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PUBLIC VALUE MANAGEMENT IN DIGITAL TRANSFORMATION

Evaluating emergent technology's impact on public services

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Abstract

This thesis addresses an important knowledge gap by examining the government-as-user role, a perspective that has received limited attention in artificial intelligence and digital governance research. Emergent technology, including artificial intelligence (AI) and algorithmic systems, is reshaping public sector digital transformation, raising important questions about how public value is framed, created, and enacted. This PhD research investigates how governance strategies and mechanisms shape the implementation of digital transformation initiatives in the public sector, and how emergent technology influences the framing and distribution of public value.

The research approach is pluralistic, combining content and discourse analysis with theory-driven evaluation of digital transformation policies and service delivery programs to examine the discursive and practical dimensions of digital transformation across four papers. Papers I and II apply discourse analysis to digital policy and strategy documents, analyzing how public values and power dynamics are articulated, how users and public sector AI applications are positioned, and how these framings allocate benefits and responsibilities among stakeholders in digital governance. Papers III and IV draw on a longitudinal case of Digital Iceland (Stafrænt Ísland). Paper III systematically examines the adoption of a digital shared-services center, focusing on the emergence of a “center of excellence” and the functional components — organizational, technical, and governance-related — that support technology-enabled reforms in government. These components inform the contextual conditions used in developing the evaluative framework in Paper IV. Paper IV employs a theory-driven evaluation approach, adopting and adapting a context–mechanism–outcome (CMO) framework to evaluate Digital Iceland, and examines under what contextual conditions governance strategies and arrangements

— in particular mechanisms such as flexible policy, accountability, and collaboration — are configured to generate or constrain public value outcomes.

The originality of this approach lies in combining content and discourse analysis of digital policies with a theory-driven CMO logic to evaluate digital transformation programs, and in developing a PVM in Digital Transformation framework that evaluates digital governance arrangements. The thesis treats digital strategies and initiatives as analytically distinct yet interconnected domains, linking discursive positioning in national digital and AI strategies to the configuration of governance mechanisms in concrete programs. The framework argues that digital transformation outcomes are not determined by technology itself, but by how emergent technology applications are enacted within specific institutional arrangements and governance mechanisms, which in turn shapes whether public value is created, distributed, or destroyed in practice. It serves both analytical and practical purposes: analytically, by synthesizing the main findings into core concepts for evaluating digital governance; and practically, by considering how administrators translate public value framings into practice, how context-dependent mechanisms enable or constrain their efforts, and how these configurations yield public value outcomes such as improved service delivery, transparency, and responsiveness. The research shows both enabling and constraining effects of dominant discourses and organizational routines, identifies key barriers to agile digital transformation, and underscores the importance of inclusive governance strategies that align diverse stakeholder interests.

Overall, this thesis advances evaluative e-government and digital governance research by offering a critical and realistic account of PVM that traces under what conditions governance mechanisms contribute to public value and when they become constrained in public sector digital transformation. In doing so, it bridges the longstanding gap between

policy framing and program outcomes, providing both a theoretically grounded evaluation framework and an empirically substantiated model for assessing how digital governance initiatives generate public value.

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Glossary

Term	Definition
Administrative practice	The operational routines, procedures, and behaviors through which public organizations deliver services and implement policy. This thesis focuses on how administrative practice is shaped by the interplay between technology, organizational context, and administrative decisions (Haug et al., 2023).
Administrators	Public sector professionals who are responsible for coordinating and implementing digital transformation initiatives. In <i>PVM</i> , they are sometimes conceptualized as strategic actors who shape <i>public value</i> through administrative decisions (cf. Moore, 1995).
Agile governance	Governance arrangements that support iterative decision-making, cross-functional coordination, stakeholder feedback, and adaptive implementation in digital transformation initiatives (Luna et al., 2014, 2015). In this thesis, agile governance is examined in the context of the DigIS program (Chapter 6). <i>See also:</i> Digital transformation initiatives; Mechanism(s); DigIS (the program).
Artificial intelligence (AI)	Systems capable of performing tasks that typically require human intelligence, such as learning, reasoning, and decision-making. AI is the study of such systems and has the objective to create intelligent agents that can perceive their environment and act rationally to achieve specified goals (Bringsjord & Govindarajulu, 2020; Russell & Norvig, 2009). In this thesis, AI is examined as a prominent example of emergent technology applications in the public sector.
Beneficiaries	Individuals, groups, or organizations who receive, or are directly affected by, a particular government program or initiative. For example, citizens, residents, businesses, and other stakeholders whose interests and well-being are impacted by government actions (Distel & Lindgren, 2023; MacLean & Titah, 2022).

Term	Definition
Capacity	In the PVM in Digital Transformation framework, capacity refers to the administrative and operational conditions that mediate how digital tools and governance arrangements are translated into public value outcomes (Pang et al., 2014). Administrative capacity encompasses institutional rules, skills, and organizational structures, while operational capacity concerns the practical delivery capabilities and inter-agency coordination required to implement digital transformation initiatives. Capacity is treated as one of four core analytical concepts in the framework and functions as a mediating variable between governance design and realized public value. <i>See also:</i> PVM (Public value management); Mechanism(s).
CDA (Critical discourse analysis)	An approach to discourse analysis, developed by Fairclough (2012), that examines how discursive practices—the production, distribution, and interpretation of texts—sustain or challenge particular relations of power and social structures. In this thesis, CDA is used to analyze how AI policy documents discursively frame public values and articulate power dynamics. <i>See also:</i> Discourse analysis.
CMO (context–mechanism–outcome) configurations	An analytical framework developed by Pawson and Tilley (Pawson & Tilley, 1997) that explains how and why programs produce particular outcomes by identifying three elements: the <i>context</i> in which an intervention operates, the <i>mechanism</i> it activates (disaggregated into resources and the reasoning that they trigger among beneficiaries, cf. Dalkin et al., 2015), and the generated <i>outcomes</i> . Mechanisms are understood as operating on a continuum rather than as binary on/off switches: the same resource may trigger enabling or blocking reasoning depending on contextual conditions (Dalkin et al., 2015). This research applies the CMO approach to evaluate DigIS. <i>See also:</i> Realistic evaluation; Mechanism(s); Beneficiaries; DigIS (the program).

Term	Definition
Cloud-based systems	IT infrastructure and services delivered over the internet, enabling scalable and on-demand access to computing resources (SIIA, 2001). In this thesis, cloud-based systems are treated as mature digital infrastructure (contrasting with emergent technology applications) that supports digital service delivery.
DigIS (the program)	A digital shared-services program initiated in the Icelandic central government that coordinates the development and deployment of shared digital services (such as the Ísland.is portal) and related digital governance arrangements. In this thesis, DigIS is the main empirical setting in which public value management and the PVM in Digital Transformation framework are applied to analyze how governance mechanisms, capacity, and emergent technology applications interact. <i>See also:</i> SÍ.
Digital governance	The socio-technical process of enacting information and communication technologies within discursively bounded institutional contexts, to intentionally pursue public value goals and public purposes (Fountain, 2001; Moore, 1995). Emergent technology is not neutral or context-free—it is enacted within institutional arrangements and governance mechanisms that, shaped by these classifications, ultimately create or destroy public value. In this thesis, digital governance serves as an overarching lens for analyzing how digital technologies are enacted in pursuit of public value. <i>See also:</i> Digital transformation initiatives; Emergent technology.
Digital transformation	An ongoing process through which the adoption and use of digital technologies transform value propositions, organizational identity, operating models, and value delivery arrangements (Mozaffar & Candi, 2025; Wessel et al., 2021).

Term	Definition
Digital transformation initiatives	Public policy and service delivery programs through which governments seek to achieve their digital transformation goals in practice. These initiatives typically take the form of specific projects or programs—such as national AI or digital strategies and e-government programs—and often involve the adoption of emergent technology applications (for example, AI systems in national policy implementation and shared-service portals in central government) aligned with broader digitalization goals (OECD, 2014).
Discourse analysis	The systematic study of language use in social and institutional contexts, examining how texts construct meaning, identities, and social relations (Fairclough, 2012; Wood & Kroger, 2000). In this thesis, discourse analysis—specifically discursive positioning and Fairclough’s discursive practices approach—is employed to examine how AI policy texts and strategy documents frame emergent technology and articulate public values. <i>See also:</i> CDA.
e-Government programs	Structured efforts to digitize public services and administrative processes, typically coordinated at the national level. These programs often involve implementing digital transformation initiatives that deploy emergent technology applications (OECD, 2014).

Term	Definition
Emergent technology	A broad category of novel or rapidly evolving digital technologies and applications—including AI systems, e-government applications, and shared-service portals—that draw on emerging digital infrastructure and are not yet fully institutionalized in public sector practice. The term is used in this thesis as a singular mass noun to denote a coherent class of technological innovations whose public value implications are still being worked out in policy and administrative practice (OECD, 2025). PVM scholarship grounds this concept: Pang et al. (2014) demonstrate how emergent digital tools depend on capacity conditions to generate public value outcomes, and van Noordt and Misuraca examine how AI applications in public services create distinctive governance challenges that existing frameworks must be extended to address (van Noordt & Misuraca, 2022). Within the PVM in Digital Transformation framework, emergent technology represents the technological dimension of analysis and forms one of its four core analytical concepts. <i>See also:</i> Artificial intelligence (AI); Digital transformation initiatives; Digital governance.
Governance strategies	Strategic approaches for guiding and managing government transformation efforts, such as digital transformation, emphasizing structures, processes, and mechanisms that facilitate organizational change within the public sector (Horlach et al., 2018; Janssen & van der Voort, 2020).

Term	Definition
Mechanism(s)	In this thesis, mechanisms are either (a) <i>governance mechanisms</i>, understood as the formal and informal means through which institutional and managerial arrangements influence actors to contribute to collectively defined goals in digital governance (e.g. mutual monitoring, membership restrictions, values and rules, property rights and incentives, agile governance practices, procurement approaches, and co-creation platforms) (Kolbjørnsrud, 2017), or (b) <i>program mechanisms</i> in realist evaluation, i.e., configurations of resources and reasoning that generate outcomes (Dalkin et al., 2015; Pawson & Tilley, 1997). Public value scholarship further conceptualizes mechanisms as value-generating pathways that connect particular government actions to public value outcomes for different stakeholders (Harrison et al., 2011; Pang et al., 2014; Twizeyimana & Andersson, 2019). Within the <i>PVM in Digital Transformation</i> framework, governance mechanisms are one of four core concepts. <i>See also</i>: PVM (Public value management); Digital governance; Capacity.

Term	Definition
Public value(s)	Public value has two related meanings. First, public sector values that articulate collective goals, principles, or desired outcomes—normative public value goals that guide and justify public action, such as efficiency, equity, transparency, stewardship, and trust (Moore, 1995; Nabatchi, 2018). Second, creating public value refers to the realization of those goals in practice, assessed in terms of the effectiveness and legitimacy of government action and the extent to which collectively valued outcomes are achieved (Benington & Moore, 2011). In this thesis, and following Alford and Hughes, public value is also used as a construct for evaluating program outcomes, providing a pluralistic, outcome-oriented yardstick for judging the effectiveness of digital transformation initiatives (Alford & Hughes, 2008). In the context of digital transformation, public value creation depends on how information systems and institutional arrangements are configured and enacted, linking public value goals to technology in use (Fountain, 2001). Within the PVM in Digital Transformation framework, public value is one of four core analytical concepts and serves as the primary lens for assessing the effectiveness of program outcomes. <i>See also:</i> PVM (Public value management); Capacity; Emergent technology.

Term	Definition
PVM (Public value management)	A normative theory about public governance that offers a theoretical (yet practical) lens for how public organizations define and pursue public value goals, secure legitimacy and support, and build capacity for implementation (Moore, 1995). As a theoretical approach, PVM is applied in a pluralistic, outcome-oriented way that considers both managerial and democratic dimensions of public value. This interpretation is grounded in scholarly critiques that warn against top-down administrative authority (Bonina & Cordella, 2009; Cordella & Bonina, 2012; Stoker, 2006) and question the use of outcome evaluations based on simple, binary performance metrics (Alford & Hughes, 2008; Pollitt & Dan, 2013). In this thesis, PVM also underpins the PVM in Digital Transformation framework, which examines digital governance through four core concepts, i.e., public value, governance mechanisms, capacity, and emergent technology. <i>See also:</i> Capacity; Emergent technology; Mechanism(s); Public value(s).
Realistic evaluation	A theory-driven approach to program evaluation that asks not whether an intervention works, but how, for whom, and under what conditions it produces outcomes (Pawson, 2013; Pawson & Tilley, 1997). Developed by Pawson and Tilley (1997), the approach is based on realist logic presented in their context-mechanism-outcome (CMO) framework. This research draws on this program evaluation approach to examine under what conditions governance mechanisms contribute to public value outcomes in DigIS. <i>See also:</i> CMO (context–mechanism–outcome) configurations; Mechanism(s); DigIS (the program).
Shared-services centers (SSCs)	Organizational units that consolidate and standardize specific administrative and support functions, particularly IT and digital service delivery, to improve efficiency, standardization, and quality across public organizations. In digital transformation, SSCs often manage shared digital services or portals, as seen in DigIS where SÍ functions as a digital SSC (Ulbrich, 2010). <i>See also:</i> SÍ

Term	Definition
SÍ (Stafrænt Ísland)	A digital shared-services center (SSC) established by the Icelandic government that played a central role in the development and deployment of shared digital services on the e-government portal (Ísland.is), as well as the management and implementation of DigIS. <i>See also:</i> Shared-services centers (SSCs); DigIS (the program).

Chapter 1

Introduction and overview of Academic Papers

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1.1 Introduction

This chapter serves a dual purpose: it synthesizes the relevant literature on public value management and digital transformation into four core analytical concepts, and it establishes the framework that structures the comparative synthesis of the thesis’s findings in Chapter 7.

1.1.1 Background and Context

Governments worldwide have invested heavily in digital transformation — from national AI strategies to shared digital-service programs — yet our understanding of when and why these initiatives create public value remains limited. Governments of the late 20th and early 21st centuries, notably in the US and Europe, initiated a series of modernization programs (or reforms) that radically transformed or replaced many of their existing institutions, such as privatization or marketization of large economic institutions (e.g., banks) and public utilities (e.g., telecommunications operators and service providers). Meanwhile, we have also witnessed the *institutionalization* of significantly massive organizational fields, like modern healthcare and educational systems (DiMaggio & Powell, 1983; Scott, 1995), which occupy a relatively large proportion of public budgets in most welfare states.

This thesis deals with a recent wave of particular modernization programs, namely government transformation efforts through emergent technology — i.e., novel technology applications such as artificial intelligence (AI) and digital shared services — particularly the formulation, implementation, and outcomes of digital transformation. It addresses in what ways this ‘new technological wave’ (Criado & Gil-Garcia, 2019), as articulated by governments in their information and communication technology strategies and policy programs, conveys digital transformation goals and the means to achieve such goals. The idea of creating public value (Moore, 1995) is central to that end. Scholars examining digital governance have explored Moore’s idea using the public value management (PVM) paradigm to examine the outcomes of digital transformation initiatives. PVM emphasizes the role of public organizations in co-creating value with stakeholders through strategic alignment, performance, and accountability (Alford & Hughes, 2008; Stoker, 2006). It is against this backdrop of the importance of stakeholder alignment that this thesis’ focus on the process of creating public value is positioned.

In this thesis, *public value* encompasses both the normative goals that justify public action such as efficiency, equity, transparency, and democratic legitimacy, on the one hand, and the process of delivering publicly valued outcomes to citizens through effective and legitimate governance, on the other hand.

