technology in co-creating ideas and value propositions. In this way, the framework illustrates how DI can *drive* DT by enabling more effective, technology-supported idea generation.

The study is motivated by the fact that organizations are under increasing pressure to leverage digital technologies for innovation, yet the early ideation phase of DI remains highly complex and has received limited scholarly attention (Kohli & Melville, 2019; Nambisan et al., 2017). While employee-driven digital innovation (EDDI) emphasizes the unique knowledge and creativity of employees (Opland et al., 2022), and GenAI offers unprecedented potential to enhance ideation (Bäckström & Lindberg, 2019), research has so far treated them largely in isolation. In recent years, GenAI has captured the interest of DI research (e.g., Haefner et al., 2021; Johnson et al., 2022) as a game-changer for more effective and efficient problem-solving, capable of extending or substituting human capabilities in innovation activities (Füller et al., 2022; Gama & Magistretti, 2023). Combining EDDI and GenAI opens up new opportunities to strengthen idea generation, improve employee engagement, and counteract challenges such as disengagement and "quiet quitting" (Clifton, 2023). However, incumbents in particular lack guidance on how employees and GenAI should interact during ideation. Accordingly,

Research Article #2 poses the following research question: *How can employees and generative artificial intelligence interact during ideation in incumbents?*

In response, a qualitative interview study was carried out (Schultze & Avital, 2011). The data was collected through semi-structured interviews with twenty experts, including employees and managers from global incumbents, as well as IS scholars (Myers & Newman, 2007). These insights were complemented with literature on GenAI and EDDI, providing the foundation for developing the Employee-GenAI Involvement Framework (Gioia et al., 2013; Wolfswinkel et al., 2013). The framework (see Figure 4) distinguishes three types of involvement: Employee-Driven Ideation, Employee-GenAI Co-Creation, and GenAI-Driven Ideation. It illustrates the respective roles of employees and GenAI, along with key drivers and barriers in the ideation process.

In *Employee-Driven Ideation*, employees take the lead in innovation, drawing on their expertise, creativity, and alignment with organizational goals. GenAI plays a supportive role, enhancing decision-making with data-driven insights and helping overcome creative barriers such as the "blank page" problem. While human empathy, intuition, and social connections remain central, AI complements by boosting analytical capacity and broadening knowledge access. Within *Employee-GenAI Co-Creation,* ideation emerges from a balanced collaboration: employees contribute contextual understanding and creativity, while GenAI provides analytical support and reveals novel connections. Success depends on employees' AI literacy, intuitive and accessible GenAI tools, and an organizational culture open to experimentation. This partnership democratizes ideation, engaging a broader pool of employees and fostering higher-quality ideas. Finally, *GenAI-Driven Ideation* shifts the balance toward AI leadership. GenAI takes the primary role in generating ideas, with employees acting mainly as supervisors who validate and align outputs with organizational goals. GenAI agents automate and accelerate ideation by analyzing vast datasets and producing concepts at scale, while employees provide oversight, ethical guidance, and strategic framing. Challenges arise from employee resistance, compliance issues, and AI's limited contextual grounding. As such, Research Article #1 explores the complementary roles of employees and GenAI as well as their interactions in initiating DI. The interview results reveal a trajectory in which the ideation process evolves from human-led to co-created and increasingly AI-driven, especially when organizations grow familiar with GenAI's value and opportunities.

As for contributions and implications, Research Article #2 advances DI research by shedding light on the underexplored initiation phase (Kohli & Melville, 2019) and demonstrating how GenAI can support ideation (Jia et al., 2024). It proposes a typology of three involvement types, thereby integrating employee, GenAI, and organizational perspectives. The study reconceptualizes the role of technology in ideation, positioning GenAI not only as a supportive tool but also as a potential autonomous ideation agent, thus extending theory at the intersection of DI, EDDI, and AI. For practitioners, the paper introduces the Employee-GenAI Involvement Framework, offering guidance on how incumbents can structure ideation processes by selecting suitable involvement types. It highlights key drivers and barriers, enabling managers to balance creativity, efficiency, and employee engagement.

Emphasis on Employee Involvement			Emphasis on GenAI Involvement
Types of Involvement	**Employee-Driven Ideation**	**Employee-GenAI Co-Creation**	**GenAI-Driven Ideation**
Role — GenAI	Enhancer	Collaborator	Leader
Role — Employee	Leader	Collaborator	Enhancer
Drivers — Employee perspective	**Empowered alignment** Allowance to access GenAI tools and spend time on ideation.	**AI literacy** Appropriate knowledge, skills, and attitude to use AI tools.	**Architectural design** Ability to create and maintain the technology ecosystem.
Drivers — GenAI perspective	**Momentum builder** Selection of ideas from GenAI makes the start of ideation easier.	**User-centric iteration** Accessibility features such as simple, easy, and intuitive application.	**Flexibility to change** Ability to handle complexity and speed of change.
Drivers — Incumbent perspective	**Relational dynamics** Dynamics and culture that foster networking and ideation.	**Adaptive organization** Company culture that is willing to adapt to all TOE environments.	**Management commitment** Willingness to invest in capabilities of people and tools.
Barriers — Employee perspective	**Capacity constraints** Lack of time, tools, and/or energy to engage in ideation.	**Technology readiness** Reluctance to adopt and trust new technologies.	**Role evolution resistance** Struggle as some tasks will completely disappear, and new ones will emerge.
Barriers — GenAI perspective	**Context gap** Lack of information due to poor prompting or lack of knowledge management.	**Quality inconsistencies** Poor input, output, or model quality can mean tools are not used.	**Cognitive capabilities** Inadequate model size and architecture to handle various data streams.
Barriers — Incumbent perspective	**Knowledge attrition** Specialized information gets lost as employees disengage or leave.	**Stagnant ecosystem** Preference for stability and a no-risk attitude.	**Digital compliance** Struggle to adhere to security, privacy, and regulatory requirements.
Examples	Employee is stuck in the blank-page state and develops an idea for a new robot by prompting a question with a context description and receives novel ideas from GenAI.	Employee iterates on an idea for a new robot with GenAI-simulated personas (line workers, contractors, management, etc.) as sparring partners to rapidly prototype.	GenAI performs an autonomous competitor analysis on other companies and develops ideas to fill market gaps. Human oversight enhances the ideas that fit into the company's TOE environments.

Figure 4. Employee-GenAI Involvement Framework

In sum, Research Article #2 showcases the potential of employee-GenAI collaboration as a source of organizational renewal. The interaction between humans and technology enables the generation of DI ideas that *drive* DT.

2.2 Innovative Digital Infrastructures to *Realize* Digital Transformation

Research Article #3 focuses on the role of digital infrastructures in *realizing* DT (Rouw et al., 2025). Building on prior research that highlights the need for new infrastructures to implement DT (Henfridsson & Bygstad, 2013), this research article extends the discussion by focusing on digital post systems and how they shape the trajectory of DT. Thereby, this study complements the other research articles in the dissertation by expanding the perspective beyond private-sector incumbents and manufacturing organizations, offering insights into the public sector where different institutional logics, governance structures, and legitimation requirements apply. This dual focus allows the dissertation to provide a richer account of how DI and DT unfold across different contexts.

Public administrations face rising expectations for transparency, responsiveness, and citizen engagement, making DT a strategic priority rather than a mere technical upgrade. An important but often overlooked enabler of DT is digital post systems, which provide secure communication between citizens and administrations and integrate with other infrastructural components (e.g., digital identity systems) (Eom & Lee, 2022; Weichselberger, 2025). While research on digital communication exists, the infrastructural role of digital post systems in enabling and shaping DT remains underexplored (Berger et al., 2016). Examining digital post systems offers the opportunity to uncover how digital infrastructures materially and organizationally enact DT in public administration and to provide guidance for countries at varying stages of digital maturity. Therefore, Research Article #3 addresses the following research question: *How do digital post systems contribute to the digital transformation of public administration?*

To answer this question, the article employs a case study design (Yin, 2017). The case study involved the analysis of digital post systems in Denmark, Estonia, and Germany, drawing from 21 semi-structured interviews (Myers & Newman, 2007) and publicly available data. By applying a digital infrastructure lens (Henfridsson & Bygstad, 2013; Tilson et al., 2010) and integrating insights from public administration, the study identifies three distinct roles these systems can assume in supporting the DT of the public administration, as well as the underlying mechanisms of the three roles.