Effective management of digital transformation initiatives in public organizations therefore requires strategic alignment among stakeholders and a collaborative approach to creating and protecting shared public values (Nabatchi, 2018), a central challenge of PVM. These values pertain to the goals a digital governance initiative aims to achieve and the beneficiaries whose interests it serves—interests that may at times diverge. Consequently, managing digital transformation entails reconciling these diverse stakeholder perspectives while maintaining alignment with broader organizational and political priorities. The problem is inherently complex and multi-layered: at one level, it involves harmonizing the objectives of a particular program or initiative with the overarching policy frameworks and political mandates guiding the organization;

at another, it requires defining and operationalizing program objectives in ways that remain consistent with established administrative values and service design practices.

In addressing such complexity, *co-creation* has increasingly been recognized as a valuable strategic governance approach in the context of digital transformation (Rodriguez Müller et al., 2021). It emphasizes participatory and collaborative value generation among public sector actors, citizens, and other stakeholders, enabling the negotiation of shared goals and the incorporation of diverse voices into policymaking and service design—a theme further developed throughout this thesis. Furthermore, to capture the institutional and systemic dimensions of managing digital transformation, a multilevel perspective is adopted (cf. Dąbrowska et al., 2022), including the policy, governmental, and organizational levels of analysis.

This thesis is structured around a three-stage analytical progression: first, this research analyzes what governments promise in AI strategies and digital transformation programs; second, it evaluates how such promises, once put into practice, influence public value; and third, it synthesizes this evidence to explain what works, for whom, and why in such programs from a PVM perspective. This logical progression reflects my view that policies and strategies are best treated as hypotheses about what should happen, which must be empirically validated during implementation.

1.1.2 Research objectives

This thesis is positioned in the field of public policy and administration, with a specific focus on qualitative policy implementation and program evaluation of digital transformation initiatives. It draws selectively on information systems (IS) and IT capabilities theory to enrich the capacity and technology dimensions of the analysis, while maintaining its primary orientation toward governance and public value management.

This thesis addresses these challenges by investigating how governance strategies and mechanisms shape the implementation of digital transformation in the public sector, and how emergent technology influences the framing and distribution of public value. Adopting an administrative perspective grounded in the Public Value Management (PVM) idea (Alford & Hughes, 2008; Stoker, 2006), the research examines how public sector managers navigate the dual mandate of co-creating substantive value for citizens while maintaining democratic legitimacy through stakeholder alignment. Accordingly, it considers the administrator as managing for and envisioning the creation of public value (Moore, 1995), a central concept of PVM. Given the concept’s widespread use in the digital governance literature (e.g., Bannister and Connolly, 2014; Twizemana and Andersson, 2019; Zyzak et al., 2024) and the fact that Moore’s original theory articulates public value’s dual meaning, it is surprising that this literature generally fails to operationalize it accordingly. This gap presents an opportunity that this research seeks to address in order to better understand the administrator’s dual role. Indeed, Moore (1995) argued that administrators must continually re-evaluate their organization’s strategic objectives and policies and restructure operations to enhance responsiveness and efficiency in meeting citizens’ needs and political expectations. Throughout this PhD research, I have been guided by the proposition that strategic managers should regularly reconfigure their organizations if they aspire to create and deliver value for their stakeholders or clients (cf. Henderson and Venkatraman, 1993; Moore, 1995).

My 15 years in the private IT sector have given me a deep understanding of technology implementation and its role in driving business value. I am motivated to apply this experience to public policy, exploring how digital tools can be

leveraged to promote public value beyond private gain. My perspective actively incorporates this private-sector viewpoint and considers its implications for digital transformation in government; I have reflected on this position throughout the research through data triangulation, supervisory dialogue, and continuous engagement with practitioners, to ensure that my private-sector lens was used consciously and critically rather than implicitly.

The overall purpose of this research is to investigate how technology-driven modernization programs — referred to here as *digital transformation* — influence the framing and creation of public value. Using Moore’s (1995) conceptualization of public value and grounded in empirical studies of AI and digital governance and technology applications in public administration (van Noordt & Tangi, 2023), this thesis examines how digital governance initiatives are framed, implemented, and evaluated across discursive and administrative contexts, contributing to PVM (Stoker, 2006) through the development of a conceptual framework.

Put more formally, the thesis addresses the overall research question (RQ):

How do governance strategies and mechanisms shape the implementation of digital transformation in the public sector, and how does emergent technology influence the framing and distribution of public value?

This thesis has a twofold aim: first, to understand how governance strategies and mechanisms shape the implementation of digital transformation initiatives in the public sector; and second, to examine how emergent technology influences the framing and distribution of public value in these initiatives. The two aims are combined in a single research question because governance arrangements and emergent technology jointly determine public value outcomes — the first aim addresses what governments design and implement, while the second addresses how the technological dimension of that design frames and distributes value. Papers I–II address the second aim by examining the discursive framing of emergent technology in national AI strategies; Papers III–IV address the first aim by evaluating the governance mechanisms and outcomes of the DigIS program.

While the first clause of the research question (RQ) seeks to evaluate particular mechanisms and strategies in digital transformation (Aim 1), the second clause investigates in what ways emergent technology influences the framing and distribution of public value (Aim 2). These aims, i.e., the RQ’s Aim 1 and Aim 2, are taken up in the subsequent sections of this introductory chapter. Section 1.2 establishes the theoretical and terminological backdrop — defining digital governance, its conceptual boundaries, and the technological context of the research. Section 1.3 develops the PVM in Digital Transformation framework, organized around four core concepts: public value, governance mechanisms, administrative and operational capacity, and emergent technology. Section 1.4 describes the research design and methodology. Section 1.5 restates the research aim in relation to the framework, and Section 1.6 presents an overview of the four academic papers, their empirical material and data sources, and their relationship to the PVM in Digital Transformation framework. Chapter 2 provides the empirical background through a longitudinal account of the case — DigIS — outlining the digital policy development that underpinned DigIS implementation. The outcomes of this effort are presented in the articles included in the thesis (Chapters 3–6).

This thesis advances understanding of digital transformation in the public sector by integrating (critical) discourse analysis and realistic evaluation. This dual approach enables the study to explain both how governance strategies and

information technology applications discursively frame and prioritize public value, and how those framings are translated—via context-dependent mechanisms—into concrete outcomes in program implementation.

1.1.3 Thesis outline

This thesis is organized into seven chapters. Following the introductory chapter, which describes the research theoretical and methodological approach, the thesis proceeds with a detailed description of the case, i.e., the Icelandic e-government program in Chapter 2, which concerns significant events that occurred in its formative years (2019-2022). Chapters 3-6 consist of the academic papers (Papers I-IV), which investigate, respectively, AI applications in the public sector, power dynamics in AI policy, digital shared-services centers, and agile governance in digital transformation initiatives, and together with Chapter 2 represent the thesis's empirical chapters. For a summary of the papers, see Table 1.5 below. In Chapter 7, I will conclude the thesis by discussing its main contributions to theory and practice and suggesting paths for future research.

1.2 Overview of the literature and theoretical foundations

In the thesis's introductory chapter, we will review theories and frameworks of public governance in the digital age (or digital governance), focusing on literature about digital transformation and public value (the current section). The chapter also introduces the theoretical framework and methodology (Sections 1.3-1.4), followed by the aim of the current research and an overview of the four academic papers (Sections 1.5-1.6).

1.2.1 Digital governance

This thesis contributes to the field of e-government research, which by design bridges information technology and public administration scholarship. E-government research draws on a broad body of work concerned with how digital technologies reshape governance, service delivery, and administrative practice — a body of scholarship increasingly unified under the concept of digital governance. Digital governance serves as the overarching theoretical lens of this thesis, encompassing both the technological and institutional dimensions of public sector digitalization reviewed in the sections that follow.

In this thesis, digital governance is understood as a socio-technical phenomenon—the enactment of information and communication technologies within discursively bounded institutional contexts (Fountain, 2001). Emergent technology is not neutral or context-free—it is enacted within institutional arrangements and governance mechanisms that, shaped by these classifications, ultimately create or destroy public value. Drawing on Scott's (1995) institutional model, the regulative, normative, and cultural-cognitive pillars serve as the foundation for administrators' legitimizing and authorizing environments (see Figure 1.1). These institutional pillars offer a concise theoretical lens, identifying particular frictions

that help explain how and why these administrators pursue public value through the enactment of emergent technology applications (see also Fountain, 2004; Moore, 1995).¹

First, the regulative pillar sets the formal requirements and ensures that data protection and service standards are up to par. It positions digital governance as having the role of establishing accountability frameworks through policymaking and ensuring compliance with established rules and regulations. However, such frameworks should allow sufficient flexibility for innovation. Second, the normative pillar sees values and ethical principles as critical in public policy development concerning emergent technology. It positions digital governance as being responsible for establishing ethical guidelines, which are seen as crucial to ensuring that policy outcomes align with public value (Robinson, 2020). Third, the cultural-cognitive pillar involves organizational aspects such as shared assumptions, mental models, and symbolic systems, and how these aspects influence digital governance initiatives and vice versa. It sees digital governance as the integration of information technology in government, affecting "organizational, institutional and social rule systems that influence behavior" (Fountain, 2004, p. 5).

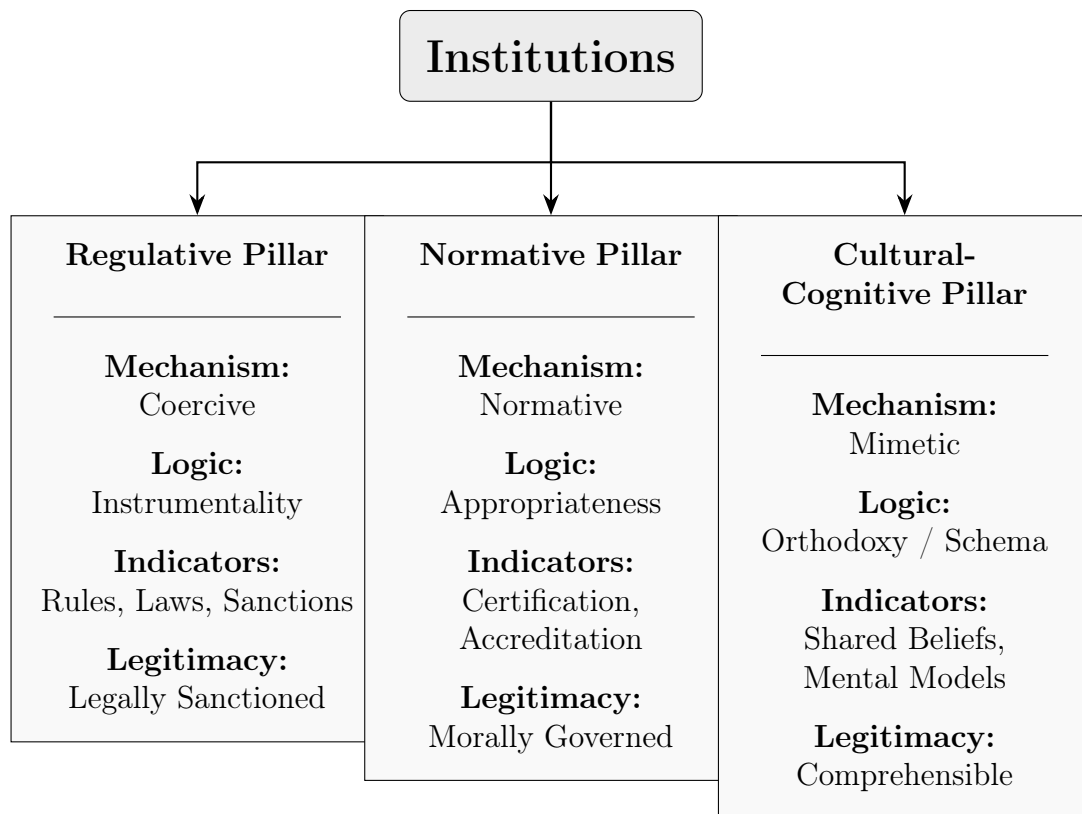


Figure 1.1: The Three Pillars of Institutions. Framework identifying the specific regulative, normative, and cultural-cognitive frictions that shape the enactment of emergent technology. Adapted from Scott (1995).

The regulative pillar, emphasizing formal regulations and policies guiding organizational behavior, is seen as impor-

¹Scott's three-pillar model is adopted here rather than alternative institutional frameworks (such as those emphasizing isomorphic pressures or formal economic institutions) because it analytically differentiates the regulative, normative, and cultural-cognitive mechanisms through which institutional environments shape organizational action—a differentiation that maps directly onto the distinct governance frictions examined across the thesis's empirical chapters, e.g., DiMaggio and Powell (1983).

tant for effective digital transformation (Mikhaylov et al., 2018; van Veenstra & Timan, 2022). For example, innovative procurement mechanisms are being introduced in digital governance initiatives, e.g., in Finland and Estonia (Soe & Drechsler, 2018), allowing public organizations to purchase services from the private sector that are needed to co-produce new e-government applications and services. This pillar adheres to an instrumental logic where individuals and organizations comply with rules to gain rewards or avoid punishment (Scott, 1995). The normative pillar, emphasizing ethical principles, shared values, and norms in organizations, forms the basis of good governance. In digital governance, where decentralized and collaborative governance is commonplace, the role of values—the principles that guide behavior—and value—the worth or impact of initiatives—can be seen as paramount (Dickinson, 2016). Values frameworks can be used to evaluate new policies concerning digital governance, e.g., cultural values (including trust, transparency, and openness) were found to be influential in the development of such policies in the Nordics (Robinson, 2020).

Research aligning with the normative and cultural-cognitive pillars often challenges the instrumental logic because of its narrow framing of technology. For instance, Cordella’s analysis of a UK e-government initiative argues that models based on instrumental logic tend to view technology adoption as a purely technical or rational process, thereby presenting an incomplete picture of digital governance (Cordella & Iannacci, 2010). Despite growing recognition of the importance of cognitive and institutional dimensions in digital transformation, a critical research gap persists. Nevertheless, some digital governance researchers have proposed conceptual frameworks aligned with the cultural-cognitive pillar to gauge the outcomes of governance innovations in the context of modernization programmes in the digital era (Lindquist, 2022) and smart cities (Pereira et al., 2020). These contributions commonly highlight an important issue in current digital governance frameworks: they tend to overlook cognitive frameworks and shared understandings within public organizations (Lindquist, 2022). Furthermore, they emphasize the importance of governance strategies in digital governance, that is, strategic approaches for guiding and managing government transformation efforts, such as digital transformation, including structures, processes, and mechanisms that facilitate organizational change in the public sector (Horlach et al., 2018; Janssen & van der Voort, 2020). However, current research often gives limited attention to such strategies, despite their presumed contextual significance. Governance strategies are viewed as enabling or constraining conditions for generating public value through technological innovation initiatives, such as in smart cities (Pereira et al., 2020).

This gap is notable in light of Scott’s cultural-cognitive pillar (1995), which emphasizes shared assumptions and mental models (see Figure 1.1). When digital governance frameworks give limited attention to these cognitive dimensions, they may produce solutions that are technically sound but institutionally difficult to embed, as observed in several e-government programs. In the UK e-government case examined by Cordella and Iannacci (2010), such misalignment was associated with conflicts of interest, power struggles, and cultural tensions, and contributed to implementation challenges. Bringing the pillars into closer alignment can strengthen the *legitimacy and support* of such initiatives, which, in turn, is central to creating public value, one of the dimensions in Mark Moore’s (1995) strategic triangle framework (see Figure 1.2).