The roles include digitization enabler, process integrator, and ecosystem catalyst (Table 3). The *digitization enabler* addresses mainly isolated steps, concentrating on converting paper-based communication and documents into digital formats. It thus provides a step toward modernization while leaving the underlying process structures largely unchanged (Berger et al., 2016; Janowski, 2015). The *process integrator* extends this logic by facilitating seamless, end-to-end digital workflows that span entire public service processes and often cross institutional boundaries (Jansen & Ølnes, 2016; Løberg, 2021). The *ecosystem catalyst* enables novel forms of service delivery and process logics by interlinking a network of actors (public, private, and civil society) and by embedding digital post systems into a broader landscape of e-government infrastructures (Janowski, 2015; Weichselberger, 2025). Such an ecosystem perspective is indispensable, as information systems in the public sector evolve toward interconnectedness and mutual dependence (Henfridsson & Bygstad, 2013; Weichselberger, 2025).

23

Table 3. Overview of the Three Roles of Digital Post Systems in Digital Transformation

Role	Description	Importance of generative mechanisms*	Example
Digitization Enabler	Digital post system replaces analog post with secure digital delivery.	Adoption: High Innovation: Low Scaling: Not needed Legitimation: High	Replacement of the delivery of the housing benefit application by post with a digital message sent from the digital post system.
Process Integrator	Digital post system streamlines interactions within public services, enabling end-to-end digital processing of public services by integrating processes and systems.	Adoption: High Innovation: Middle Scaling: Low Legitimation: High	Interface from the digital post system, so that applications can be uploaded directly to the e-file and assigned to the correct administrative employee.
Ecosystem Catalyst	Digital post system supports interaction across institutions, platforms, and citizen identities, thereby supporting platform logic and network effects.	Adoption: High Innovation: High Scaling: High Legitimation: High	A proactive message is automatically sent and triggered by the digital post system to apply for housing benefit. This message contains an already pre-filled form, as interfaces enable data exchange.

Note. *Importance indicates how much the mechanism is needed as a prerequisite for the role.

The underlying mechanisms of the three roles are innovation, adoption, scaling, and legitimation. The first three mechanisms are adapted from prior research primarily focused on private sector organizations (Henfridsson & Bygstad, 2013) and transferred to the public sector. The mechanism of legitimation is newly developed and introduced as specific to the public sector. All mechanisms are enablers needed for digital post systems to achieve their supposed contribution to DT. *Adoption* refers to the actual use of digital post systems by citizens and administrations, which attracts additional resources and service integrations, thereby enhancing their utility and reinforcing further adoption. *Innovation* captures the discovery and implementation of new development opportunities for digital post systems. *Scaling* describes the extension of the system's reach through the integration of additional services, administrations, and user groups, broadening its overall impact. These mechanisms are interdependent and often reinforce one another, e.g., when innovations facilitate adoption. *Legitimation* provides the institutional foundation for the role fulfillment of digital post systems by ensuring political, legal, and organizational support. In the public sector, legitimation is less about economic motives (Kiwi et al., 2025) and more about aligning infrastructures with democratic values, transparency, and societal acceptance (Baxter et al., 2023; Kiwi et al., 2025). Within digital post systems, legitimation is thus essential for securing credibility and sustaining long-term adoption, innovation, and scaling.

Table 4. Description of the Four Generative Mechanisms Adapted to Public Administration

Mechanism	Description
Adoption	(1) Citizens and administrations use the digital post system. (2) High usage attracts more users and resources to enhance the digital post system, enabling the integration of additional digital public services into the system. (3) More integrated services increase the usefulness of the digital post system for citizens and administrations → (1)
Innovation	(1) Usage of the digital post system by citizens and administrations reveals potential for improvement or new ways of using it. (2) Due to its interoperable design, the functionalities of the digital post system can be adapted, and new interfaces can be created, etc. (3) These adaptions, recombinations, and creative processes enable technical (e.g., interfaces to connect systems) and organizational (e.g., adaption of workflows) innovations, leading to new digital public services and an enhanced or transformed digital post system → (1)
Scaling	(1) The digital post system attracts participants outside the initial scope and target group (i.e., citizens and administration). (2) Access is provided so that these participants (e.g., technology provider) or their services can be added to the digital post system. (3) New solutions and users expand the reach of the digital post system, creating further incentives for collaboration → (1)
Legitimation	(1) Public administration stakeholders (e.g., political leaders, administrative decision-makers, citizens) assess whether the digital post system aligns with societal values, legal standards, and institutional expectations (e.g., responsible use of public funds). (2) If legitimation is established, it can enable critical support and establishment of structures: political endorsement, legal mandates (e.g., opt-out regulations), and strategic prioritization, all of which facilitate adoption, innovation, and scaling. (3) Conversely, visible benefits (e.g., increased citizen use, improved public service delivery) and tangible public value generated by the digital post system can reinforce its legitimation and strengthen its institutional standing → (1)

Research Article #3 advances research on DT, public administration, and IS in three ways. First, it conceptualizes digital post systems as having three distinct roles in supporting the DT in public administration (see Figure 5). Second, by applying a digital infrastructure lens, it employs interdisciplinary research at the intersection of IS and public administration. It reframes digital post systems from simple communication channels to digital infrastructures embedded in ecosystems. Third, the article extends prior work on generative mechanisms by introducing *legitimation* as a public-sector-specific mechanism with political, legal, and structural dimensions. For practitioners, the framework provides guidance on how to strategically position and develop digital post systems within DT agendas. Public administrations are encouraged to expand their view beyond just secure communication to recognize strategic roles and untapped potential. They should also define a clear strategic direction for DT to align infrastructure roles with DT goals and carefully choose a development trajectory (e.g., incremental progress or leapfrogging) through which these roles can be pursued.
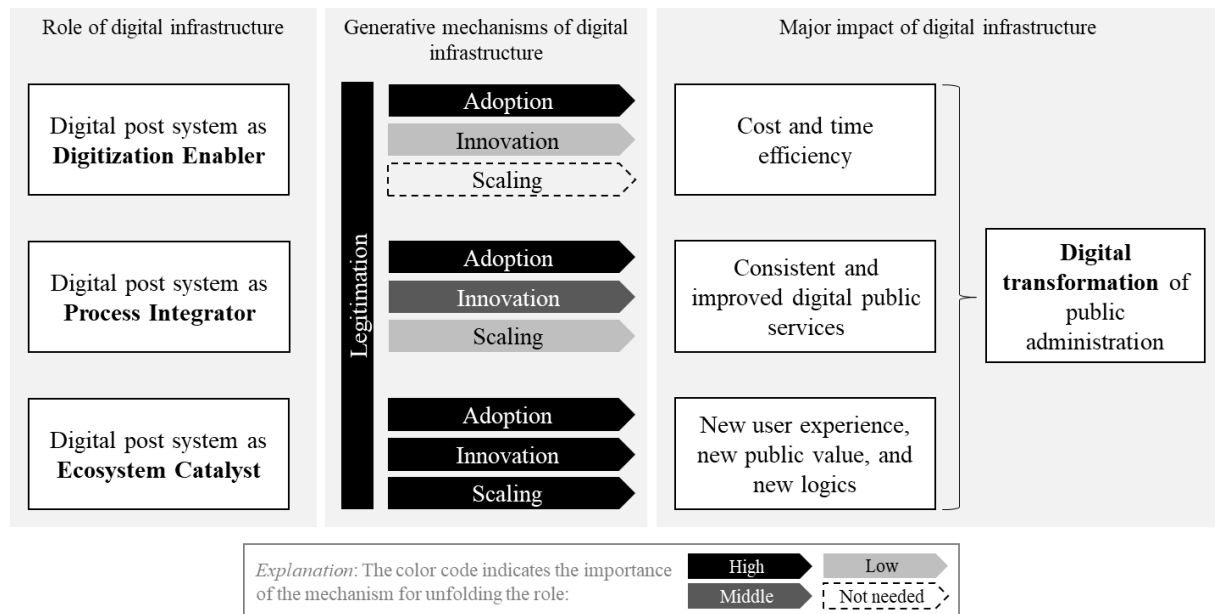
Figure 5. Summary of Case Study Results

In sum, DI in the form of large-scale infrastructures (such as digital post systems) provides the technical and organizational foundation for DT in the public sector. By analyzing how digital post systems shape communication, interaction, and organizational change in public administrations, Research Article #3 shows how DIs are crucial to *realize* DT.

Taken together, the three research articles provide different but complementary perspectives on how DI influences DT. Methodologically, they combine design-oriented, conceptual, and empirical approaches, yielding prescriptive method development along with descriptive theory-building across both the private and public sectors. They extend knowledge on DI by examining methodological support and employee-GenAI collaboration during its initiation phase, as well as the potential of digital infrastructures in supporting DT. As such, they show that DI not only triggers and *drives* DT through new value propositions but also *realizes* it through the creation of socio-technical systems that foster digital change.

3. The Influence of Digital Transformation on Digital Innovation

The influence of DT on DI is less explicitly addressed in existing literature. Previous studies suggest that DT shapes DI by repositioning organizations, defining strategic priorities, and influencing which innovations emerge, how they are implemented, and how value is perceived (Baiyere et al., 2020; Rouw et al., 2025; Vial, 2019). Organizational identity, culture, and the shift toward digital ecosystems are further outcomes of DT that affect DI (Drechsler et al., 2020; Wessel et al., 2021). Building on these insights, this dissertation identifies two influences: DT can *enable* innovation by creating shared visions, cultures, and internal preconditions that foster innovation, and it can *direct* DI by steering resource allocation and project prioritization.

These mechanisms are examined in three research articles in the following sections. Section 3.1 introduces Research Article #4, which develops descriptive knowledge on the role of organizational purpose in DT, showing how strategic vision *enables* DI. The study enriches the understanding of DT by highlighting that organizational and individual purposes have the capacity to resolve tensions and shape transformation processes. Section 3.2 presents Research Article #5 that analyzes resource orchestration, which is needed to develop DIs. Resource allocation decision within the realm of DT *directs* which DI initiatives are pursued. Lastly, Research Article #6 provides prescriptive knowledge on value-based decision-making between smart service ideas, illustrating how DT defines and *directs* DI priorities. The study advances knowledge on DI by demonstrating that a fundamental shift from cost-based to value-based logics is critical for guiding organizational change.

Again, each of the three research articles is assigned to the influences *enable* and *direct*. They are briefly summarized regarding motivation, method, key findings, and contributions, with further details provided in the appendix.

3.1 Digital Transformation *Enables* Cultural Foundations for Digital Innovation

Research Article #4 examines how DT *enables* DI by creating a normative and cultural foundation for innovation activities. DT often creates tensions between established practices and emerging digital opportunities (Drechsler et al., 2020; Metzler & Muntermann, 2021), which can impede the acceptance and realization of DI. To address these tensions, organizations require cultural mechanisms that align actors and guide activities. Purpose fulfills this role by acting as a "north star" that shapes organizational identity, provides orientation, and enables employees to engage with DI within broader DT efforts (Bitzer et al., 2021).

The research article is motivated by the fact that DT is widely recognized for its potential to reshape industries and accelerate innovation, but is also accompanied by tensions that threaten its success (Soh et al., 2019; Svahn et al., 2017). Despite technological advances, people's resistance to change remains

the most significant barrier to DT, highlighting the need for cultural mechanisms that can guide organizations through DT and DI (Block, 2022). Purpose, understood as the underlying reason for the existence and action of individuals and organizations (van Ingen et al., 2021; Warriner, 1965), has been shown to foster openness to change, strengthen identification, and align stakeholders beyond profit goals (George & Schillebeeckx, 2022; Linnabery et al., 2013). While both DT and purpose have been extensively studied in isolation, little is known about how purpose enables and shapes DT. Accordingly, this article investigates the following research question: *How does purpose influence the digital transformation of a company?*

Towards this endeavor, a comparative case study including semi-structured interviews at two companies was conducted (Myers & Newman, 2007; Yin, 2017). Both companies are incumbent organizations, whereas company A is a manufacturing organization operating in the consumer goods industry and company B conducts its business in the information and communication technology sector. As a result, two purposes (i.e., organization-centric and individual-centric purposes) and propositions regarding their influence on DT and related tensions emerged (see Figure 6 for an overview).

The *organization-centric purpose* is the fundamental reason for the organization's existence, the driving force behind its actions (van Ingen et al., 2021), and remains stable across the entire organization. As such, this purpose supports communication within the organization and provides direction for DT on an organizational level. Therefore, the article proposes that the organization-centric purpose directs DT and, in turn, is supported by DT (e.g., when the DT agenda aligns with and gears towards achieving the purpose). The *individual-centric purpose* reflects the meaning and reason individuals assign to their lives and organizational roles, resulting in variations across the organization. It enables DT on an individual level, as this purpose encourages individual reflection. Therefore, the article proposes that the individual-centric purpose enables DT and can be integrated in DT (e.g., when the DT agenda encourages individual actions to advance DT in line with the individual-centric purpose). In sum, both purposes alleviate DT tensions, and the article suggests that they are mutually reinforcing by jointly contributing to the success of DT.
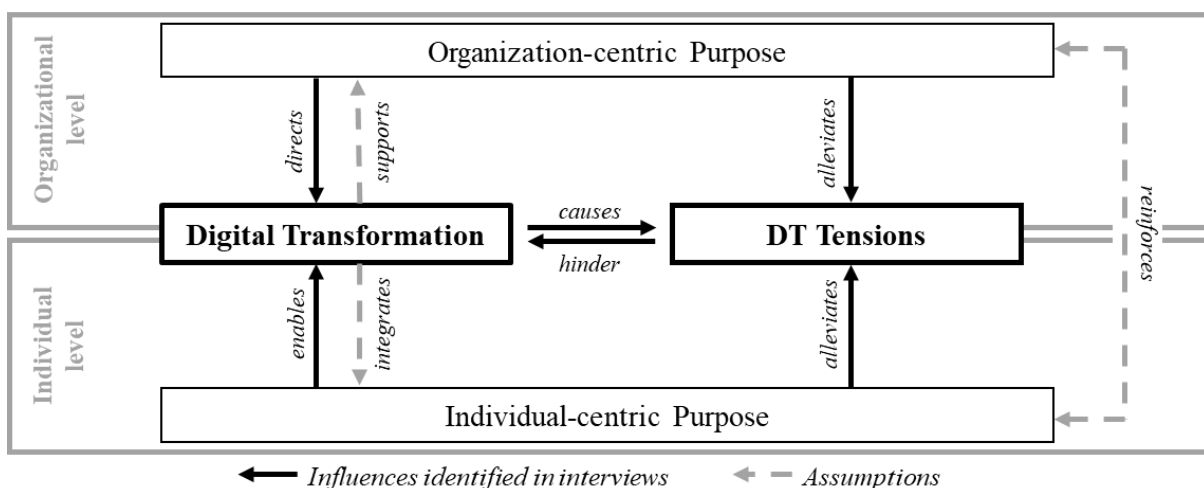
Figure 6. Connection between DT, DT Tensions, and Purpose

Research Article #4 offers two contributions to theory. First, while prior research has predominantly emphasized the organizational perspective, this article analyzes purpose at both the organizational and individual levels (Henderson & van Steen, 2015; Hollensbe et al., 2014). Second, the article explored how purposes on both levels shape tensions in DT and offers initial insights into its role in enabling successful DT. In doing so, the existing gap in research on how purpose influences DT is addressed (Bitzer et al., 2021, George & Schillebeeckx's 2022). Further, the findings offer guidance for practitioners on how purpose can be introduced at both the organizational and individual levels and how it helps address DT tensions. An organization-centric purpose can serve as a unifying communication tool and strategic compass for DT initiatives, while an individual-centric purpose fosters stronger employee identification with the organization and supports alignment with transformation goals.

In sum, this study emphasizes the importance of purpose in the context of DT for addressing people-related challenges. It demonstrates that DT not only reshapes strategies and processes but also empowers organizations to integrate DI through a shared sense of meaning and values, i.e., DT *enables* DI by providing a normative and cultural foundation.

3.2 Digital Transformation *Directs* Decision-Making for Digital Innovations

Research Article #5 focuses on the fact that DIs inherently blur traditional boundaries, and organizations must orchestrate both internal and external resources to manage this complexity. As such, DT requires organizations to restructure internal processes and mobilize resources across organizational and industry boundaries. DT strategy prescribes how resources are allocated and how DIs are prioritized, shaping how boundary blurring can be actively managed. By analyzing these dynamics, the research article illustrates how DT *directs* resource orchestration for DI.