In this research, Moore’s (1995) original public value concept serves as a foundational theoretical background, operationalized through the strategic triangle framework. Within the context of digital governance, as defined above, the framework depicted in Figure 1.2 consists of three interdependent dimensions that conceptually map the administrator’s environment. First, *public value goals* articulate the substantive societal outcomes and public purposes of digital initiatives. Second, *legitimacy and support* represent the authorizing environment, encompassing the institutional forces that

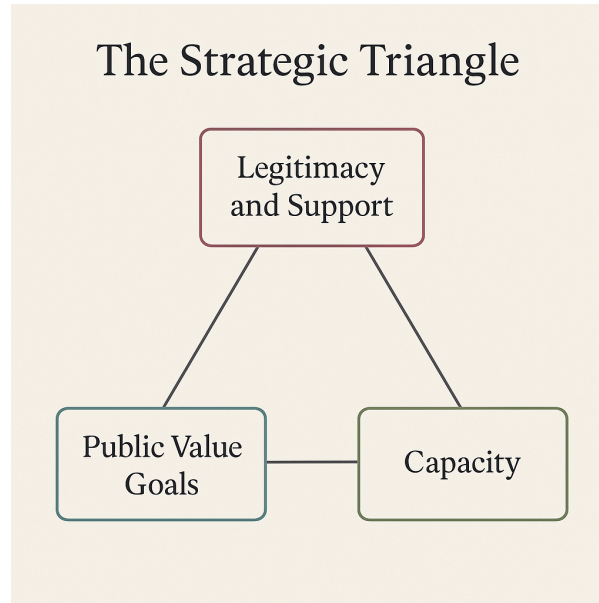


Figure 1.2: The Strategic Triangle. Adapted from Moore (1995). This framework illustrates the continuous alignment required by the administrator, who must strategically balance the three dimensions of legitimacy and support, public value goals, and organizational capacity to realize digital governance outcomes.

either endorse or constrain these initiatives. Third, *capacity* refers to the administrative and operational capacities needed to adopt or implement digital applications or initiatives. The strategic triangle defines the boundaries and constraints that determine whether a digital transformation initiative will succeed or fail. Notably, this arrangement also serves as a theoretical bridge; the concepts of public value and capacity introduced here act as core conceptual building blocks for the PVM in Digital Transformation framework developed later in this thesis.

Importantly, Moore's (1995) formulation does not treat the strategic triangle passively; instead, it is conceptually centered on the administrator's active role in balancing these three dimensions. Here, this thesis argues, this emphasis is vital for understanding how digital governance unfolds in practice. The administrator serves as the primary strategic actor who must navigate the regulative, normative, and cultural-cognitive institutional pillars (see Figure 1.1; see also Scott, 1995) that comprise the authorizing environment. By continuously mediating the tensions between these institutional constraints and the organization's *capacity*, the administrator drives the socio-technical enactment of emergent technology (Fountain, 2001). Ultimately, it is through this deliberate navigation and active involvement that the administrator aligns the strategic triangle's dimensions to realize publicly valued outcomes in digital transformation.

More broadly, scholars see values and ethical principles as crucial in the development of emergent technology policies, which emphasizes that policy goals align with public values, thereby reducing the risk of failed implementation of related e-government programs (cf. the above mentioned UK case Cordella & Iannacci, 2010). In this context, Hood's values taxonomy identifies core administrative (or public) values that influence administrative decisions (Hood, 1991). The values taxonomy consists of three types of values: (1) *sigma-type*, emphasizes economy and efficient use of resources to achieve goals; (2) *theta-type*, emphasizes honesty and achieving fairness and public trust (rectitude); and (3) *lambda-type*, emphasizes security and the reliability, resilience and adaptivity (i.e., a system's capacity to adjust and evolve in response

to challenges) of administrative systems. His taxonomy reflects the different (and changing) duties and responsibilities of the administrator. It remains influential to subsequent digital governance and public value frameworks and theories (cf. Bannister and Connolly, 2014; Rose et al., 2015; see also van Noordt, 2023), particularly the sigma and theta type values (cf. Selten and Meijer, 2021).

While conceptually distinct, the three-pillars model and normative frameworks (such as the ones proposed by Hood and Moore) incorporate ethical or moral dimensions of administrative practices. Theta-type values prioritize honesty, fairness, and procedural rectitude, framing legitimacy as an outcome of trustworthy systems that align with societal expectations of ethical conduct (Hood, 1991). In contrast, the three-pillars model treats legitimacy as a condition of social reality, contingent on an organization satisfying institutional criteria—regulative (legal compliance), normative (moral alignment), or cultural-cognitive (shared assumptions) (Scott, 1995). Whereas the former emphasizes legitimacy as something achieved through procedural integrity, the latter positions it as something bestowed through systemic congruence with institutional environments.

Moore's (1995) original conception of public value lacked clarity of what is meant by 'public' and explaining the "publicness" of public value (Benington & Moore, 2011). Thus, establishing the public realm is important to understand the boundaries or scope of the thing being produced, for whom, and why. In principle, the scope of public value can encompass virtually anything from a particular service being delivered to citizens or businesses to national security for an entire population and anything in between. The idea of "public value failure" addresses the public realm or publicness of something that neither markets nor states can provide for the public (Bozeman, 2007). For instance, a social problem that the government must solve for its citizens, alone or in cooperation with markets or engage citizens and non-government organizations (NGOs) to find solutions. A common problem that might be considered a public value failure is outsourcing and "hollowing out" of government, which means that essential services, e.g., universal access to education and healthcare, are not reliably provided, especially when private companies doing the service seek profit over public interests (Bozeman, 2007).

The author of public value failure proposed different criteria to detect and evaluate public value failure (not addressed here). Suffice it to say that commonly these factors emphasize the importance of legitimacy through the democratic process, allowing the public (e.g., citizens and businesses) to define what constitutes value through engagement and elected representation (cf. Moore, 1995). Also, what is consumed is done so collectively rather than individually, which means that social aspects, not merely economic ones, must be considered when defining public value goals. Publicness thereby refers to things that are jointly consumed, are non-rivalrous and inclusive, like public parks and clean cities free from pollution. In addition to public goods, institutional elements (cf. the regulative pillar; Figure 1.1) can also be seen as publicly valued, as this enables imperfect markets to function optimally. However, the realization of these public value goals is increasingly mediated by digital applications, which can actively reconfigure the normative consensus governing citizen-state interactions. As noted by Busch and Henriksen (2018), the automation of administrative tasks alters the boundaries of 'digital discretion', creating new tensions in how administrators uphold values like equity and fairness. These shifts in administrative practice underscore why defining the 'publicness' of value remains a central, contested concern in digital transformation.

Public value pertains to both the content of the service itself and how services are delivered (OECD, 2019). The

strategic triangle’s purpose is to guide administrators of public organizations in their practical reasoning by deploying the public value concept. The concept takes on two meanings (Moore, 1995):

1. It defines the purpose of actions taken by public managers when they are deploying public assets; and
2. It defines public value as an end-goal that would guide public managers as they make decisions while executing their responsibilities.

Just as administrators must ensure the congruence among the three institutional pillars for adequate legitimacy and support for their digital governance initiatives, they must align the strategic dimensions of the public value triangle to effectively manage digital transformation. Indeed, technically sound digital governance initiatives without sufficient public support or legitimacy tend to fail, as seen in various e-government case studies (cf. Cordella and Iannacci, 2010).

The strategic triangle’s three interdependent elements are required to deliver on public value promises. In digital transformation contexts, they become particularly prominent. Digital governance initiatives must simultaneously articulate convincing public value propositions (e.g., improved service efficiency, accessibility, enhanced transparency), secure legitimacy from diverse stakeholders (including citizens, politicians, and technology partners), and build or adapt organizational capacity (including technical infrastructure, workforce skills, governance mechanisms, and interorganizational coordination). The tension between these three elements and the administrator’s facilitative and coordinative role in strategically managing them forms a central concern of this thesis.

Bridging the strategic management and IS perspectives, Bharadwaj (2000) argues that an organization’s IT capability is not the technology itself but a firm-wide bundle of IT infrastructure, human IT skills, and information technology-enabled intangibles. Superior IT capability is a source of sustained performance advantage because it is difficult to imitate. Pang et al. (2014) extend this logic to government, showing that the relationship between IT resources and public value outcomes is not direct but is mediated by five organizational capabilities: public service delivery, public engagement, co-production, resource-building, and public-sector innovation. This mediating-capability model bridges Moore’s strategic triangle (the ‘what’ of public value creation) and the IS dimension (the ‘how’ — how organizational capabilities translate digital tools into public value outcomes). In terms of Fountain’s enactment framework, these capabilities represent the institutional and organizational conditions that shape whether emergent technology is enacted in ways that create public value.

1.2.2 Digital public services and framing public value(s)

Digital governance, as a domain of practice and inquiry, focuses on how governments use digital technologies to govern, make decisions, and deliver services (Bannister & Connolly, 2020). Over the past decade, digital governance initiatives like digitization of public services have emerged as a strategic priority on policy agendas in many countries, as governments strive to improve the efficiency and effectiveness in serving the public (OECD, 2014). For instance, adopting shared digital services usually involves transitioning from traditional in-house IT departments to shared service models and strategic partnerships (Grant & Ulbrich, 2010). Lately, scholars who have examined such initiatives and agendas (e.g., Gil-Garcia and Flores-Zúñiga, 2020; Kankanhalli et al., 2019) commonly describe them as efforts to design and implement e-government services that improve service quality and accessibility for citizens and businesses, thereby contributing to the creation of

public value. Managing digital transformation, however, remains a complex and nuanced task that reshapes governance structures and administrative capacities (Haug et al., 2023; Kristinsson & Matthíasson, 2014; Madan & Ashok, 2023). Although capacity gaps and infrastructure limitations persist, digital transformation continues to occupy a central position in public policy agendas globally, supported by the development and use of emergent technology (Criado & Zarate-Alcarazo, 2022).

As a domain of practice, digital governance attends to how public sector institutions apply these solutions for internal management, decision-support, and service delivery (Bannister & Connolly, 2020). In practical terms, it involves structuring the delivery and management of digital services to support policy and administrative agendas, e.g., by implementing the mentioned shared-services idea (Grant & Ulbrich, 2010). In this context, operational aspects are in focus and include establishing standardized service processes, negotiating and monitoring service levels, and ensuring that IT service management frameworks support both decision-making and service delivery. Digital governance thereby provides the mechanisms for effective coordination, accountability, and continuous improvement required for digital transformation. It can be described as the "orchestration of structures, processes, and relationships" (Grant & Ulbrich, 2010, p. 12), positioning digital tools as able to serve strategic needs and deliver public value across diverse institutional circumstances.

Against this background, the digitization of public services cannot be viewed solely as a technological modernization program but as a deliberate effort, which requires defining public value(s) or program goals. Public value in this context refers to particular outcomes that the program wants to achieve, its goals or mission, and encompasses both social and economic outcomes resulting from the intervention. In this context, and based on the idea that public value defines the purpose of *actions* taken by administrators deploying public assets, as previously noted, we can imagine that multiple purposes or objectives can coexist. Accordingly, multiple *public values*, including efficiency, effectiveness, and fairness, may be considered in administrative decisions.

Public sector AI research concerning the use of AI in public organizations, both in the EU and the US, suggests that emergent technology's transformative impact is predominantly framed in service- and duty-oriented terms (Chen et al., 2023; van Noordt & Misuraca, 2022). For instance, AI use cases in the EU mainly involve enhanced information provision and improved delivery of services (van Noordt & Misuraca, 2022). In the US context, Chen et al. (2023) find that most government employees perceive AI's transformative potential to be substantial or high for duty- and service-oriented public values (such as improved decision-making, effectiveness, and efficiency), whereas only around half hold this view for society-oriented public values such as accountability (Chen et al., 2023).

The debate concerning public values in strategic government texts is exemplified by van Noordt et al. (2024)'s application of Nabatchi's public values frames (Nabatchi, 2018) to European public sector AI adoption. Their analysis distinguishes political, legal, organizational, and market frames and shows that 78% of AI initiatives prioritize market and organizational frames over political dimensions such as democratic deliberation. Taken together, these studies indicate that AI in the public sector is often justified and designed primarily through managerial and market-oriented public values, with more ambivalent emphasis on democratic and society-oriented values (Chen et al., 2023; van Noordt & Misuraca, 2022; van Noordt et al., 2024). This pattern supports Cordella and Bonina's argument that administrative decisions must balance economic rationality with normative values such as fairness and justice (Cordella & Bonina, 2012). At the same time, it underscores why digital governance can really only be understood as a socio-technical phenomenon: in line with

Fountain's 'enacting' information technology notion, AI applications do not simply deliver service gains, but are reshaped by public sector norms, rules, and power relations, while Moore's idea of public value highlights that such enactments must be evaluated against a broader set of democratic and society-oriented values, not only managerial ones (Fountain, 2001; Moore, 1995).

Recent scholarship on public value in digital transformation has examined how effectively government-led initiatives create public value through technology. van Noordt et al. (2024), for instance, analyzed the public values motivating AI initiatives across European public administrations. This line of inquiry has broadened the empirical scope beyond AI to encompass diverse emergent technology applications, including digital shared services, service process optimization, and digital transformation initiatives, and has extended the analytical focus from examining what motivates such initiatives to assessing both the motivations and the actual outcomes they produce in terms of public value creation and delivery.

That efficiency dominates AI governance discourse is itself a function of how public value goals are classified and institutionally framed (Nabatchi, 2018). Nabatchi's framework shows that paradigms constitute the normative context within which administrators define what counts as valuable—and, crucially, what does not. When market and organizational frames dominate (as the evidence above indicates), efficiency is not merely preferred; it is institutionalized as the default classificatory boundary against which other values must justify themselves. As Fountain (2001) demonstrates, digital technologies do not enter this context neutrally—they are enacted within it, reshaped by precisely these pre-existing classifications and institutional structures. The aim of public value theory is therefore not simply to add equity and justice alongside efficiency, but to contest and reclassify what the institutional context treats as valuable in the first place (Cordella & Bonina, 2012; Moore, 1995; Nabatchi, 2018).

This thesis addresses the dual understanding of *public value* implied by this dynamic: the discursive practice of *framing public value(s)* and the process of *creating public value*. The former refers to public value goals being embedded—and contested—within the classificatory contexts of digital governance programs; the latter concerns program implementation and the realization of those goals in practice.

1.2.3 Research gaps and the current study

The literature reviewed above provides valuable insights into digital governance frameworks and public value conceptualization. However, three critical gaps emerge that this thesis addresses.

First, while artificial intelligence represents a significant development in public sector IT, knowledge about how AI specifically affects public value creation remains inchoate (Criado & Gil-Garcia, 2019; Tangi et al., 2022). This gap exists within a broader research landscape where general digital transformation studies outnumber AI-specific investigations. As Reis et al. (2019) note, there is a pressing need for deeper research into how emergent technologies shape public administration, government policy, and technology provider relationships. Furthermore, the premises behind decisions made by AI systems—particularly artificial neural networks (ANNs)—present a "black box" problem that challenges traditional regulatory oversight (Pérez-Cruz et al., 2025). In heavily regulated sectors such as financial management, this technical opacity creates direct friction with established institutional logic, demanding a contextualized extension of digital governance theory.

Second, although the public value concept is widely invoked in digital governance scholarship (Bannister & Connolly, 2014; Zyzak et al., 2024), the literature has generally failed to operationalize Moore’s (1995) dual conception of public value. Moore conceptualized it as both (i) substantive outcomes delivered to citizens, and (ii) democratically legitimized goals negotiated among diverse stakeholders. The failure to operationalize this dual meaning during digital transformations represents a missed opportunity to understand the administrator’s dual role in simultaneously creating tangible value and ensuring democratic legitimacy.