The research article is motivated by the observation that DI's characteristics, such as convergence and distributed agency, blur organizational boundaries (Hund et al., 2021; Lucas & Goh, 2009; Nambisan et al., 2017). Boundary blurring is defined as "[b]orders between previously clearly demarcated entities or fields […] becoming increasingly permeable" (Hund et al., 2021, p. 9). On the one hand, boundary blurring expands the digital opportunity space and enables broader access to and exchange of resources (Drechsler et al., 2019; Oberländer et al., 2021). On the other hand, it makes DI a complex, interdisciplinary endeavor that requires collaboration across internal departments and external partners, often challenging traditional structures and control mechanisms (Svahn et al., 2017; Yoo et al., 2010). Current literature offers little guidance on how organizations can actively shape boundary blurring. It is often depicted as an inevitable side effect of DI (Hund et al., 2021; Lyytinen et al., 2016; Nambisan et al., 2017), with limited clarity on its meaning or on how it might be managed through resource orchestration. Resource orchestration involves processes that enable the mobilization, integration, and deployment of resources to execute strategic moves for competitive advantage (Sirmon et al., 2011). Against this backdrop, the article examines the following question: *"How can companies manage the blurring of organizational boundaries in digital innovation through resource orchestration?"*

To answer the question, a two-step research approach was chosen. First, a structured literature review (Okoli, 2015; Wolfswinkel et al., 2013) summarizing findings on DI and resource orchestration in the context of blurring boundaries was conducted. This literature review gave rise to the development of three components of boundary blurring, i.e., operators, enablers, and controllers. These three components represent how boundary blurring can be managed. *Operators* carry out the active work of making boundaries permeable through the combination, exchange, and mobilization of internal and external resources. *Enablers* establish the cultural and technical foundations that allow such activities to take place and sustain the efforts of operators. *Controllers* define the overarching strategic parameters within which operators and enablers act, setting guardrails and evaluation mechanisms to secure alignment with objectives and contribution of outcomes to strategic goals.

As a second step, two companies were examined in the course of a case study (Yin, 2017). Semi-structured interviews with company A, one of the largest public insurance providers in Germany, and company B, a provider of construction technology and building supply, contributed to the understanding of the components of boundary blurring (Myers & Newman, 2007; Schultze & Avital, 2011). Additionally, case study insights yielded 27 specific Resource Orchestration Actions for Managing boundary blurring (ROAM), i.e., nine ROAMs per component. These ROAMs characterize the three components, demonstrate how each component manifests in practice, and are mapped to the processes and subprocesses of resource orchestration (Sirmon et al., 2007). As examples, Table 4 presents the ROAMs associated with the operators.

Table 5. ROAMs of the Operator Component

RO	ID	ROAMs observed in practice
Structuring	O1	*Acquiring* external resources as an opportunity for innovations and extension of the internal resource base (company A, B)
	O3	*Accumulating* internal knowledge by composing a project team with interdisciplinary resources needed for digital innovation (company A, B)
	O9	*Divesting* internal knowledge no longer needed to free resources for other value-adding activities (company A)
Bundling	O8	*Stabilizing* the internal knowledge base by keeping acquired and accumulated resources up to date (company A, B)
	O5	*Enriching* new ideas with information from internal and external stakeholders, such as internal IT experts or customers (company A, B)
	O4	*Pioneering* new ideas based on internal knowledge and external impulses. (company A, B)
Leveraging	O6	*Mobilizing* capabilities needed via installed functions skilled to compose capabilities (company A)
	O2	*Coordinating* capabilities needed via functions skilled to facilitate and moderate internal and external collaboration (company A, B)
	O7	*Deploying* digital innovations by combining internal and external capabilities to produce innovative value propositions (company A, B)

Figure 7 summarizes the insights at the intersection of DI, boundary blurring, and resource orchestration: Operators (light-grey triangles) mobilize both digital and non-digital resources within the organization. These resources flow upward into the bundling tier, where operators recombine them into new digital capabilities (dark-grey triangles), and further into the leveraging tier, where fully formed DIs emerge (combinations of triangles). The diagonal arrows between tiers represent the role of enablers such as cultural mechanisms (e.g., innovation days) and technical architectures (e.g., modular platforms) that ensure resources can move and recombine smoothly. Cutting vertically across all tiers, the orange band highlights the zone of boundary blurring, where resources cross organizational boundaries. Selecting context-specific ROAMs enables operators, enablers, and controllers to be aligned and configured in a way that ensures their actions are both effective and strategically appropriate.
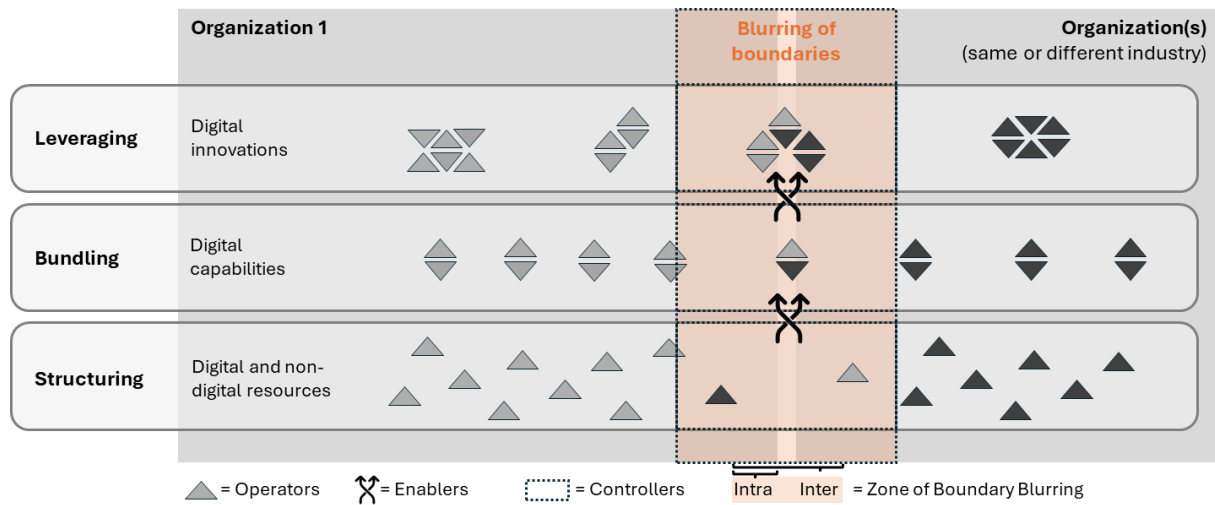
Figure 7. Framework Synthesizing Research Results and Interrelations

Research Article #5 advances research on DI and resource orchestration by reframing boundary blurring as an active and manageable process. First, it integrates insights from DI, boundary blurring, and resource orchestration into a unified framework of operators, enablers, and controllers, providing a structured lens to analyze boundary blurring. Second, it reconceptualizes boundary blurring as an active resource orchestration task, showing how the specific ROAMs support the deliberate management and configuration of boundaries. Third, it extends resource orchestration theory to the DI context, demonstrating how resources are dynamically structured, bundled, and leveraged across organizational and ecosystem boundaries in response to emerging technologies and competitive pressures. For practitioners, the study highlights that managing boundary blurring is a strategic capability for DI and DT. Managers can use the operators, enablers, controllers, and corresponding ROAMS as a toolbox of resource orchestration actions to tailor boundary management to their context and effectively develop DIs. Further, the findings suggest that boundary blurring should be institutionalized, for example through dedicated roles like a boundary manager, to ensure continuous oversight, coordination, and alignment of cross-boundary resource flows within a consistent DT strategy.

In line with other research articles of this dissertation, this study underlines that value creation through DI no longer stems from isolated offerings but from the integration of multiple resources and a network of actors. In this sense, a corresponding DT strategy prescribes how resources are allocated to support DIs, thereby *directing* DI.

Research Article #6 examines how DT *directs* DI by shaping which innovations are prioritized and implemented. Aligning DI with broader transformational objectives is essential for long-term success (Weritz et al., 2024). As DT alters the perception of value, new evaluation logics that reflect emerging business models are required. For smart services in particular, value-in-use becomes decisive, as their benefits unfold only through interaction in ecosystems and stakeholder use (Kohtamäki et al., 2019; Vargo et al., 2008). The article provides prescriptive knowledge for traditionally product-focused companies transitioning toward digital services, showing that success in DT requires not just generating DIs but directing them toward user needs and value creation. In this way, DT not only fosters DIs but also strategically steers their evaluation and realization.

This research article acknowledges that smart services are reshaping traditional product-centered business models, creating personalized value-in-use for diverse stakeholders (Kohtamäki et al., 2019; Langley et al., 2021). Value-in-use is defined as the benefit stakeholders can derive from using a smart service in a specific context (Frey et al., 2020; Grönroos & Voima, 2013; Macdonald et al., 2011). Unlike tangible products whose value is embedded when produced and that can be sold through a one-time payment, smart services rely on interactions between providers and stakeholders, requiring organizations to not just manage the sale but also the continuous performance of smart services (Khanra et al., 2021; Macdonald et al., 2011). Anticipating this value-in-use early in the DI process enables informed investment decisions and ensures that only the most promising initiatives advance (Dahl et al., 2023). Especially industrial, traditionally product-focused companies struggle with the complexity of assigning value to the smart service (Piepponen et al., 2022). Existing research highlights the importance of value-in-use but offers limited methodological guidance, leaving a gap that this paper seeks to address by answering the following research question: *How can industrial companies systematically assess the anticipated value-in-use of smart services?*

In response, the research article presents the **v**alue **a**ssessment **m**ethod **fo**r **s**mart services (VAMOS), supporting industrial companies to assess the anticipated value-in-use of smart services in early DI stages. VAMOS was developed following the DSR paradigm and the process of Peffers et al. (2007), combined with situational method engineering (Gregor & Hevner, 2013; van Aken, 2004). The development drew on four categories of foundational knowledge: (1) conceptual knowledge on the nature of smart services and (2) the concept of value-in-use, (3) methodological insights on smart service development, and (4) value-oriented methods for other types of DI. The Framework for Evaluation in Design Science Research (Venable et al., 2016) guided further refinement, demonstration, and evaluation of the method in four real-world applications with product-oriented industrial organizations: M1, a car wash manufacturer in a B2B2C value chain; M2, a producer of kitchen appliances for thermal

food preparation in a B2B setting; M3, a multinational glass manufacturer serving B2B customers in automotive, consumer electronics, and healthcare; and M4, a global B2B provider of industrial robots, factory automation systems, and complementary services.

VAMOS is structured into three activities (see Figure 8). *Activity 1* establishes the basis for subsequent activities by developing a detailed understanding of the smart service in question, its value chain, involved stakeholders, and the organizational context. *Activity 2* focuses on defining relevant value categories and levers for each stakeholder. In *Activity 3*, these levers are examined and quantified, allowing the calculation of the overall anticipated value-in-use of the smart service. By decomposing value-in-use into distinct value categories and levers as well as incorporating perspectives of multiple stakeholders, the method addresses the inherent complexity and context-dependency of smart services. For each activity, specific method elements (i.e., roles, outputs, techniques, and tools) are defined (Braun et al., 2005) to ensure practical applicability and repeatable execution of the activities. Comprehensive information on the activities and elements of the method can be found in Appendix A.9.
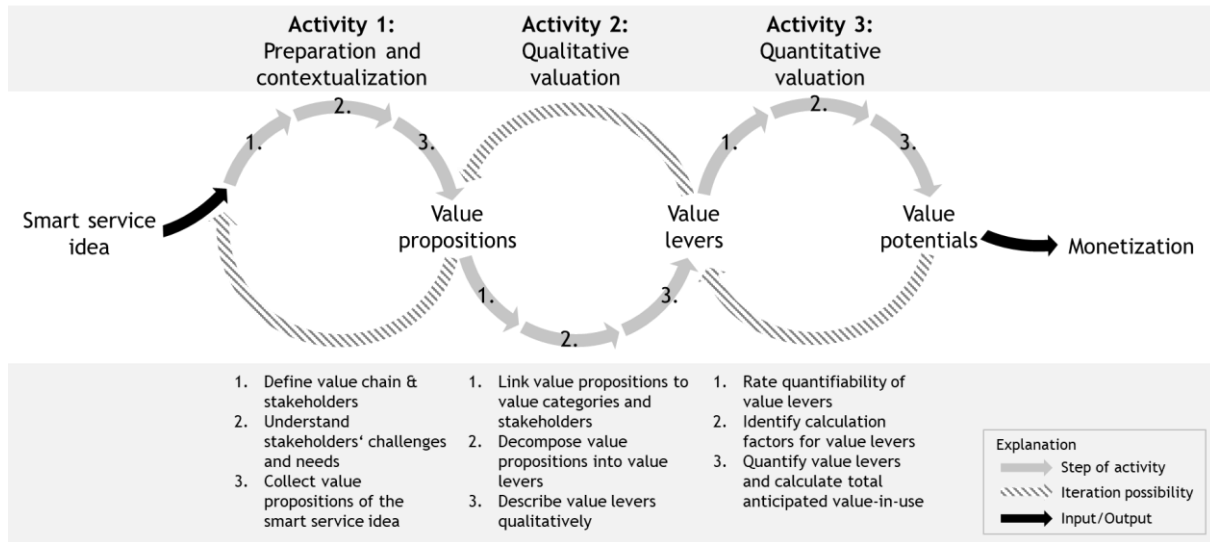
Figure 8. Overview of VAMOS

With VAMOS, Research Article #6 advances three research streams. First, it contributes prescriptive and methodological knowledge to the initiation phase of DI and early-stage innovation decisions. By emphasizing stakeholder benefits rather than costs, it offers a more suitable basis for guiding and evaluating DI (Grubic, 2014; Kowalczuk & Hof, 2025). As such, VAMOS represents a nascent design theory in line with Gregor and Hevner's (2013) DSR contribution types (see Table 5). Second, VAMOS extends digital servitization research by showing how anticipating value-in-use can serve as a strategic capability for organizations transitioning from product-centric to service-centric logics, offering empirical evidence from multiple industrial contexts. Third, it enriches service-dominant logic by moving beyond abstract conceptualizations of value-in-use and offering a concrete method to systematically assess and apply it, thus bridging theory and practice. For practitioners, VAMOS delivers a hands-on, smart-service-specific method to evaluate and prioritize innovation ideas early in the DI

process. It encourages a necessary shift from cost-based to value-based thinking, helping organizations communicate benefits and create a foundation for more informed investment and monetization decisions.

Table 6. Research Summary Structured According to the Components of Design Theory

Components as per Jones and Gregor (2007)	Interpretation for VAMOS
(1) Purpose and scope	VAMOS is a method that supports industrial companies in assessing the anticipated value-in-use of smart services in early innovation stages.
(2) Constructs	Three overarching activities specified by method elements that are common in situational method engineering structure VAMOS.
(3) Principles of form and function	Three design objectives derived from the literature, combined with method attributes required by situational method engineering, describe the design of VAMOS.
(4) Artifact mutability	Openness for the selection of specific value categories and dimensions, as well as individual prioritization and possibilities for iteration, make the method adaptable to different situations and environmental changes.
(5) Testable propositions	VAMOS is validated against the criteria of ease of use, usefulness, efficiency, generality, and operationality suggested by Sonnenberg and vom Brocke (2012) to evaluate methods.
(6) Justificatory knowledge	Method fragments from methods and theories from digital innovation, value-in-use, and smart service research form the basis for the design of VAMOS.
(7) Principles of implementation	Specification of the context and project type in which VAMOS is to be used and description of the application procedure illustrate how VAMOS can be implemented.
(8) Expository instantiation	Provision of a template supporting the implementation of the method. Other instantiations, such as a software prototype or similar, are not available.

In sum, Research Article #6 emphasizes that DT changes value creation logics and new approaches are needed to assess value and set priorities. These value creation logics and prioritizations induced by DT guide and *direct* DI.

Collectively, the three research articles provide insights into the influence of DT on DI. Using a mix of qualitative, empirical, and design-oriented methods, they present both descriptive and prescriptive findings about this influence. They expand knowledge on DI and DT by revealing cultural foundations, resource orchestration dynamics, and value-based decision-making logics. These complementary perspectives emphasize that DT is not only a technological effort but also a cultural and strategic one: it *enables* DI by establishing shared meanings, values, and internal capacities that foster innovation, and *directs* DI by guiding decision-making, resource orchestration, and prioritization.

4. Conclusion

4.1 Summary

DI and DT are key drivers of change in the digital age. They are crucial for both public and private organizations because they significantly influence strategies, processes, and interactions across industries and society. They provide unprecedented opportunities but also present complex challenges that require coordinating diverse actors, resources, and infrastructures. DI promotes the development of new value propositions or business models through digital technologies, which are characterized by reprogrammability, convergence, and generativity, and inherently involve socio-technical collaboration. DT is a continuous process of organizational and strategic adaptation and renewal that redefines structures and cultures. Although DI and DT are often mentioned interchangeably, research shows that there is a difference. Most studies highlight DI as a driver of DT by enabling new value propositions, infrastructures, and capabilities. However, indirect evidence suggests that DT also enables and directs DI by shaping strategies, priorities, and cultural contexts. This dissertation views DI and DT as distinct yet interconnected phenomena that influence each other reciprocally.