Third, existing frameworks for digital transformation focus predominantly on technological or organizational dimensions, with insufficient attention paid to governance mechanisms and the administrator’s strategic role. This is compounded by a systemic divide between the fields of performance management and program evaluation (Talbot, 2010), which has resulted in fragmented knowledge systems that hinder the practical application of holistic frameworks like Moore’s strategic triangle. Consequently, public value theory is rarely applied as an evaluative lens for assessing public sector programs (e.g. Chazdon & Paine, 2014). There is a clear need for empirical, mechanism-focused evaluation to understand how administrators build organizational capacity, support accountability, and balance competing stakeholder demands in practice (Rose et al., 2015; Twizeyimana & Andersson, 2019).

While previous e-government evaluations have often relied on transactional or purely economic metrics, this approach is fundamentally insufficient. As Heidlund and Sundberg (2022) note, such narrow methodologies fail to capture the relational nature of digital infrastructures and risk oversimplifying citizens as mere “users.” To address this empirical gap, this thesis formally defines digital governance not as a mere deployment of IT systems, but as a deeply socio-technical phenomenon. It is a continuous process wherein governance mechanisms operate not as simple administrative tools, but as dynamic reactions to available resources within complex institutional environments. This socio-technical perspective—anchored in the enactment of emergent technology—is essential for evaluating how public value is ultimately negotiated, distributed, or destroyed in practice.

How this thesis addresses these gaps To address these interconnected challenges, this thesis investigates how governance strategies and mechanisms shape the implementation of digital transformation in the public sector, and how emergent technology influences the framing and distribution of public value.

The research operationalizes Moore’s strategic triangle through the four core concepts of the PVM in Digital Transformation framework: public value, governance mechanisms, administrative and operational capacity, and emergent technology. By evaluating how digital governance strategies—specifically public sector AI applications and the implementation of citizen-facing digital services (the DigIS program)—are realized in practice, this study bridges the theory-practice gap between organizational capacity and public value outcomes. Responding directly to Twizeyimana and Andersson’s (2019) call for generative evaluation, the thesis examines both the envisioned value conveyed in policy discourse and the realized value perceived by administrators, ultimately demonstrating how these variables determine whether public value is created or destroyed in practice.

As such, this thesis argues that digital transformation outcomes are not determined by technology alone, but by how emergent technology is enacted within specific institutional arrangements. Consequently, digital governance is approached here as an inherently socio-technical phenomenon—a process through which governance mechanisms shape enactment to

achieve public value outcomes. The thesis examines this process at two interrelated levels. At the policy-making level, it applies critical discourse analysis to 28 national AI strategies, examining how governments discursively frame the expected enactment of emergent technology and its public value goals. At the program implementation level, it applies a realistic evaluation to Iceland’s Digital Iceland (DigIS) program. By utilizing context-mechanism-outcome (CMO) configurations, this strand evaluates how agile governance mechanisms (discussed below; see Table 1.3) act as reactions to resources, ultimately shaping the actual enactment of digital shared services and determining whether public value is created or destroyed in practice.

1.2.4 Technological backdrop of the research

This thesis focuses on emergent technology applications — specifically AI systems and digital shared services — as two key instances of the broader category of novel, not yet fully institutionalized digital applications in the public sector. The term *emergent technology* serves as an integrative umbrella concept rather than the narrower label ‘AI.’ Within the empirical chapters, more specific terms are used—including AI applications, digital shared services, and ICTs—each reflecting the distinct analytical focus and publication context of the study in question. The umbrella term unifies these by capturing what the varied applications have in common: they are novel information and communication technologies with multiple unknowns for their beneficiaries. A narrower AI-only framing would cover only one strand of the thesis’s empirical material and would exclude the underlying digital infrastructure central to effective digital transformation through shared, integrated digital services.

To situate these phenomena within the wider digital governance landscape, it is useful to distinguish among several related but analytically distinct terms that appear throughout the thesis. Table 1.1 provides a concise overview of the key concepts, their scope, and how each is used in this research, drawing on established definitions from the digital government and public administration literature (Bannister & Connolly, 2020; Janowski, 2015; OECD, 2014, 2025; Scupola & Mergel, 2022; Tilson et al., 2010) (see also Glossary).

These distinctions are not merely definitional; they carry analytical weight. Digitalization provides the broad societal backdrop against which successive waves of technology-enabled reform — from basic digitization (e-government) through to structural redesign (digital transformation) — unfold. Digital governance, as the overarching theoretical lens, encompasses the discursively bounded institutional contexts through which these processes are classified, steered, and enacted. Emergent technology, finally, captures the novel applications — AI, shared digital services, and related innovations — whose enactment and public value implications constitute the technological core of the research question. The terminology delineated here anchors the thesis’s analysis and ensures consistency across the literature review, the PVM in Digital Transformation framework (Section 1.3), and the empirical chapters that follow.

Public organizations seeking to create public value through emergent technology must possess adequate administrative and operational capacities, including appropriate information technology resources and skills (Panagiotopoulos et al., 2019; Pang et al., 2014). Realizing the vision of smart government—in which the public sector adopts and develops novel digital applications to improve effectiveness in achieving public value outcomes such as enhanced citizen engagement and accountability—is not a straightforward undertaking. Keeping pace with rapid technological change is difficult, particularly

Table 1.1: Key terminology: scope and usage in this thesis

Term	Scope	This thesis
Digitalization	Macro: societal integration of digital technology	Background context for all chapters
E-government	Digitizing existing bureaucratic processes	Historical context; DigIS’s predecessors (Ch. 2)
Digital transformation	Structural redesign of government operations via digital tools	The primary phenomenon studied; the DigIS case
Digital infrastructure	The backbone: fundamental for digital transformation	Technological context; e-government legacy systems upgrade (Ch. 2; the DigIS program) and the underlying backend systems for data exchange enabling shared services, further specified in the PVM in Digital Transformation framework (Section 1.3.4; see also Table 1.2)
Digital governance	Discursively bounded institutional context for enacting digital technology in pursuit of public value	Overarching theoretical lens of the thesis
Emergent technology	Novel, not yet institutionalized digital applications	The technological dimension of the RQ

given the scarcity of technical skills within many public organizations. Nevertheless, skill development is possible with strong leadership and effective data management, both of which are crucial for high-quality decision-making and for realizing public value from emergent technology applications (Panagiotopoulos et al., 2023; Talib et al., 2024; van Noordt & Tangi, 2023). Organizations that create public value through information technology must possess the technological capacity for organizational transformation (Gregor et al., 2006; Moore, 1995), though not all organizations have the necessary means.

At the infrastructure level, shared digital services enabled by cloud computing form the operational backbone of modern e-government programs. In this thesis, shared digital services are treated as part of a broader digital infrastructure, organized in a modular, layered architecture in which standardized components (such as authentication, payments, and case-handling modules) can be reused and recombined across applications and organizations, subject to evolving infrastructural standards and governance arrangements (Tilson et al., 2010). The underlying concept can be traced to John McCarthy’s 1962 MIT lecture, in which he envisioned computing as a public utility—much like the telephone system—where subscribers would access programming languages and resources on a pay-per-use basis (MIT, 1962). These ideas have evolved into today’s multi-billion-dollar cloud computing industry, upon which governments now rely to support digital transformation and citizen-facing web portals. Public sector organizations frequently procure third-party digital services through software-as-a-service (SaaS) contracts.² While such arrangements offer cost savings and scalability, they also in-

²Software as a service (SaaS) refers to a digital service delivery model in which an application is deployed from a centralized data center across a network and provided to users on a recurring payment basis: “Users ‘rent’, ‘subscribe to’, ‘are assigned’, or ‘are granted access to’ the applications from a central provider” (SIIA, 2001, p. 4).

introduce considerable risks. The 2024 CrowdStrike incident, which disrupted thousands of public and private organizations worldwide, underscores both the importance and the vulnerability of cloud-based infrastructure (Tetzlaff-Deas, 2024)³. Understanding and managing digital infrastructure is, therefore, critical to minimizing the risks associated with enacting emergent technology.

Artificial intelligence (AI), as a second pillar of emergent technology, was formally named at the 1956 Dartmouth workshop (Nilson, 1998), where leading researchers from MIT, CMU, Stanford, and IBM established AI as a field and shaped its trajectory for decades (Russell & Norvig, 2009). AI refers to systems capable of performing tasks that typically require human intelligence—such as learning, reasoning, and decision-making—and to the field of study that aims to create intelligent agents capable of perceiving their environment and acting rationally to achieve specified goals (Bringsjord & Govindarajulu, 2020; Russell & Norvig, 2009). Recent advances in natural language processing (NLP), machine learning (ML), and neural networks have been enabled by powerful and affordable cloud infrastructure combined with access to large datasets, leading to the development of generative AI (GenAI) systems such as GPT-3.5, GPT-4.0, and ChatGPT. Researchers and practitioners are increasingly focused on AI’s application and effects in the public sector (Tangi et al., 2022). de Sousa et al. (2019) analyzed AI domains and techniques for public value creation, highlighting public safety, healthcare, and resource management as prominent areas. Common AI techniques include deep artificial neural networks (ANNs) and various ML algorithms using structured and unstructured data, including GenAI applications such as ChatGPT and Gemini. ANNs are favored for their predictive accuracy in scenarios prioritizing efficient resource use (de Sousa et al., 2019), but they are often criticized for their lack of transparency, functioning as “black-box” systems (Kamwa et al., 2012; Kankanhalli et al., 2019). Furthermore, ANNs require vast amounts of high-quality data, and governments often lack sufficient data quantity, quality, or legitimacy to collect and use such data effectively (Kankanhalli et al., 2019). These challenges—transparency, data governance, and resource intensity—illustrate the broader risks of vendor dependence, opacity, and exclusion that accompany the enactment of emergent technology in the public sector.

While emergent technology holds promise for improving citizen engagement, service quality, and administrative accountability, the resource demands of foundational technologies such as ANNs and the vulnerabilities of cloud infrastructure present significant barriers. In addition, it is embedded in what McBride et al. describe as the “dual necessities of structure and agility” (2022, p. 24): public organizations must maintain sufficient structural stability in their digital infrastructures and governance arrangements while simultaneously cultivating the agility needed to iteratively adapt shared services and AI applications under conditions of uncertainty. Public leaders must thoroughly understand these technological foundations to mitigate risks and realize the full potential of emergent technology for public value creation.

³CrowdStrike is a leading American cybersecurity company specializing in protecting organizations from cyber threats using advanced, cloud-native technologies and artificial intelligence (CrowdStrike, n.d.).

1.3 Theoretical framework

1.3.1 Public value management: origins, influence and critique

This section examines the first of these four concepts—public value—and critically reviews its theoretical foundations. *Public value management* (PVM) is a theoretical framework that has shaped public administration scholarship in the past three decades. Since its conception (Moore, 1995), it has challenged traditional approaches to public governance that hitherto had emphasized (and to an extent, still does) efficiency and measurements of effectiveness by repositioning the focus to publicly valued outcomes and value creation beneficial to society as a whole (Benington & Moore, 2011). Scholars and practitioners have adopted and adapted PVM, framing it as an alternative 'paradigm' to the market-oriented managerialism (often associated with the NPM movement) that characterized many public sector programs (such as the so-called "NPM reforms"), which can better address the complex realities of contemporary governance networks (O'Flynn, 2007; Stoker, 2006).

PVM's influence can be seen in policy frameworks, administrative practices, and government modernization programs, such as digital transformation initiatives. However, this approach has also been criticized, primarily among public administration scholars that question its democratic legitimacy, practical applicability, and potential for managerial overreach (Hood, 2001; Hood, 1998).

Concerning PVM's origins and theoretical foundations, Moore's strategic triangle—introduced in the digital governance discussion above and discussed in detail there—lies at the heart of his approach. As previously noted, this framework positions administrators as active agents in framing and creating public value while securing the legitimacy and operational capacity required to achieve their goals, thus blurring traditional bureaucratic boundaries. Positioning administrators as entrepreneurs engaged about societal outcomes represents a departure from the traditional politics-administration dichotomy (Alford & O'Flynn, 2009).

Concerning PVM's theoretical development since Moore's initial formulation, various frameworks have been proposed for understanding public value creation. Supporters of PVM have clarified core concepts and addressed emerging critiques (e.g., Alford and Hughes, 2008; Alford and O'Flynn, 2009), as well as proposed extensions to accommodate multi-stakeholder collaborative arrangements, e.g., value co-creation in governance networks (Bryson et al., 2017; see also Sedlačko, 2020). Such elaborations have contributed to our contemporary understanding of PVM that aligns better with digital governance characteristics, e.g., collaborative governance and cross-sector partnerships (see previous section).

It has been argued that PVM is a response to market-dominant managerialism in public governance discourses (cf. O'Flynn, 2007). Such arguments problematize the emphasis on efficiency, competition, and market-based mechanism in modernization efforts in the public sector, underscoring a need to reintroduce politics, public values and deliberation into public governance discourses (Alford & Hughes, 2008). PVM can be seen as addressing such a need (cf. Stoker, 2006) and pragmatic approaches to PVM have been suggested to replace managerialism, such as public value pragmatism (Alford & Hughes, 2008). Such approaches to PVM are consistent with adaptive and agile governance strategies that are common in contemporary digital transformation initiatives (Mergel et al., 2018).

Although PVM addresses some gaps of market-based managerial approaches to modernization programs by focusing

on collective (as opposed to individual) preferences, it has been subject to critiques. Firstly, PVM’s potential for managerial overreach has been criticized, questioning its legitimacy (Hood, 2001). Notably, Christopher Hood argued that the strategic triangle framework represents a “sophisticated defense of public sector managerialism” (Hood, 2001, p. 12554). By emphasizing the role of “skillful and entrepreneurial” managers, the model risks elevating managerial discretion at the expense of democratic accountability. Moreover, according to Hood, Moore’s reliance on selective success stories of effective public managers serves as a rhetorical strategy to legitimize managerial authority, portraying them as “value-adders” rather than “rule-following bureaucrats.” On the other hand, as seen in Moore’s later works, he acknowledges the need to balance administrators’ autonomy and discretion with democratic accountability when applying the strategic triangle framework (Benington & Moore, 2011). The response reflects our previous discussion about legitimacy-building in relation to the strategic triangle (see previous section).

Second, other authors have questioned PVM’s applicability to different (non-US) governance structures such as the Westminster system (Rhodes & Wanna, 2007). More specifically, Rhodes and Wanna (2007) argued that the strategic triangle that emphasizes managerial entrepreneurship, coalition-building, and the creation of public value by administrators was developed in the American context, where pluralist politics and policy innovation are more prevalent than in the UK, Australia, and Canada, which adhere to the Westminster system. It is beyond the current scope to address their comprehensive critique in this thesis. Nonetheless, it can be noted that conceptual ambiguities concerning what constitutes public value, which is highlighted as a critical issue in Rhodes and Wanna’s paper, have been acknowledged by Mark Moore and systematically addressed by him and his colleagues in subsequent work on the topic (cf. Benington and Moore, 2011; see also Moore, 2013).

Hence, a contextual approach to PVM is needed to account for different governance structures and the unique socio-political circumstances of a particular public policy and service delivery program. Such an approach is recommended to avoid the “wholesale application” of PVM to implement such programs (Rhodes & Wanna, 2007). Moreover, transparent and participatory decision-making processes can enable greater accountability and build trust (Stoker, 2006), which, in turn, supports democratic legitimacy. An inclusive approach to PVM would probably eliminate the risk of managerial overreach, highlighted in the abovementioned critiques.