Driven by the importance of DI and DT for organizations and the limited conceptual clarity regarding their interrelationship, this dissertation pursues two primary research objectives. First, it seeks to deepen the understanding of the influence of DI on DT. Second, it aims to clarify the influence of DT on DI. These research objectives are addressed through six research articles that illustrate four identified influences (*drive*, *realize*, *enable*, *direct*) and contribute both descriptively and prescriptively to theory. Research Article #1 contributes a method to support the idea generation of smart service innovations (*SmartSI Compass*). It illustrates how new value propositions *drive* DT. The *SmartSI Compass* is an Improvement as contribution type (Gregor & Hevner, 2013) and represents a first step towards a Type V theory for design and action in line with Gregor's (2006) theory types. Research Article #2 contributes a framework with three distinct types of employee-GenAI involvement that can drive DI ideation. The framework adds descriptive knowledge to DI research, more precisely EDDI, and applies a GenAI lens on ideation. The article highlights how technology-based support enables employees to carry out EDDI activities effectively, ultimately *driving* DT. Research Article #3 focuses on digital infrastructures as specific manifestations of DI crucial for *realizing* DT. It identifies three roles of digital post systems as well as underlying generative mechanisms supporting the complex task of public administration digital transformation. As such, descriptive knowledge is contributed to the domains of IS and public administration. Research Article #4 extends the existing knowledge base on DT and DT tensions by introducing two types of purpose. These purposes have the capacity to alleviate DT tensions and contribute to DT success. This article underlines that DT sets the cultural foundation for DI, influencing how DI is perceived and therefore *enabling* DI. Research Article #5 provides three components of boundary blurring in DI and specific resource orchestration actions that can be taken to manage boundary blurring. This article contributes descriptive knowledge to the DI and resource orchestration

field, highlighting that DT sets priorities for resource mobilization and thereby *directs* DI. Research Article #6 provides the VAMOS method as a nascent design theory in line with Gregor and Hevner's (2013) DSR contribution types. This method guides anticipation of value-in-use for smart services in early phases of the DI process and contributes to the body of knowledge on DI, digital servitization, and service-dominant logic. The article highlights that DT changes the perception of value and entails new evaluation and prioritization logics, ultimately *directing* DI.

In sum, this dissertation contributes to several current themes of DI and DT as identified by existing IS research. For example, the research articles highlight the need for specific organizational forms for DT and DI (e.g., Research Article #2) and add to the understanding of digital infrastructures as key elements in digital systems (e.g., Research Article #3) (Baiyere et al., 2020; Hund et al., 2021; Nambisan et al., 2019; Yoo et al., 2012). Research Article #4 addresses organizational determinants such as digital identity and culture, which are critical for the success of DI and DT (Hund et al., 2021; Vial, 2019; Wessel et al., 2021). Research Article #5 shows how DI redefines boundaries (Ciriello et al., 2018; Hund et al., 2021; Piccoli et al., 2022), resulting in structural changes and new value creation paths, while also demonstrating that these processes must be steered through strategic action and leadership (Hanelt et al., 2021; Svahn et al., 2017; Weritz et al., 2024; Wessel et al., 2021). Research Article #1 and Research Article #6 underscore that DIs, such as smart services, shift business logics toward digital servitization (Langley et al., 2021) and call for methodological approaches that reflect emerging value creation logics (Beverungen et al., 2019; Kohtamäki et al., 2019). Finally, the research articles contribute to different phases of the DI process (Kohli & Melville, 2019). For example, Research Articles #1 and #2 address the initiation phase by supporting the generation of ideas, whereas the resource orchestration perspective in Research Article #5 is especially useful in the development and implementation phases.

Taken together, the dissertation combines descriptive and prescriptive insights to shape organizational change in the digital age, while covering a wide range of theory types that open multiple avenues for future theoretical development. This dissertation shows that DI and DT are not linear processes but are instead mutually reinforcing. The included research articles shed light on different aspects of this interplay, which highlights a paradigm shift from viewing innovation as a single event to understanding innovation and transformation as part of an interconnected system of ongoing change.

4.2 Limitations and Future Research

While this dissertation offers new insights into the relationship between DI and DT, several overarching limitations must be acknowledged. At the same time, these limitations create opportunities for future research. Details about the limitations and potential future research directions for each specific research article can be found in the appendix.

First, this dissertation and the research articles mainly highlight the positive and supportive influences of both DI and DT, while potential negative feedback loops, tensions, or unintended consequences are not examined in depth. For example, Research Article #3 emphasizes the benefits of digital post systems,

yet possible drawbacks such as increased workload for administrative staff or risks of exclusion are equally plausible and could be explored (Berger et al., 2016; Løberg, 2021). Similarly, the potentially negative aspects of the interplay between DI and DT have not been investigated. Collaboration challenges among actors involved in DI, for instance, could reasonably undermine the success of DT (Anke et al., 2020). Future research should therefore investigate how DI and DT can be governed and aligned to maximize positive outcomes while reducing unintended effects. This thesis offers a starting point for more comprehensive analyses of these reciprocal influences and their dependencies. Another avenue for future research concerns the strong focus on new elements arising from DI and DT in previous studies, including this thesis. However, innovation and transformation depend not only on new digital elements but also on reconfiguring and revaluing "old" components such as legacy systems, established processes, and deep-rooted cultural practices (Metzler & Muntermann, 2021). Future research should explore how organizations can balance integrating new DI with transforming existing structures and processes.

Second, DI and DT are highly dynamic domains. As digital technologies and organizational practices evolve, the validity of frameworks and artifacts may be temporally bounded (Hund et al., 2019; Tilson et al., 2010). This dynamism opens up fertile ground for future research, for example by examining how evolving work practices call for new forms of early-stage innovation support (Research Articles #1 and #6), how advances in AI reshape employee involvement in ideation (Research Article #2), or how digital infrastructures take on new roles in DT processes (Research Article #3). Although this dissertation provides valuable and enduring insights, ongoing research is essential to adapt and expand the results so that studies on DI and DT remain aligned with emerging realities and evolving technological and organizational developments.

Third, the empirical settings of this dissertation are diverse but largely centered on incumbents and traditionally product-focused manufacturing companies (e.g., Research Articles #1, #2, #6). This focus provides valuable contextual depth but also limits the transferability of findings to other sectors and organizational types (Lee & Baskerville, 2003). To broaden applicability, future research should examine how the developed frameworks and methods translate into other contexts such as the public sector, retail, craft businesses, or start-ups. For example, applying VAMOS (Research Article #6) in non-industrial settings could test its suitability for service-oriented or public organizations, while exploring GenAI and EDDI involvement types in the public sector would be especially insightful given heightened sensitivities around data, ethics, and service provision (Hemesath & Tepe, 2024). In addition, the dissertation primarily relies on qualitative data and case-based research designs. Although interviews enabled rich insights and the development of prescriptive knowledge, the interpretive nature of qualitative approaches and the contextual sensitivity of DSR limit generalizability. To ensure rigor, the developed artifacts were thoroughly evaluated, for example, using the criteria of Sonnenberg and vom Brocke (2012) as well as the Framework for Evaluation in Design Science Research by Venable et al. (2016). Nevertheless, future research should extend and further evaluate the frameworks and methods

across a broader range of contexts and with complementary approaches such as longitudinal case studies, quantitative analyses, or large-scale empirical applications. Such efforts would strengthen robustness and generalizability while confirming their relevance beyond the primarily studied contexts.

Finally, several promising avenues for future research remain. One concerns the role of soft factors such as culture, routines, and contextual conditions. For instance, further studies could examine how the methods and frameworks developed in this dissertation can be embedded into organizational routines and applied by different employees (Opland et al., 2022). Addressing cultural and human dimensions of DI and DT may broaden contextual awareness and yield actionable insights for more effective development and implementation. In addition, DI and DT are closely connected to adjacent domains such as sustainability, resilience, and workforce transformation. Future research could therefore expand the scope by investigating these interfaces and cross-cutting themes, offering a more holistic understanding of change. Another opportunity lies in exploring integrated DI and DT management programs. While DT strategy is already an established research field, systematically linking it to DI management could enrich academic theorizing.

4.3 Concluding Remarks

Yoo et al. (2010, p. 725) observed that "we have only seen the early forms of such digitized products, and therefore can only dimly observe the forms of the emerging organizing logic of digital innovation". They were convinced that "a new exciting era will dawn to the IS community as it continues to make sense of the role of digital technology in human enterprise." Fifteen years later, this outlook still resonates. DI and DT continue to unfold in ways that bring new dynamics, challenges, and opportunities, and they remain at the core of IS research. We are indeed in the midst of this "exciting era," and with this dissertation, I seek to contribute to its advancement. By providing research articles that enrich understanding of DI and DT and offer new impulses to reflect on the interplay of DI and DT, I hope to inspire the research community to further explore DI and DT in public and private organizations and provide guidance for organizations to navigate change in the digital age.