In this thesis, I adopt a contextual and pluralistic reading of PVM. I share Hood’s concern that the Strategic Triangle can function as a defense of public sector managerialism, and I treat it primarily as a heuristic for analyzing how public value goals, legitimacy, and capacity interact in digital governance — rather than as a prescription for heroic managerial entrepreneurship. Accordingly, I foreground democratic processes and value co-creation — including participation, transparency, and contestation over what counts as ‘public value’ — as central to evaluating digital transformation. Public value goals should be understood as the outcome of consensus-building and deliberative processes, not only top-down administrative decisions (cf. Bryson et al., 2017; Stoker, 2006).

In the empirical chapters that follow, the public value concept is operationalized through two complementary analytical strands: the discursive framing of public value goals in national AI strategy documents and the evaluation of public value outcomes in the DigIS program, drawing on interview-based evidence.

1.3.2 Core concepts: capacity, governance mechanisms, emergent technology, and public value

To analyze the intersection of these technological foundations and public administration, this thesis's theoretical framework is organized around four core concepts:

- Administrative and operational capacity: The organizational capabilities that enable or constrain enactment.
- Governance mechanisms: The formal and informal institutional arrangements that steer how emergent technology is enacted.
- Emergent technology: The novel digital applications whose enactment within these capacities and governance arrangements is under study.
- Public value: What digital transformation aims to create, distribute, or protect.

The following subsections critically review each concept in turn, establishing the variables that will form the comprehensive PVM in Digital Transformation framework.

1.3.2.1 Administrative and operational capacities

Administrative and operational capacity refers to the organizational abilities and resources that condition how public organizations enact emergent technology; where capacity is inadequate, the generative mechanisms through which public value is produced may be constrained, limiting or blocking the achievement of effective outcomes. As discussed in Section 1.2.4, public organizations require adequate administrative and operational capacities—including appropriate skills, structures, and digital infrastructures—to enact emergent technology effectively.

A foundational contribution to understanding capacity and how it contributes to information-technology-enabled value creation is offered by Pang, Lee, and DeLone, who develop a process-oriented framework for theorizing how IT capabilities mediate the relationship between IT resources and public value creation in government organizations. Drawing on and extending the resource-based view to the public sector, they argue that information-technology-enabled organizational capabilities—including IT capabilities, public service delivery capabilities, and digital infrastructure—function as the mediating layer through which investments in digital resources are converted into public value outcomes. Their framework explicitly rejects a simple direct-effects model in favor of a process view: capabilities are not merely inputs but enabling conditions that shape whether and how digital resources are mobilized to overcome value conflicts and generate non-economic, social values. In a related vein, Gil-García and Flores-Zúñiga propose a broad understanding of implementation as the configuration of agencies' capabilities, resources, and actions that underpins digital government initiatives, thereby foregrounding organizational-level variables as central to digital government success rather than treating information technology applications in isolation. (Gil-García & Flores-Zúñiga, 2020; Pang et al., 2014)

Subsequent empirical research has similarly adopted this process view of capacity, examining how capacity-building and its sustenance unfold in different administrative contexts. These studies document that capacity deficits—particularly

in strategic coordination, skills, and interoperability—represent recurring barriers to achieving effective outcomes in public-sector digital initiatives. A notable extension of this work concerns the dynamic dimension of capacity: rather than treating capability as a stock to be acquired, recent e-government scholarship draws on the “dynamic capabilities” perspective (cf. Teece, 2003) to emphasize the continuous renewal and reconfiguration of competences and resource bases in response to evolving technological and institutional demands. Panagiotopoulos et al. (2023) advance this argument by theorizing and empirically testing how dynamic capabilities mediate the relationship between IT resources and performance in local governments, thereby extending Pang et al.’s mediating-capability logic into a dynamic, information-technology-specific model of public sector value creation. Albrecht (2024) provides complementary, micro-level grounding for this dynamic view, showing in a case study of public-sector innovation fellowships how structured programmes cultivate collaborative competences that equip public servants to deploy innovative governance mechanisms—including agile governance approaches—in pursuit of digital transformation outcomes. Together, these studies support the reading of capacity developed in this section: not as a static baseline condition, but as an emergent, institutionally shaped ability that is actively built and renewed through governance mechanisms, skills development, and organizational learning.

Building on this process-oriented view, administrative and operational capacity in digital transformation can be understood as distinct but interrelated dimensions of organizational ability. Administrative capacity refers to strategic planning, stakeholder engagement, coordination, policy feedback, and oversight functions that shape how digital initiatives are prioritized, designed, and steered. Operational capacity encompasses digital service delivery capabilities, data and analytics capabilities, interoperability, cybersecurity, and the management of shared digital infrastructures that enable the day-to-day implementation of digital government initiatives. Together, these capacities express the extent to which public organizations can configure and mobilize resources, people, and processes to enact information technology in ways that realize public value. (Gil-Garcia & Flores-Zúñiga, 2020; Moore, 1995; Pang et al., 2014)

Moore (1995) argued that administrators must continually re-evaluate their organization’s strategic objectives and policies and restructure operations to enhance responsiveness and efficiency in meeting citizens’ needs and political expectations. This perspective grounds the current research, which adopts the proposition that strategic managers must regularly reconfigure their organizations to create and deliver value for their stakeholders or clients (cf. Henderson and Venkatraman, 1993; Moore, 1995). Such reconfiguration involves building new capacities, reallocating existing resources, and establishing governance mechanisms that enable both accountability and adaptation.

The quality of leadership is therefore crucial in this respect. The significance of effective leadership and administration is well established in the literature, particularly in research focused on effective outcomes from past modernization programs (or NPM reforms) (Pollitt & Dan, 2011). Such administrative capacity is required for public organizations to implement change, as highlighted in recent research (Haug et al., 2023), which underscores the importance of skillful leaders managing digital transformation processes and crossing inter-organizational boundaries within administrative constraints.

Table 1.2 summarizes how administrative and operational capacity in digital transformation can be understood in terms of organizational capabilities, governance mechanisms, and IT resources. The table highlights their mutually reinforcing roles: capabilities (such as strategic planning or digital service delivery) are supported by specific mechanisms (such as funding arrangements, shared-services centers, agile management practices) and enabled by IT resources (such as cloud infrastructure, shared-services portals, and analytics tools). Notably, shared-services portals and centers appear both as

mechanisms—enabling the sharing of resources, standardization, and collaboration—and as core IT resources that provide the infrastructure for delivering digital government services. This dual role is consistent with the view that capacity in digital transformation is not merely technical or resource-based but institutional and organizational: it reflects how public organizations configure capabilities, mechanisms, and digital infrastructures to enact emergent technology in ways that create, distribute, or protect public value. (Gil-Garcia & Flores-Zúñiga, 2020; Pang et al., 2014)

Table 1.2: Overview of administrative and operational capacity in digital transformation: organizational capabilities, mechanisms, and IT resources (source: author’s own elaboration)

Capacity	Capabilities	Mechanisms	IT Resources
Administrative	Strategic planning, stakeholder engagement, coordination, continuous improvement	Resource acquisition, digital leadership, funding mechanisms, shared-services centers / shared digital services	Cloud infrastructure, ERP systems, cybersecurity tools (e.g., CrowdStrike), shared-services portals
Operational	Digital service delivery, process automation, data-driven decisions, agility	Digital platforms, agile management, training programs, shared-services centers / shared digital services	Online portals, mobile apps, analytics tools, shared-services portals (e.g., Island.is)

In the empirical chapters, administrative and operational capacity is examined through the DigIS case study, which draws on interview data and document analysis to assess how organizational capabilities enable or constrain the enactment of digital transformation.

1.3.2.2 Governance mechanisms

In the context of digital governance, governance mechanisms are understood as the institutional and organizational arrangements through which organizational actors steer digital transformation and enact emergent technology applications (Kolbjørnsrud, 2017). This concept links to the thesis’s research question and twofold aim concerning the evaluation of governance mechanisms and strategies in digital transformation. Here, governance mechanisms are treated as a policy-implementation concept: they capture how digital transformation is managed or coordinated in practice.

Building on this definition, public value scholarship conceptualizes governance mechanisms as value-generating pathways that connect particular government actions to public value outcomes for different stakeholders (Harrison et al., 2011). In the digital transformation and smart government literature, governance mechanisms are increasingly discussed not simply as neutral organizational arrangements but as context-embedded instruments that enable or constrain the enactment of digital strategies. For example, Gasco-Hernandez et al. (2022) show how specific governance mechanisms—such as public-private partnerships for resource mobilization, citizen participation arrangements for legitimacy, and network governance models for coordination—function as causal levers that link collaborative intent to concrete implementation outcomes.

To systematically analyze these pathways, the literature identifies three broad families of governance mechanisms operating in digital transformation. A first group centers on collaborative and participatory arrangements, such as citizen participation, co-production, and public-private partnerships (Scupola & Mergel, 2022). These mechanisms function as capacity-producing instruments: they mobilize financial and technical resources, bring in external expertise, and create opportunities for co-design across organizational boundaries. A second family relates to the overall coordination model used to steer digital initiatives, including top-down, bottom-up, and hybrid network-governance arrangements (Gasco-Hernandez et al., 2022).

A third family involves agile and adaptive governance mechanisms. The literature on agile governance and digital transformation comprises two distinct but interrelated streams: an *innovation* stream and a *development* stream. This aligns with Tallon et al.’s (2019) review findings that identify agile information systems development as a dedicated research stream primarily focused on operational agility—including execution, technical delivery, and infrastructure—whereas Mergel (2016) emphasizes the innovation dimension, in which agile practices serve a broader purpose that supports government services digitalization through flexible policy, innovative project governance approaches, and strong administrative leadership. Accordingly, Table 1.3 organizes the identified agile governance mechanisms according to their primary foci on these two aspects.

Table 1.3: Agile governance mechanisms in digital transformation

Mechanism	Research Stream	Source
Human-centric design	Innovation	Kupi and McBride, 2021; Mergel, 2019
User engagement	Innovation	Mergel, 2016; Scupola and Mergel, 2022
Modular architecture and re-use	Development	Hong and Kim, 2020; Kupi and McBride, 2021; Mergel, 2016
Collaboration with business	Innovation	Soe and Drechsler, 2018
Flexible policymaking	Innovation	Hong and Kim, 2020; Pauletto, 2024
Procurement mechanisms	Development	Kupi and McBride, 2021; Mergel, 2016; Soe and Drechsler, 2018
Collaborative work processes	Development	Fontana and Marczak, 2020; Pauletto, 2024

Specifically, mechanisms oriented toward the *innovation* stream—such as human-centric design, user engagement, and flexible policymaking—facilitate new idea generation, citizen involvement, and an openness to policy experimentation. Conversely, mechanisms oriented toward the *development* stream—including modular architecture, procurement strategies, and collaborative work processes—support robust implementation, technical capacity building, and efficient service delivery.

By synthesizing these mechanisms into a comprehensive list grounded in empirical research, the thesis offers a holistic understanding of how these institutional arrangements operate. In the empirical analysis, these governance mechanisms are examined both as they appear in policy discourse on public sector AI and as they operate in the implementation of the DigIS shared-digital-services program, functioning as context-embedded levers that may activate or constrain the generative processes through which public value is realized.

1.3.2.3 Emergent technology

Emergent technology encompasses the class of novel digital applications—not yet fully institutionalized in public sector practice—whose enactment within institutional structures is the object of study in this thesis (see also Section 1.2.4).

Emergent technology is never neutral or context-free; it is always enacted within specific governance mechanisms, capacity arrangements, and digital infrastructures (for example, backend systems for data exchange enabling shared services), and these enactments shape whether public value is created, distributed, or destroyed. As discussed above (Section 1.2.4), public organizations introducing such applications face an inherent tension between maintaining sufficient structural stability in their digital infrastructures and governance arrangements and cultivating the agility needed to iteratively adapt shared services and AI systems under conditions of uncertainty. This thesis focuses on emergent technology applications—specifically public sector AI and shared digital technologies policy and service delivery programs—as two key instances through which the enactment of emergent technology, and the ways in which administrators navigate the inherent trade-offs of digital transformation in pursuit of public value goals, are examined.

1.3.2.4 Public value (goals/outcomes)

The final core concept within the strategic triangle is the actual *public value* that digital transformation initiatives aim to create, distribute, or protect—recognizing that the institutional and governance conditions examined in this framework may also constrain the achievement of these outcomes. While the preceding subsections detailed the capacities, governance mechanisms, and emergent technologies required for implementation, this dimension defines the substantive outcomes and normative goals of public action (Moore, 1995).

In its original conception, public value was sometimes critiqued for lacking clarity regarding its "publicness" (Benington & Moore, 2011). To address this, the concept must be understood as addressing collective rather than individual preferences, often stepping in to resolve social problems where neither markets nor states alone can adequately provide for the public—a situation described as "public value failure" (Bozeman, 2007). Publicness therefore refers to outcomes that are jointly consumed, non-rivalrous, and inclusive (such as universal access to digital services), as well as the institutional elements (such as the rule of law and data protection) that ensure fairness.

Within digital governance, public value is intrinsically multidimensional. It encompasses both the substantive content of the service delivered and the democratic legitimacy of the delivery process itself (OECD, 2019). To capture this plurality, this thesis draws on established values taxonomies. Specifically, it incorporates Hood's (1991) core administrative values: *sigma-type* (economy and efficient use of resources), *theta-type* (honesty, fairness, and public trust), and *lambda-type* (security, resilience, and adaptivity). Building on this, the thesis relies heavily on the distinction between *managerial public values* (efficiency, effectiveness, and task performance) and *democratic public values* (equity, fairness, and accountability) (Cordella & Bonina, 2012).

In practice, public sector AI and digital transformation research suggests that emergent technology initiatives frequently prioritize managerial values, such as efficiency gains and process optimization, while showing more ambivalence toward democratic values (Chen et al., 2023; van Noordt & Misuraca, 2022; van Noordt et al., 2024). Consequently, this thesis treats the concept of public value not as a static economic metric, but as a continuous balancing act. Administrators must engage with their political overseers to determine what public purposes they want to pursue before embarking on their digital transformation journeys (Moore, 1995). Indeed, as Nabatchi (2018) argued, if this vital step is neglected, the

public values that organizations serve to protect may be destroyed through the adoption of emergent technology, including AI (Schiff et al., 2022).

Lindgren et al. (2019) argue that whereas digitalization involving novel information technology applications, such as data mining, machine learning, sensor technology, and service automation, promise efficiency gains and greater transparency, they can also be used for surveillance, control, and exclusion: Technologies are neither inherently good nor bad; their application determines whether public value is created or destroyed. This is particularly pronounced in the context of AI adoption in public services, where disjunctures between discursive practice (the values and ethical principles being promoted in AI strategic plans) and administrative practice (AI use in public services delivery) have been documented (James & Whelan, 2021).⁴

1.3.3 Evaluating public value outcomes: from development to innovation

As already noted in the discussion of agile governance mechanisms (Section 1.3.2.2), this thesis distinguishes between *development*- and *innovation*-oriented research streams. This same distinction holds when reviewing the literature on how public value is assessed. Within this literature, existing evaluation approaches can generally be read as leaning either toward a development perspective, which emphasizes staged progress and maturity, or toward an innovation perspective, which foregrounds experimentation, learning, and adaptation.

Evaluation research inspired by the development perspective

According to the development perspective, public value is a central concept in evaluating the outcomes of modernization programs where information technology is viewed primarily as a tool to achieve a desired end. Bai (2013), for example, synthesized empirical e-government evaluation research to propose a framework built on the public value management approach originally developed by Karunasena et al. (2011). Bai's framework provides a citizen-oriented approach by organizing indicators around service delivery, organizational effectiveness, and trust-building.