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A. Appendix – Overview of Research Articles

A.1 Index of Research Articles Included in this Dissertation

Research Article #1: The SmartSI Compass: A Method for Generating Smart Service Innovation Ideas

Kuch, F., Lindenthal, A.-K., Oberländer, A.M., Cortenraad-Wenninger, A., Buck, C. (2024). The SmartSI Compass: A method for generating smart service innovation ideas. *Information & Management*, *61*(5), Article 103965. https://doi.org/10.1016/j.im.2024.103965

(VHB-24[1]: B, VHB-JQ3[2]: B)

Research Article #2: Sparking Digital Innovation: A Framework for Employee and Generative AI Involvement

Kuch, F., Lane, C., Oberländer, A.M., Sauer, M. (2025). Sparking Digital Innovation: A Framework for Employee and Generative AI Involvement. In *Proceedings of the 46th International Conference on Information Systems,* Nashville.

(VHB-24: A, VHB-JQ3: A)

Research Article #3: The Role of Digital Post Systems in Transforming Public Administration: A Digital Infrastructure Perspective

Kuch, F., Jung, C., Kreuzer, T., Oberländer, A.M., Maronna-Aigner, K. (2026). The Role of Digital Post Systems in Transforming Public Administration: A Digital Infrastructure Perspective. *Government Information Quarterly, 43,* Article 102110. https://doi.org/10.1016/j.giq.2026.102110

(VHB-24: B, VHB-JQ3: B)

Research Article #4: The Purpose's Purpose in Digital Transformation

Kuch, F., Lazar, A., Oberländer, A.M., Thuer, L. (2024). The Purpose's Purpose in Digital Transformation. In *Proceedings of the 32nd European Conference on Information Systems,* Paphos.

(VHB-24: A, VHB-JQ3: B)

Research Article #5: A Resource Orchestration Lens on Boundary Blurring in Digital Innovation

Grüneke, T., Kuch, F., Kreuzer, T. A Resource Orchestration Lens on Boundary Blurring in Digital Innovation. Under review: *Outlet hidden due to the double-blind review process of the journal*.

(VHB-24: B, VHB-JQ3: B)

Research Article #6: VAMOS: Value Assessment Method for Smart Services

Jonas, C., Kuch, F., Oberländer, A.M. (2026). VAMOS: Value Assessment Method for Smart Services. *Journal of Business Research, 207*, Article 115961. https://doi.org/10.1016/j.jbusres.2025.115961

(VHB-24: B, VHB-JQ3: B)

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[1] VHB-24: VHB Publication Media Rating 2024
[2] VHB-JQ3: VHB-JOURQUAL3

A.2 Index of Further Research Articles

Alongside the work presented in this dissertation, I contributed to further research articles and studies. They are listed below, but are not included in the dissertation.

- Jung, C., Kuch, F., Kühnel, T., Kreuzer, T., Lamm, L., Maronna-Aigner, K., Oberländer, A.M., Tuljus, J. (2025). Zentrales digitales Postsystem – Dreh- und Angelpunkt einer modernen, öffentlichen Verwaltung: Analyse der Gestaltungsoptionen und des Mehrwerts eines zentralen digitalen Postsystems für die öffentliche Verwaltung. https://publica.fraunhofer.de/entities/publication/df2cbaff-729f-4eaa-877c-129ef2fc4355

- Adler, L. M., Kuch, F., Lindenthal, A.-K., Gebauer, H. (2024). Navigating Value: A Servitization Pathway for the Value Delivery of Smart Services. In *Proceedings of the 32nd European Conference on Information Systems,* Paphos.

- Friedrich, F., Kreuzer, T., Kuch, F. (2023). A match made in heaven? Empowering effects of business process management and digital innovation capabilities. In *Proceedings of the 31st European Conference on Information Systems*, Kristiansand.

- Buck, C., Kuch, F., Lindenthal, A.-K., Merktle, T., Oberländer, A.M., Tippel, C., Wenninger, A. (2022). Initiierung von Smart Service Innovationen im produzierenden Gewerbe. *HMD Praxis der Wirtschaftsinformatik 59*, 1395-1410. https://doi.org/10.1365/s40702-022-00900-w

A.3 Individual Contributions to Research Articles Included in this Dissertation

This cumulative thesis includes six research papers, which were all written with multiple co-authors. This section outlines the author settings and describes my individual contribution to each paper. The descriptions follow the contributor roles taxonomy (CRediT) by Allen et al. (2019).[3]

Research Article #1, entitled "*The SmartSI Compass: A Method for Generating Smart Service Innovation Ideas*" (Kuch et al. 2024; Section A.4), was written by a team of five authors. I contributed to the conceptualization, data curation, analysis, investigation, methodology, as well as the visualization of the manuscript. Further, I played a key role in writing the original draft as well as in revising and editing the entire manuscript. We agreed as a team that our contributions to this paper were equal.

Research Article #2, "*Sparking Digital Innovation: A Framework for Employee and Generative AI Involvement*" (Kuch et al. 2025; Section A.5), was written by a team of four authors. My contributions were substantial in the areas of conceptualization, methodology, and investigation. I participated in writing some sections, but especially in reviewing and editing the initial draft, as well as during the

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[3] Allen, L., O'Connell, A., & Kiermer, V. (2019). How can we ensure visibility and diversity in research contributions? How the Contributor Role Taxonomy (CRediT) is helping the shift from authorship to contributorship. *Learned Publishing*, 32, 71-74. https://doi.org/10.1002/leap.1210

revision process. Together with one co-author, I managed the project and I provided supervision for junior authors. As a team, we agreed that all authors contributed equally to this research article.

Research Article #3, entitled "*The Role of Digital Post Systems in Transforming Public Administration: A Digital Infrastructure Perspective*" (Kuch et al. 2026; Section A.6), was written by a team of five authors. Being the lead author, I had a main role in initiating and driving the entire research project as well as in conceptualizing findings and visualizing key artefacts of the study. I contributed significantly to the methodology, investigation (i.e., literature review, conducting interviews), and data curation. Furthermore, I was responsible for writing, editing, and reviewing the original draft as well as in the first round of revision. As I served as the lead author, the co-authors acted as subordinate authors.

Research Article #4, entitled "*The Purpose's Purpose in Digital Transformation*" (Kuch et al. 2024; Section A.7), was written by a team of four authors. My contributions were substantial in the areas of conceptualization, methodology, and investigation. I contributed to drafting selected sections and played a key role in reviewing and editing the initial draft. In addition, I substantially contributed to revising and refining the manuscript during the revision process. Supported by one co-author, I assumed responsibility for project coordination and provided supervision and guidance to junior authors. We collectively agreed that each of us contributed equally to this research paper.

Research Article #5, entitled "*A Resource Orchestration Lens on Boundary Blurring in Digital Innovation*" (Grüneke et al.; Section A.8), was written by a team of three authors. I contributed to each part of the manuscript. As such, I contributed to the project administration, conceptualization of the research, methodology, investigation, and data curation. I also contributed to validation and writing the original draft. As co-authors, we acknowledge that each of us contributed equally to this research paper.

Research Article #6, entitled *"VAMOS: Value Assessment Method for Smart Services"* (Jonas et al. 2026; Section A.9), was written by a team of three authors. At the beginning of the research project and as for the original draft, I was involved in the conceptualization and methodology of the research paper and writing selected parts of the original draft. I contributed significantly to reviewing and editing the manuscript in several revision rounds, which also included investigation and data curation during the revision process. In sum, I was involved in each part of the paper and the team members agreed that we all contributed to this research article in equal parts.

A.4 Research Article #1: The SmartSI Compass: A Method for Generating Smart Service Innovation Ideas

Authors:

Felicitas Kuch, Anna Katharina Lindenthal, Anna Maria Oberländer, Annette Cortenraad-Wenninger, Christoph Buck

Published in:

Abstract:

Smart Service Innovations (SmartSIs) are crucial for future competitiveness, but established organizations often struggle with the complexity of generating SmartSI ideas. Thus, we propose the *SmartSI Compass,* a method for systematically generating SmartSI ideas drawing from current smart service research and being theoretically anchored in technological, value creation, and systems perspectives. We developed the method in collaboration with practitioners according to design science research. With the *SmartSI Compass*, we make a prescriptive contribution to the body of knowledge on the initiation phase of digital innovation and support practitioners in generating SmartSI ideas.