Similarly, Hujran et al. (2023) propose the SMARTGOV model to capture progress towards advanced forms of digital government, using maturity levels as key indicators. In this line of work, maturity is positioned as central (Bannister & Connolly, 2015), corresponding closely to the *capacity* dimension in Moore's strategic triangle. However, digital transformation is increasingly recognized as a fluid and dynamic phenomenon that does not always follow linear, stage-based development paths (Mozaffar & Candi, 2025). Consequently, development-oriented models offer a useful but partial way of capturing public value: they foreground capacity and outcome indicators, but pay less attention to the specific governance mechanisms and socio-technical contexts through which public value is actually enacted.

⁴For a similar critique and discussion about framing and delivering public values in policy and practice, see Rose et al. (2015).

Evaluation research inspired by the innovation perspective

Within the innovation perspective, creating public value is foregrounded as the primary evaluative construct for assessing the effectiveness of innovation initiatives. Evaluation questions here focus not only on whether services are efficient, but also on how initiatives contribute to broader goals, including democratic engagement, stakeholder alignment, and organizational agility in the digital era (Deng et al., 2018; Smith, 2004).

While development-oriented models remain useful for situating cases, they risk misleadingly presenting digital transformation as a linear process. Therefore, this thesis theoretically aligns with the innovation perspective, as it brings governance mechanisms and emergent technology more clearly into view. However, to empirically evaluate these fluid processes, an integrative lens is required to capture how specific arrangements enable or constrain public value creation in context. This requirement forms the theoretical justification for the framework developed in the following section.

1.3.4 The PVM in Digital Transformation framework

The PVM in Digital Transformation framework brings together the four core concepts detailed in Section 1.3.2—administrative and operational capacity, governance mechanisms, emergent technology, and public value—into a single evaluative lens. Although these concepts are analytically distinguished in the framework, they are empirically intertwined: emergent technology applications are always enacted through specific constellations of governance mechanisms, administrative and operational capacities, and digital infrastructures.

The framework explicitly reconciles the development and innovation streams identified in the literature. Rather than treating these perspectives as mutually exclusive paradigms, it views them as interdependent requirements for effective digital governance. The *development* perspective is essential for building the robust *administrative and operational capacities* (e.g., modular architecture, shared digital infrastructure, procurement systems) necessary to reliably enact emergent technology in a reliable and accountable manner. However, relying solely on development risks creating technically sound systems that are disconnected from public needs. The *innovation* perspective is therefore equally necessary, supplying the agile *governance mechanisms* (e.g., user engagement, co-creation, flexible policymaking) required to continuously adapt these technological resources to complex, shifting societal demands.

Grounded in public value theory (cf. Alford and Hughes, 2008; Cordella and Bonina, 2012; Pollitt and Dan, 2013; see also Deng et al., 2018; Twizeyimana and Andersson, 2019), the PVM in Digital Transformation framework treats public value as a comprehensive construct for assessing the outcomes of modernization programs and the extent to which their goals are achieved through such change efforts. This ensures that digital transformation initiatives are evaluated not only in economic terms, but also in light of their wider impact on democratic ideals such as equity, transparency, inclusion, and democratic legitimacy.

By integrating these streams, the framework understands digital governance as a continuous socio-technical process. It is explicitly pluralistic: it balances the managerial outcomes prioritized by the development stream (such as service quality, operational efficiency, and task performance) with the normative, democratic dimensions championed by the innovation stream (such as equity, transparency, inclusion, and democratic legitimacy).

Analytically, the framework operates at two interconnected levels. At the policy-making governance level, it interprets national AI strategies and digital policy documents as instruments through which governments define public value goals, allocate responsibilities, and express power relationships. At the program implementation level, it guides the analysis of how governance mechanisms, administrative and operational capacities, and their associated digital infrastructures translate these policy framings into administrative practice and observable outcomes.

Ultimately, this framework is not a predictive causal model, but an integrative lens that structures the empirical analysis and supports the comparative synthesis of findings in Chapter 7. The framework was developed iteratively across the course of the research: its four core concepts were initially identified through the literature review presented in this chapter and were subsequently tested and refined through the empirical work before being consolidated as the integrative architecture that structures the comparative synthesis of findings in Chapter 7.

1.4 Research approach

1.4.1 Research design

The research design structures the thesis as an integrated, multi-method study that links policy discourse, organizational practice, and program outcomes in public sector digital transformation. The thesis is structured around four papers that together examine how emergent technology use is framed, governed, and experienced as sources of public value in the process. Papers I–II analyse national and sectoral policy documents to trace how emergent technology, especially AI, is positioned and how public values are articulated in these discourses. Papers III–IV then unpack a shared digital services program (DigIS), using theory-driven methods of analysis to explicate how governance mechanisms operate in practice and with what consequences.

This design employs a plurality of carefully chosen methods, each targeting a distinct analytical dimension of the research problem. Discourse analysis (Fairclough, 2012; Wood & Kroger, 2000) is employed to examine the ideational and discursive dimensions, inquiring into how problems, solutions, and public values are represented in strategy and policy texts, and how these representations privilege certain actors, technologies, or governance arrangements. Theory-driven methods of analysis then target the organizational and programmatic dimensions, asking how specific governance mechanisms - such as flexible policy frameworks, accountability structures, and collaboration arrangements - are activated within particular institutional contexts and how they contribute to the observed outcomes of digital transformation.

Paper IV, in particular, adopts a longitudinal, explanatory case study design (Yin, 2009) combined with theory-driven program evaluation grounded in context–mechanism–outcome (CMO) logic (cf. Pawson and Tilley, 1997; see also Astbury and Leeuw, 2010). This design is appropriate because that paper examines how and under what conditions particular mechanisms supporting agile governance in digital transformation shape the enactment of emergent technology and generate substantive public value outcomes in a real-life public sector program where researchers have no control over events. The analysis of the DigIS program therefore uses qualitative case data (interviews, documents, and observations) to explain how agile governance, shared services, and collaborative problem-solving actually operated within specific institutional

contexts, when they were enabled or constrained, and how such governance mechanisms accounted for differences in public value outcomes across initiatives.

The research design is thus iterative and abductive: findings from the discourse analysis in Papers I and II informed the initial formulation of mechanisms and value dimensions, while emerging findings from the DigIS case fed back into a refinement of analytical frameworks. Literature reviews played a central role in this process by identifying gaps in existing digital governance and public value evaluation frameworks, helping to specify hypothesized context, mechanism, outcome relationships, thereby supporting the theory-driven approach to evaluate DigIS.

1.4.2 Philosophical stance

This thesis adopts a critical and pluralistic stance to evaluate digital governance not merely as an economic or technical modernization effort, but as a normative socio-technical process directed toward the creation and distribution of public value. Analytically, the research is grounded in a critical, Bernsteinian perspective. It treats governance arrangements, administrative capacities, and policy discourses fundamentally as systems of classification and framing. Rather than mere background context, these systems constitute the actual social and institutional rule systems, structures, and boundaries that public actors are socialized into and operate within (Bernstein, 1993, 1996).

Methodologically, this theoretical bedrock aligns seamlessly with the logic of realist evaluation⁵. Drawing on realist evaluation, the thesis treats different methods and data sources as complementary tools for uncovering Context–Mechanism–Outcome (CMO) configurations, using them to explain how particular structurally classified arrangements generate specific public value outcomes (Astbury & Leeuw, 2010; Dalkin et al., 2015; Pawson, 2013; Pawson & Tilley, 1997).

Evaluations of public sector modernization often oscillate between a narrow search for universal cause-and-effect relationships and a purely constructivist focus on competing narratives that sidelines questions of causal influence (Astbury & Leeuw, 2010). Theory-driven evaluation offers a middle path. In the domain of digital governance, the alignment between Bernstein and Pawson is crucial because Pawson and Tilley’s conception of a “social program” operating within a “social reality” does not meaningfully differ from Bernstein’s view of society. For Pawson, interventions operate within pre-existing rules, norms, and resources; for Bernstein, these pre-existing realities are the institutional rule systems and boundaries governed by power and control.

Therefore, when a digital intervention is introduced, it does not land in a vacuum. It lands in an institutional reality bounded by classification. Technology provides resources, but it is this structural Context (*C*) that dictates whether actors can use those resources to trigger the generative Mechanisms (*M*) necessary to negotiate public value Outcomes (*O*).

Applying this theoretically integrated stance to information technology-driven public sector modernization rests on three working premises (Dalkin et al., 2015; Pawson & Tilley, 1997):

⁵I use ‘realistic evaluation’ in the sense of Pawson and Tilley (1997) and Dalkin et al. (2015)—a theory-driven, CMO-structured program evaluation approach focused on explaining what works, how, and for whom. Rather than adopting a full Bhaskarian critical realist ontology, the thesis utilizes CMO logic as a highly compatible methodological heuristic. My analytical interest is in tracing the empirical consequences of Bernsteinian boundaries—specifically how governance mechanisms shape the enactment of emergent technology and its public value outcomes.

1. *Technology provides resources, but bounded actors provide the reasoning.* Digital tools do not by themselves produce change in government. Instead, they introduce resources (e.g., data visibility, automated workflows) that alter the reasoning, enactment, and choices of public administrators within their established institutional frames.
2. *Mechanisms are reactions to resources ($C + M = O$).* Generative mechanisms are not static administrative tools or standardized agile frameworks; rather, they are the active reactions of agents to newly introduced resources. Crucially, these reactions (such as inter-agency trust, political mobilization, or resistance) are activated only within the structural boundaries (Context) established by prevailing policy discourses and institutional classifications.
3. *Outcomes are patterned, not universal.* Because mechanisms fire differently depending on how institutions are classified and framed, the goal of this research is not to prove that a specific digital governance model "works" universally, but to identify the specific CMO configurations that pattern the successful distribution (or failure) of public value.

On this basis, the philosophical stance serves as the primary analytical bridge between the different components of this thesis. The research design combines methods appropriate to this underlying logic to evaluate the framing, creation, and distribution of public value through emergent technology. Discourse analysis of AI strategies and digital policy documents is used to examine the discursive *context*—in particular, how technologies and public values are classified and framed, thus constituting the boundaries that shape the reasoning and resources available to actors (Papers I–II). In doing so, the thesis borrows analytic tools from critical discourse analysis (CDA) in the Fairclough tradition to study how language contributes to the institutionalization of digital governance arrangements (Fairclough, 1992, 2000, 2012). Complementing this, realist case study methods are employed to evaluate how specific *mechanisms* are triggered as socio-technical reactions within these classified programmatic contexts, and how this enactment contributes to observable public value *outcomes* in digital transformation initiatives (Papers III–IV) (Dalkin et al., 2015; Pawson, 2013; Pawson & Tilley, 1997).

1.4.3 CMO logic and analytical frameworks: the mechanics of digital transformation

This research employs a theory-driven evaluation approach (Astbury & Leeuw, 2010), investigating particular *mechanisms* activated in a program and the outcomes they produce. Mechanisms operate within particular contexts or environments that enable or disable them depending on the capabilities and resources available to program participants (Dalkin et al., 2015; see also Papers IV).

CMO configurations as an evaluative lens

Consistent with Dalkin et al. (2015), mechanisms are disaggregated into two constituent parts: the *resources* introduced by a program (the tools, rules, and structural provisions made available to participants) and the *reasoning* those resources trigger (the cognitive and behavioral responses that constitute the generative engine of change). To uncover these generative mechanisms, one must ask critical "how?" and "why?" questions, aiming to comprehend how a social program works, for

whom it works, and under what circumstances (Dalkin et al., 2015; Pawson & Tilley, 1997). The Contexts–Mechanisms–Outcomes (CMO) logic provides a systematic way to theorize and analyze digital transformation, moving beyond variance-based questions (e.g., "Does it work?") to generative ones (e.g., "For whom and under what circumstances does this produce public value?").

Developing analytical frameworks from the literature

To operationalize this evaluation, the literature reviews conducted for this thesis were integral to both identifying knowledge gaps and constructing the analytical frameworks used in the empirical analysis.

First, these reviews were crucial for creating the analytical coding frame—a systematic process grounded in qualitative content analysis (Schreier, 2012). This process involved the iterative refinement of coding categories to ensure they accurately reflected the data across Papers I, II, and IV. The final coding frame consists of a hierarchical structure of dimensions, broad categories, and subcategories, ensuring a rigorous, transparent, and reproducible analysis process. Documenting this development is essential for research rigor (Schreier, 2012).

Second, the reviews surfaced specific mechanisms supporting public value goals. For instance, Paper IV’s targeted review of agile governance literature revealed a set of key mechanisms that enable responsive and value-oriented administration. These were categorized into *innovation* mechanisms (e.g., human-centric design, user engagement) and *development* mechanisms (e.g., modular architecture, procurement processes), as detailed in Table 1.3. These categories served as the initial coding frame for the qualitative data analysis in Paper IV, allowing for the disaggregation of how institutional arrangements facilitate or constrain digital transformation outcomes. By oscillating between theory and empirical data in this way, the thesis ensures that the evaluation is both grounded in the realities of program implementation and structured by a theoretically robust coding framework.

1.4.4 Discourse analysis

Positioning of emergent technology and framing public values as discursive practice

This research draws on the analytical technique of *discursive (technology) positioning* to examine how government policies on emergent technology applications, particularly AI, position AI use within the public sector. Discursive positioning focuses on how roles and relationships—for example, between employers and employees in organizational contexts (Wood & Kroger, 2000), or between researchers and their software tools in academic publications (Paulus et al., 2017)—are constructed in and through texts. In this subsection, the focus is extended to a related but broader analytical perspective: *discursive practice*, as theorized by Fairclough (2000)⁶.

For this research, discursive practice refers to the production, distribution, and interpretation of texts that sustain or

⁶Alternative strands of CDA exist. For instance, some studies foreground subject positions, which, according to Locke (2004, p. 60, emphasis added), concern “*other* participants who are positioned by the way the writer constructs the context within which he is writing”.

challenge particular power relations and institutionalized social arrangements. In this sense, CDA is used to analyze how AI policy texts frame public values and delineate the boundaries of legitimate public action.

This examination concerned analyzing both the content and form of these texts, as well as the perspectives, motivations, and institutional contexts of those who produce and interpret them. Linking text and context is a core strength of this approach and underpins its practical relevance. Fairclough demonstrated this in his analysis of welfare reform in the UK (2000, p. 167): “[the UK’s government] is intent on introducing ‘customer-focused services’ in welfare and public services, treating the public as customers and consumers.” This illustrates how governmental discursive practices can reconfigure social relations and institutional roles. Moreover, CDA encourages the researcher to consider not only the technological dimensions of digital transformation but also its political, ideological, and accountability implications, critically addressing the evolving relationship between public organizations, the public (including citizens and businesses), and digital governance.

Note that the connection between the two analytical strands is not merely sequential but structural (cf. the thesis’s three-stage progression that I outline in the introduction; see Section 1.1) and builds on Fairclough’s ‘trans-disciplinary’ approach⁷ to discourse analysis (2012, pp. 13–15). The discourse analysis in Papers I–II identifies how governments discursively frame public value priorities and the discursively bounded institutional contexts within which emergent technology is enacted. The explanatory case study in Papers III–IV then examines whether, and under what contextual conditions, such governance arrangements can be reconfigured to realize intended public value outcomes in practice.

1.4.5 Case studies

Triangulation and data sources

The *case study method* (Yin, 2009) was selected to analyze DigIS and the newly established shared services managing IT and e-government functions within Icelandic central government. The case study approach provides a rigorous structure for collecting, organizing, and analyzing data about particular cases, while maintaining flexibility for the researcher through openness to multi-method research design.

Following Yin, this research employs a multimethod case study design that incorporates triangulation, which involves the use of multiple data sources collected over several years (Yin, 2003). Such an approach is particularly suitable here, given the qualitative, longitudinal focus on DigIS over a period of 3–4 years.

The primary data source for this case study consisted of interviews with e-government professionals (see Paper IV). In addition to the interview data, secondary materials—including participant observation at meetings and conferences as

⁷Fairclough’s trans-disciplinary methodology draws on Bhaskar’s notion of ‘explanatory critique’ (1986, as cited in Fairclough, 2012, pp. 13–15) and proceeds in four stages: first, identifying how a social problem is discursively framed; second, identifying the institutional obstacles that sustain that framing; third, assessing whether those obstacles are inherent to the existing social order; and fourth, identifying possible ways past them. In this thesis, Papers I–II address the first two stages by examining how AI policy texts frame public value and by analyzing the institutional arrangements that condition those framings. Papers III–IV address the latter two stages in a governance-evaluation sense, using CMO configurations to specify the contextual conditions under which those arrangements can be reconfigured to realize public value outcomes in practice.

well as document analysis of relevant strategies and memos—were utilized, in accordance with case study methodological protocols (see Yin, 2009). Relying on multiple sources in this way is consistent with Yin’s emphasis on triangulation, considered as essential for enhancing rigor and improving the reliability of case study research (Yin, 2003).

Triangulation strengthens findings by demonstrating that independent measures yield consistent (or at least non-contradictory) results (Miles & Huberman, 1994). In cases where discrepancies are found among, say, two measures, it falls to the researcher to evaluate and weigh the two, prioritizing the one that most robustly supports conclusions. Closely related concepts, such as *validating findings*, *concurrent validity*, and *methods of corroboration*, all refer to such practices for verifying results (Miles & Huberman, 1994, pp. 266–267). These strategies emphasize the importance of utilizing diverse data types and analytical approaches in confirming the phenomena under investigation.

As noted by Miles and Huberman (1994), triangulation can be achieved by using different data source, methods, and theoretical perspectives. In this research, triangulation involved of combining stakeholder interviews, participant observation, and document analysis. The integration of these sources enabled the corroboration of findings by assessing convergence or meaningful agreement across different forms of evidence, thereby contributing to the overall reliability and validity of the research.

Longitudinal design

Following Yin’s (2003, 2009) rationale for repeated observations of a particular case over multiple time points, the case study tracked the evolution of DigIS (2018–2022). Traditional administrative practice may sometimes cause friction with agile practices, leading to incomplete agile governance approaches (cf. Neumann et al., 2024) — a tension the case study was specifically designed to capture across the program’s implementation stages.

Employing a longitudinal case design and observing and analyzing developments over time, enabled the identification of underlying mechanisms and causal relationships affecting public value outcomes (Saunders et al., 2006). Accordingly, a detailed case description outlining the evolution of DigIS is provided below (see Chapter 2).

This multi-method, longitudinal case study approach was crucial for two main reasons. First, it enabled the evaluation of particular agile governance mechanisms identified in the literature and how they contributed to public value creation in the process of implementing DigIS (addressed further in the next section and in Paper IV). Secondly, it facilitated the analysis of how adopting digital technologies and new governance strategies supports the achievement of digital transformation goals by strengthening organizational structures, processes, and mechanisms (see Table 1.2). In particular, the approach was used to investigate shared-services organizations (or shared-services centers)—organizational units that consolidate administrative and IT functions to improve efficiency and standardization in digital governance (Ulbrich, 2010). By enhancing administrative and operational capacity building, such novel organizational forms play a strategic role in public sector digitalization, fostering greater agility and coordination (cf. Table 1.2; see also Horlach et al., 2018; Janssen and van der Voort, 2020; Paper III).

In sum, the above sections have outlined the thesis approach and its critical perspective to policy and program evaluation research. The following section describes how literature reviews were performed, an exercise that is integral to

this research tradition for identifying knowledge gaps and informing the design of evaluation frameworks and analytical frameworks.

1.4.6 The program evaluator's dilemma

It should be noted that my role in DigIS has been strictly as a researcher. According to Scriven (as cited in Patton (2002)), we, as evaluators, must distinguish between "gathering data and rendering judgment versus offering recommendations and designing problems". To ensure research integrity and independence, I stuck to the former position, i.e., the *evaluative* function (as opposed to the *design* function, as in the latter). That is to say, this entails identifying what works (or not) in a program (an evaluative function), which, of course, is "quite different from knowing how to fix or improve it (a design function)" (Scriven, as cited in Patton (2002, p. 316)). Nonetheless, evaluators can and often do have a valuable role to play in designing and improving a program by sharing their knowledge and expertise, something that Patton and I agree should not be downplayed or underestimated (Patton, 2002).

1.4.7 Summary of research approach

This thesis employs a multi-method research design that addresses both *administrative* practice—the operational routines, procedures, and behaviors through which public organizations deliver services and implement policy and how technology, organizational context, and administrative decisions jointly shapes it (Haug et al., 2023)—and the *discursive* practice of policy-making, examining how emergent technology discourse positions technology use in public services.

To examine administrative practice, Papers III and IV adopt a longitudinal, multi-method case study of the DigIS program in Iceland (2018–2022), triangulating data from 13 interviews, policy documents, field observations, and—in Paper IV—a targeted literature review of 70+ articles. Paper III analyzes how shared-service governance models were adopted and adapted across implementation stages. Paper IV applies a theory-driven, realistic evaluation approach using CMO configurations to assess under what conditions agile governance mechanisms contribute to public value outcomes in digital transformation.

This research treats public policies and programs as discursive practices that can enact institutional change in social or political structures. Accordingly, Papers I and II draw on qualitative content analysis and CDA applied to a corpus of 28 national AI strategies, supplemented by a literature review of 70+ articles. Paper I identifies how public values—democratic and managerial—are framed in strategic AI planning. Paper II builds on the same material to examine how power and empowerment are constructed in AI policy discourse.

Together, this thesis research approach combines different data sources and methods applied across the four papers (Papers I–IV) to achieve its twofold aim, discussed in the next section. For an overview, see the Overview of Academic Papers section below and Table 1.4.

1.5 The aim of the current research

This thesis addresses the RQ: How do governance strategies and mechanisms shape the implementation of digital transformation in the public sector, and how does emergent technology influence the framing and distribution of public value? As previously stated (see Section 1.1.2), the thesis has a twofold aim: first, to understand how governance strategies and mechanisms shape the implementation of digital transformation initiatives in the public sector (Aim 1); and second, to examine how emergent technology influences the framing and distribution of public value in these initiatives (Aim 2). The two aims, i.e., Aim 1 and Aim 2, are combined in a single RQ because governance arrangements and emergent technology jointly determine public value outcomes.

These aims are operationalized through the PVM in Digital Transformation framework introduced in Section 1.3.4, which evaluates digital governance arrangements along four dimensions: public value, governance mechanisms, administrative and operational capacity, and emergent technology.

The core argument driving this research is that digital transformation outcomes are not determined by technology itself, but by how emergent technology is enacted within specific institutional arrangements and governance mechanisms, which in turn shapes whether public value is created, distributed, or destroyed in practice (Alford & Hughes, 2008).

According to PVM, the goal of public management is ensuring that organizations are more responsive to citizens' preferences and needs (Brown, 2021). Digital transformation is not solely a technical undertaking; it also reflects political and ideological commitments that shape how public value is defined and distributed (Cordella & Bonina, 2012; Hood, 1991). Understanding how these commitments are embedded in both policy discourse and program governance is therefore central to the research aim.

As discussed in Section 1.2.2, recent scholarship has examined the public values motivating AI initiatives in public administrations on both sides of the Atlantic Ocean (Chen et al., 2023; van Noordt et al., 2024).

Grounded in theory-driven evaluative perspective (cf. Astbury and Leeuw, 2010; Pawson and Tilley, 1997), the current research conceptualizes generative mechanisms as the underlying social and organizational processes and interactions that enable public value creation through such initiatives. It builds on an understanding of co-creation and other participatory mechanisms as prime tools of governance that both inform and enrich the democratic process (Rodríguez Müller et al., 2021), enhancing the quality and legitimacy of administrative decisions.

Particularly focusing on governance mechanisms and administrative practices in digital transformation, this thesis highlights how the varied positions of public administrators impact public values. Their (often informal) roles shift fluidly—from architect and coordinator during policymaking, to program manager during implementation, and to steward or facilitator in iterative feedback and refinement. This perspective underlines how shifting administrative functions influence the translation of programmatic goals—from framing public value objectives to creating public value and achieving positive program outcomes—into the everyday work of public administration.

This thesis engages critically with the PVM tradition, acknowledging that a purely managerial reading of the strategic triangle can privilege efficiency over democratic accountability (Hood, 1991, 1998). It therefore adopts the pluralistic, outcome-oriented interpretation (cf., e.g., Alford & Hughes, 2008) advanced in Section 1.3.4.

As established in Section 1.2.3, a need exists for qualitative, mechanism-focused evaluation of digital transformation that goes beyond technical or organizational dimensions (Heidlund & Sundberg, 2022; Twizeyimana & Andersson, 2019).

Papers I and II address Aim 2 by examining the discursive framing of emergent technology in national AI strategies; Papers III and IV address Aim 1 by evaluating the governance mechanisms and outcomes of the DigIS program.

Table 1.4 operationalizes the theoretical framework’s four core concepts—public value, governance mechanisms, administrative and operational capacities, and emergent technology applications—posing analytical questions concerning public value and how it is framed or created through the enactment of emergent technology applications, notably AI, and institutional arrangements in public sector digital transformation.

As such, the thesis examines emergent technology through two key instances (see Table 1.4): AI systems as framed in national strategy documents and shared digital services as implemented in the DigIS program.

Table 1.4: Operationalization of the PVM in Digital Transformation framework’s four core concepts

Concept	Analytical question	Operationalized in	Evidence type
Public value	What public value goals are framed, pursued, and realized?	Document analysis of AI and DT strategy discourse; case study of DigIS outcomes	AI / DT strategy documents; interview data
Governance mechanisms	How do institutional arrangements shape technology enactment?	Document analysis of AI governance discourse; case study of SI / DigIS governance arrangements	Policy and strategy documents; interview data; observations
Capacity	What organizational abilities enable or constrain enactment?	Case study of SI and DigIS, focusing on administrative and operational capacity	Interview data; internal documents; technical documentation
Emergent technology	How does the nature of the technology itself influence outcomes?	Document analysis of emergent-technology discourse in AI / DT strategies; case evidence from SI / DigIS implementations	AI / DT strategy documents; case evidence

Note: This table outlines the theoretical alignment between the four core concepts and their empirical application in the thesis. The next section presents an overview of how individual Papers I–IV map to these components and their specific research objectives (Section 1.6; Table 1.5).

While Table 1.4 illustrates the conceptual and operational alignment of the PVM in Digital Transformation framework across the research, these concepts are not applied uniformly across all papers (e.g., capacity is primarily explored in relation to the case study). Section 1.6 (Table 1.5) details the particular contribution of each publication and shows how governance mechanisms, capacity, public value, and emergent technology are taken up in the individual empirical chapters.

Conceptually, the PVM in Digital Transformation framework adapts Moore’s public value management idea and strategic triangle to the context of digital governance, reading it through a pragmatic, pluralist lens. This aligns with the context-dependent balancing of competing management logics emphasized by Alford and Hughes (2008). Furthermore, drawing on the distinction made by Cordella and Bonina (2012) between managerial public values (such as efficiency, effectiveness, and task performance) and democratic public values (such as equity, fairness, and honesty), the framework treats public value as intrinsically multidimensional. This plurality is embedded throughout its four core concepts: public value, governance mechanisms, administrative and operational capacity, and emergent technology.

Crucially, while this theoretical framework maps the socio-technical landscape, it requires an operational engine to evaluate *how* these values are actually realized. As detailed in Section 1.4, the research approach translates this theoretical foundation into a concrete, realistic evaluation strategy designed to capture how technological resources and capacities interact with specific governance mechanisms to produce public value outcomes.

1.6 Overview of Academic Papers

In this section, I provide an overview of the four Academic Papers included in the thesis (see Table 1.5). Whereas Table 1.4 operationalizes the four core concepts in relation to the aim of the current research, Table 1.5 gives an overview of this thesis’s publications and their individual aims. Papers I and II examine the discursive framing of public value through emergent technology—specifically, AI applications in national strategies—addressing the second clause of the research question (Aim 2). Papers III and IV evaluate how governance mechanisms and administrative and operational capacities shape the implementation of shared digital services in the DigIS program, addressing the first clause of the research question (Aim 1). Together, the four papers operationalize the thesis’s twofold aim (Aim 1 and Aim 2) by examining how governance strategies and mechanisms, enacted within specific institutional arrangements, shape public value outcomes in public sector digital transformation.

Table 1.5: Overview of Academic Papers

Paper	Title	Material	Aims	Status
I	The strategic use of AI in the public sector: A public values analysis of national AI strategies	Policy documents = 28 Literature review $\geq$ 70 articles	(1) Review AI policy studies in digital governance and elsewhere to identify knowledge gaps (2) Discern important public values, democratic and managerial, involving AI applications in the context of particular public policy areas emphasized in strategic AI planning	Published in <i>Government Information Quarterly</i>
II	Power and discourse in national AI strategies	Policy documents = 28 (cf. Paper I)	Inquire into how power and empowerment appear in the context of AI-supported public service delivery emphasized in strategic AI plans	Accepted and in press at <i>Palgrave Macmillan</i>
III	Adopting digital government shared-services centers: A case from Iceland	Case data Respondents = 13 Policy documents = 2 Observations/other = N/A	(1) Explore how adopting innovative governance approaches influences public value (2) Systematically assess the functional components that support digital shared-services programs	Published in <i>ACM</i>
IV	Agile governance in public sector digital transformation: a program evaluation	Case data + literature Respondents = 14 Policy documents = 6 Field research Literature review $\geq$ 70 articles	(1) Develop an evaluation framework based on the CMO logic (2) Evaluate the conditions under which agile governance mechanisms generate public value outcomes in public sector digital transformation	Currently in review

In the subsections (Sections 1.6.1-1.6.4), I briefly outline each paper’s contents and connect their individual aims to the PVM in Digital Transformation framework developed in Section 1.3.4.

1.6.1 Paper I

Aims

This study links the PVM in Digital Transformation framework's public value and emergent technology concepts: it investigates a peculiar emergent technology use, namely the enactment of AI, focusing specifically on AI applications in the public domain. Although other studies have analyzed these documents, the current study does so from a different perspective. While prior studies on AI strategies have positioned the government primarily as a regulator or policymaker, AI's potential to enhance public value creation has been underexplored. By scrutinizing the contents of these plans, the study's aim was to address the extent to which the material positions AI potential in regard to the latter. In addition to answering this question, the analysis discursively analyzed the identified passages. At the theoretical level, the paper operationalizes public value framing in AI strategy analysis; methodologically, it combines qualitative content analysis with discourse-analytic techniques across 28 national strategies; and practically, it provides policymakers with evidence on value tensions and priorities in public sector AI governance.

Methods

To meet the aims and address the research question, i.e., potential AI-enabled public value creation, 28 national and cross-national AI strategies were collected and analyzed, applying qualitative content analysis and discourse analysis (DA). First, relevant passages regarding AI in the public sector were coded and then DA was applied to them. Common positioning of AI use in the material was identified. Discourses emerged regarding how AI contributes to public value in the governments' diverse state operations, allowing for a systematic assessment of aspects like increased efficiency and better service delivery and quality.