Keywords:

Smart Service Innovation; Digital Innovation; Idea Generation; Design Science Research; Method Development; Consortium Research

A.5 Research Article #2: Sparking Digital Innovation: A Framework for Employee and Generative AI Involvement

Authors:

Felicitas Kuch, Christina Lane, Anna Maria Oberländer, Manuel Sauer

Published in:

Abstract:

Business environments are becoming increasingly complex due to the pervasiveness of digital technologies and socio-technical interactions, complicating the initiation of digital innovations. To navigate these complexities, incumbent firms draw on insights from employees working with core products or services, referred to as Employee-Driven Digital Innovation (EDDI). However, many employers face quiet quitting (e.g., 78% in Germany), leading to untapped innovation potential. Research on Generative Artificial Intelligence (GenAI) shows it can enhance employee engagement and produce higher-quality ideas more efficiently. This interview study, therefore, explores how employees and GenAI interact during ideation in incumbents. Based on current literature and semi-structured interviews with employees, managers, and researchers, an Employee-GenAI Involvement Framework with three types of GenAI and employee involvement was developed. This research contributes theoretically by deepening the understanding of the initiation phase of digital innovation and practically by identifying drivers and barriers when integrating GenAI into employee-driven ideation.

Keywords:

Employee-Driven Innovation, Digital Innovation, Ideation, Incumbents, Generative Artificial Intelligence, Human-AI Collaboration, Interview Study

A.6 Research Article #3: The Role of Digital Post Systems in Transforming Public Administration: A Digital Infrastructure Perspective

Authors:

Felicitas Kuch, Carolin Jung, Thomas Kreuzer, Karolina Maronna-Aigner, Anna Maria Oberländer

Published in:

Abstract:

The digital transformation of public administration is a complex endeavor aimed at improving efficiency, strengthening public trust, and advancing democratic values. A significant, yet underexplored facet of this transformation pertains to the digital post system, which enables secure digital communication between the public administration and citizens. Despite its centrality in delivering end-to-end digital services, digital post systems have received limited scholarly attention. Existing studies often focus broadly on digital communication, neglecting the infrastructural and strategic roles such systems can play. The present study investigates the manner in which digital post systems contribute to the digital transformation of public administration by acting as shared digital infrastructures. We conduct a case study of digital post systems in three countries: Denmark, Estonia, and Germany. Building on 21 semi-structured interviews with 18 interview partners and publicly available data, we identify three roles that digital post systems can assume: digitization enabler, process integrator, and ecosystem catalyst. Additionally, we examine four underlying generative mechanisms that enable these roles and their contributions to digital transformation: adoption, innovation, scaling, and legitimation. Our study contributes to the extant literature by offering a novel conceptualization of digital post systems, highlighting their strategic value as digital infrastructures that shape and sustain digital transformation efforts in public administration.

Keywords:

Digital Post System, Digital Infrastructure, Digital Transformation, Generative Mechanism, Legitimation, Case Study

A.7 Research Article #4: The Purpose's Purpose in Digital Transformation

Authors:

Felicitas Kuch, Alina Lazar, Anna Maria Oberländer, Lukas Thuer

Published in:

Abstract:

Most digital transformation initiatives fail in achieving their long-term goals. In particular, people's resistance to change is a major risk, surpassing even technological concerns. One people-focused concept in companies is purpose which reflects the reason for an organization's and individual's existence. Despite recognizing the crucial role of people in transformations, the influence of purpose on digital transformation is poorly understood. To better comprehend and leverage this relationship, our study explores how purpose influences digital transformations through a comparative case study, analyzing two companies applying a multilevel perspective. We found that an organization-centric purpose supports communication and provides direction within digital transformation on an organizational level. An individual-centric purpose encourages reflection and therefore enables digital transformation by fostering alignment on an individual level. This study contributes to the theoretical understanding of the connection of digital transformation and purpose and inspires practitioners to effectively manage digital transformation tensions using purpose.

Keywords:

Digital Transformation, Purpose, Tensions, Case Study

A.8 Research Article #5: A Resource Orchestration Lens on Boundary Blurring in Digital Innovation

Authors:

Timo Grüneke, Thomas Kreuzer, Felicitas Kuch

Submitted to:

The outlet is hidden due to the double-blind review process of the journal

Extended Abstract:

Digital innovation refers to the development and use of new digital solutions that transcend organizational and technological boundaries by combining digital and physical elements (Hund et al., 2021). Digital innovation increasingly unfolds in environments defined by convergence and distributed agency, where multiple internal and external actors jointly shape innovation outcomes (Yoo et al., 2010; Nambisan et al., 2017). As a result, traditional organizational boundaries between roles, departments, and organizations become permeable, giving rise to what prior research describes as boundary blurring (Hund et al., 2021). Existing research predominantly treats boundary blurring as a largely technology-induced side effect, which leaves limited guidance for how organizations deliberately manage it. This lack of guidance can raise challenges as boundary blurring directly affects coordination, accountability, and strategic control in digital innovation initiatives.

At the same time, organizations face pressure to shorten innovation cycles and to mobilize both internal and external resources to remain competitive (Piccoli et al., 2022). Resource orchestration theory offers a useful lens for explaining how managers structure, bundle, and leverage resources to build capabilities and sustain competitive advantage (Sirmon et al., 2007, 2011). Yet, despite frequent references to boundary blurring in the digital innovation discourse (Yoo et al., 2012), prior work remains fragmented regarding what boundary blurring concretely entails and how resource orchestration can help address it. This research article integrates digital innovation and resource orchestration literature and frames boundary blurring as an orchestration challenge that can be actively managed rather than passively endured. Accordingly, it asks: *How can companies manage the blurring of organizational boundaries in digital innovation through resource orchestration?*

Methodologically, this research article follows a two-step qualitative research design. First, a structured literature review synthesizes prior research on digital innovation and resource orchestration (Webster & Watson, 2002; Okoli, 2015). The review identifies key themes related to boundary blurring and resource management and distills them into three components of boundary blurring (operator, enabler, controller). Second, a qualitative multiple-case study of two large organizations complements the literature-based insights (Eisenhardt, 1989; Yin, 2017). Data were collected through semi-structured interviews (Myers

& Newman, 2007) with innovation experts and supplemented by internal documents and public materials. Data analysis followed an iterative coding process combining deductive and inductive elements (Gioia et al., 2013), resulting in empirically grounded resource orchestration actions that operationalize the three components.

Operators actively blur boundaries by integrating, reallocating, and exchanging internal and external resources, for instance, by assembling cross-functional teams, engaging external partners, and recombining knowledge and technologies across departmental and organizational boundaries (Sirmon et al., 2007; Lokuge et al., 2019). *Enablers* create the technical and cultural prerequisites that allow operators to blur boundaries effectively, for example, by fostering experimentation and ensuring that resources can be recombined through fluid and modular designs (Drechsler et al., 2019; Lokuge et al., 2019; Wiesböck & Hess, 2020). *Controllers* provide strategic direction and evaluation mechanisms within which boundary blurring unfolds and guide resource allocation, monitor progress, and, when necessary, reimpose boundaries to prevent misalignment or risk escalation (Svahn et al., 2017; Oehmichen et al., 2023). Overall, these findings position boundary blurring as a manageable and strategic phenomenon. Rather than merely enduring boundary permeability as a side effect of digital innovation, organizations can actively shape it through deliberate orchestration of resources. The interaction between operators, enablers, and controllers highlights that effective boundary blurring requires both bottom-up action and top-down guidance.

This research article makes several theoretical contributions. It advances digital innovation research by clarifying what boundary blurring entails and by conceptualizing it through three distinct but interdependent components. Thereby, it extends resource orchestration theory by contextualizing it for digital innovation and boundary-spanning settings. For practitioners, the results provide a structured lens for diagnosing and shaping boundary blurring in digital innovation initiatives. They can use the identified resource orchestration actions to actively manage boundary blurring.

Keywords:

Digital Innovation; Boundary Blurring; Resource Orchestration; Literature Review; Case Study

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A.9 Research Article #6: VAMOS: Value Assessment Method for Smart Services

Authors:

Claudius Jonas, Felicitas Kuch, Anna Maria Oberländer

Abstract:

Despite the economic potential of digital servitization, especially product-oriented industrial companies struggle to identify beneficial smart services and realize predicted revenues. This results from the complexity of smart services, which disrupt traditional business logics and require orientation toward value-in-use. Value-in-use is the benefit that materializes when actors use an offering. Examination of the anticipated value-in-use of smart services in the early stages of innovation is challenging but essential for design and investment decisions as well as convincing actors to participate in value co-creation. To provide systematic guidance, we introduce the value-in-use assessment method for smart services (VAMOS) drawing from design science research and situational method engineering. The method includes three activities to support practitioners in assessing smart service value-in-use and was validated through a thorough evaluation process with four industrial companies. VAMOS extends research on digital innovation, service-dominant logic, and digital servitization by contributing methodological knowledge.