Conclusions

The most frequent application domains include AI in healthcare, education, employment, and security. The study demonstrates that AI strategies express intentions to apply AI, although to a varying extent. AI is often positioned as able to supplement (instead of automating) civil servants' decision-making, underscoring its potential to support government operations and services, thereby contributing to greater public value. Different domain-specific AI use cases and examples concerning dominant discourses are presented and discussed, such as the discourse of empowerment through information. In this context, technology positions can be seen as nuanced, framing AI use cautiously or opportunistically, notably in education. However uncommon, positioning of AI use in the latter sense was found in the material. AI strategies frequently articulate AI use in particular domains to support the work of administrators and public service delivery, emphasizing the public values of increased efficiency and effectiveness, more inclusion and fairness, service quality, etc. The findings add to the discussion concerning PVM in digital governance, particularly AI applications and policy. It concludes that government transformation through AI applications is rhetorically common in AI strategies, although concrete measures to that end are often missing.

1.6.2 Paper II

Aims

This study links the PVM in Digital Transformation framework’s governance mechanisms and emergent technology concepts. Building on Paper I, it considers how power and empowerment appear in policy discourses about AI applications, attending to the enactment of emergent technology and, in particular, the power dynamics embedded in the strategic use of public sector AI. It argues that the use of this technology has important implications for existing power relationships, notably among civil servants. At the theoretical level, the paper links power dynamics to the framing of public value in AI governance; methodologically, it adapts CDA to analyze power relationships in AI policy discourse; and practically, it illuminates the implications of power and empowerment for AI adoption in public organizations.

Methods

To meet the aims and address the research question, i.e. how dominant AI discourses convey power relationships and administrative discretion, the segmented material (i.e., Paper I’s dominant AI discourses) was analyzed through a conceptual model of power. The analytical approach, that is, by adopting this power framework and discourse analysis—i.e., Paper I’s discursive positioning technique, plus Fairclough’s ‘discursive practice’ idea (1992; see also, Fairclough, 2012)—is seen as appropriate when focusing on AI and power in this context. This allows the researcher to uncover power relationships expressed in strategic texts.

Conclusions

Consistent with the conclusions from Paper I, Paper II goes deeper into AI strategies to understand why there is a tendency to position AI as a facilitating and supportive technology rather than a controlling automation tool. Positioning AI as an automation tool can be seen as a narrow cognitive frame that could potentially affect privacy, transparency, and accountability in an adverse way. The strategies highlight such negative impacts or risks in relation to this AI position, particularly in the context of important (and sensitive) public sector domains. AI strategies must consider forms of power and control being enacted by adopting AI applications and new work practices in public sector organizations. While AI might significantly increase productivity, as AI strategies often promote, different use cases are possible, such as AI-enabled platforms facilitating enhanced civic engagement and increased public participation, potentially leading to better policy that aligns with public values.

1.6.3 Paper III

Aims

This study links the PVM in Digital Transformation framework’s organizational capacities and governance mechanisms concepts. Presented as ongoing research at an ACM conference (ICEGOV 2022), the paper establishes the case context for

the DigIS program by exploring a newly established digital shared-services center (SSC) within the Icelandic government, surfacing the governance arrangements that Paper IV subsequently evaluates through the full CMO configurations framework. This study focused on the adoption of Stafrænt Ísland (SÍ, or Digital Iceland), a form of innovation adoption in which industry practices are adopted and adapted by the government. The aim was to understand this process better. Arguably, SSCs play a key role in providing digital services, thus enabling public sector digital transformation efforts. However, there is little academic research on this topic. The innovation discussed in this paper effectively led to a transformation in digital governance. At the theoretical level, the paper extends the innovation-adoption literature to digital governance; methodologically, it applies a longitudinal case-study design that tracks SSC adoption across implementation, configuration, and deployment stages; and practically, it offers a transferable model for governments establishing digital SSCs.

Methods

A case study was conducted where the 'unit' of adoption concerned a particular innovation that the Icelandic government has adopted. SSCs involve certain practices based on the idea that certain functions, such as HR and IT, should be aggregated and centrally governed, operating horizontally across the organization or enterprise. Collecting different data sources, including interviews and government documents, the study systematically analyzed the implementation, configuration, and deployment stages of the innovation adoption process. This includes analyzing the system's components, i.e., input (e.g., the human/financial resources), throughput (process), and output (e.g., e-government services), individually and collectively from a PVM perspective. In addition to the system's components, public value impacts were considered (economic, societal, and administrative).

Conclusions

This above-mentioned shared-services initiative, i.e., adopting a digital SSC, is seen as key to Digital Iceland's overall success, enabling the aggregation of power and resources to effectively implement change. It highlights the importance of new e-government applications and digitalization in the government's modernization efforts. The case study results confirm emergent technology's potential to change administrative practices and public governance, as reported in the digital governance literature. They also demonstrate the importance of trust and establishing common grounds for collaboration involving different actors across the public and private sectors. The analysis focused on creating public value at different stages of the innovation adoption process. Collaboration and co-creation enabled the government to modernize operations with shared digital solutions like infrastructure, which aligns with research showing that such mechanisms can support public value creation through technology. The case study concludes that effectively conceiving an SSC equips the government with the administrative capacity needed to realize value from digital transformation initiatives. However, fear of digitalization is a barrier to innovation that underscores a need for heightened inclusion and consultation with beneficiaries for successful co-creation and stakeholder alignment. The case study contributes to research and practice by offering valuable insights into understanding digital governance innovation and co-creation, drawing on a successful case of a shared-services unit within the central government.

1.6.4 Paper IV

Aims

This study links the PVM in Digital Transformation framework's governance mechanisms and public value concepts. Whereas Paper III established the case context and surfaced the governance arrangements, this paper applies a realistic evaluation to evaluate under what conditions agile governance mechanisms contribute to public value outcomes, such as enhanced public service delivery and responsiveness, in public sector digital transformation. To address this question, the evaluation applied the CMO configurations approach to DigIS. It assessed three shared digital transformation initiatives—the Digital Driver's License, Parental Leave Application, and Askur chatbot initiatives—to determine the extent to which the identified mechanisms were effective in generating these outcomes. At the theoretical level, the study applies a theory-driven approach that links public value theory to the agile governance concept; methodologically, it adopts and adapts a CMO framework to DigIS's evaluation; and practically, it provides actionable insights into how and why governance mechanisms generate effective outcomes in the context of public sector digital transformation.

Methods

We adopted a realistic evaluation approach within an explanatory case study design, combined with qualitative content analysis, drawing on 15 semi-structured interviews with 13 e-government professionals and policymakers, government documents, observations at meetings and conferences, and supplementary materials. Drawing on Pawson and Tilley's CMO configurations approach, we developed a coding frame and an evaluation framework and identified several context-dependent governance mechanisms, such as experimentation, flexible policymaking, collaborative processes, and innovative procurement, some of which were sourced from the literature. We validated the coding frame and evaluation framework using inter-coder reliability testing and then applied this to evaluate how these mechanisms interacted with Icelandic contexts—strong political commitment, advanced digital infrastructure, and high citizen digital literacy—to produce program-level (PVM) outcomes.

Conclusions

The realistic evaluation identified three critical for generating (1) *flexible policy frameworks* (enabling centrally steered agile delivery and user-centered digital service improvements); (2) *accountability structures* (clarifying public value goals, roles and decisions to ensure transparent, timely and budget-compliant program delivery); and (3) *collaborative processes* (inter-organizational collaborative processes and shared arrangements that enable rapid, adaptive responses to changing stakeholder needs). The effectiveness of these mechanisms varied by context. The digital drivers license initiative succeeded despite high-stakes challenges through political escalation that clarified authorities and resource flows. The parental leave application demonstrated agile benefits through citizen-centric design but was constrained by rigid procedures and misaligned incentives. The Askur chatbot exemplified strong mechanism activation, producing rapid inter-organizational uptake through positive network externalities (network effects). Notably, experimentation and learning did not emerge

as independent mechanisms; instead, adaptive learning was embedded within collaborative processes, constrained by the centralized governance model.

The study empirically validates that public value emerges from the interplay of multiple interconnected mechanisms activated within supportive contexts. Neither flexible policy nor collaboration alone suffices; their combination with accountability structures produces optimal outcomes. The concept of *mutuality*—trust, reciprocal commitment, and transparent communication—proved essential for mechanism activation. DigIS built mutuality through *small wins*: demonstrating tangible citizen value, establishing SÍ’s technical competence, and earning a reputation of being the center of excellence in public sector digital transformation. These early successes sustained stakeholder engagement and ensured shared digital service’s scalability. The results have important practical implications for practitioners, such as valuable insights into agile governance processes and outcomes that they can use for program design, ultimately increasing their chances of achieving digital transformation goals and enhanced public value creation. This research advances public value management theory by empirically grounding the mechanisms through which agile governance operationalizes value creation, demonstrating that realistic evaluation effectively captures the contingent nature of complex government modernization efforts.

Chapter 2

Case description



Table 2.1: Country profile during the study period, 2019–2021

Iceland	
Population 2023	398452
Registered voters 2021	254681
Income	High income
(Sub) Region	(Northern) Europe
Notable free trade agreements	Europe (EFTA, EEA) and China
Political scheme	Semi-presidential republic
Democracy	Full democracy
President	Guðni Th. Jóhannesson
Prime Minister (cabinet)	Katrín Jakobsdóttir

Note. Country profile compiled by the author. Image source: government.is.

2.1 Introduction

This thesis draws on a case of Iceland's digital shared services program, DigIS (Papers III-IV). In this chapter, a detailed case description is presented of its *new organization*, SÍ, or CIO Office (commonly known as "Stafrænt Ísland" [meaning "Digital Iceland"] and is referred to as "SÍ" throughout this thesis). It manages the development and implementation of the program. Partially based on the case description written in Paper III, it provides a more detailed account of how the organization enacted digital governance arrangements — the governance mechanisms and strategies deployed — and the outcomes achieved in the process. Due to space constraints imposed by academic journals and conference proceedings, many details had to be omitted. On the other hand, a detailed case description enables a more nuanced understanding of

the context and, thus, a better overall understanding of this study. The latter reason is consistent with the rationale for triangulation, as already discussed above (see Section 1.4).

The purpose of this section is mainly to provide a high-level, non-exhaustive overview of the various activities and events that happened during the longitudinal study of this program. A three-year time span is seen as sufficiently broad in scope for a digital transformation evaluation for two reasons. First, this is because a longer period would necessitate trade-offs by the author between events and activities. It might end up in an analysis that would neither have depth nor would it be practically viable. Second, a shorter period would not allow sufficient time to pass to evaluate the outcomes or effects of strategic actions and happenings or events occurring in the course of the program, especially in its early stages. In addition, imposing too strict time constraints would probably result in an incomplete case analysis (as it would no longer be a longitudinal case study).

Establishing the duration of a longitudinal study is relatively simple. Deciding when it starts is something different. The first interview that I conducted for this study was with a senior IT professional at SÍ, who is its oldest dedicated member. Choosing him as the first interviewee was a deliberate choice, as suggested by my contact person at FJR - the Ministry of Finance. This is noted because the three-year period of SÍ's story starts with his employment. Although starting at FJR in 2018 as a part-time employee, he did not become a full-time staff until a year later. Accordingly, the story really begins in January 2019 when this person officially became employed and thereby the first 100 percent dedicated member of SÍ. Hence, *the case spans a three-year period, from January 2019 until the end of 2021* (see timeline in Figure 2.1).

SÍ stands on the shoulders of its predecessors in digital governance, and its contribution to the state of affairs in government IT matters should not be underestimated. Acknowledging this fact, I will occasionally note the latter's contribution (e.g., using footnotes), although focusing mainly on the SÍ program and its contents.

A country profile is presented in the Table 2.1, based on demographic details and registered voters from the National Registry of Iceland. The names of the former prime minister, Katrín Jakobsdóttir, and former president of Iceland, Guðni Th. Jóhannesson are also noted in the table. They were in office when the program was implemented. It should also be noted that Bjarni Benediktsson was the finance minister at that time.

2.2 The first year - 2019

2.2.1 SÍ officially formed (January)

As stated in this chapter's introduction, the first full-time SÍ employee was hired in January 2019. At the same time, it became a formal unit within the government. Hitherto, SÍ had been operating as a PMO (project management office) and managed by a PMO executive. Moreover, the government had a month earlier formed a strategic development partnership with Finland and Estonia under the NIIS institute (Nordic Institute for Interoperability Solutions) concerning the development and use of a data exchange system, Straumurinn (or X-Road). Its purpose is to improve IS interoperability and support information sharing between public organizations (Government of Iceland, 2018).

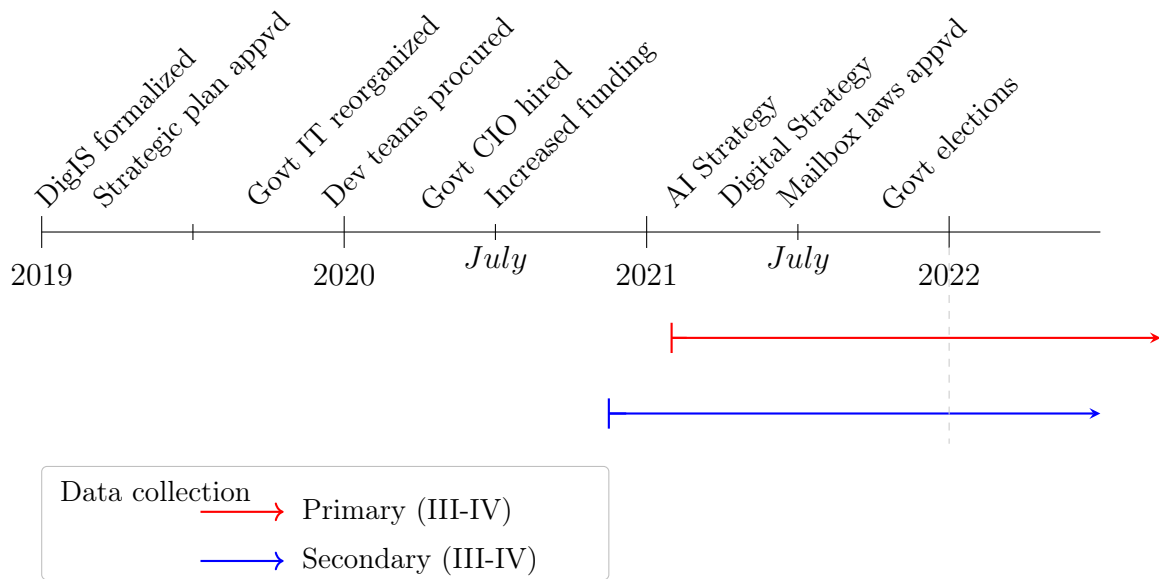


Figure 2.1: The study’s timeline, 2019–2021; data collection indicated below with corresponding publications. For a detailed overview of data sources, see Paper IV’s Appendix A (Chapter 6).

2.2.2 Strategic plan approved (May)

By the end of May of the same year, the government approved a strategic action plan. Its goal was to greatly improve digital services in the public sector (Government of Iceland, 2019). In a memorandum (no. FJR19030051), shared by my contact at FJR, this plan is outlined. It includes a strategic action plan for 2019-2020 stipulating measures on how to attain the overall goals of the government. The goals concerned two concrete objectives concerning shared digital services. On the one hand, they were to *place online/digital communication as a primary communication channel* between the public (citizens and businesses) and the public sector. On the other hand, they were to put greater emphasis on the development and delivery of shared digital services and infrastructure via the Ísland.is portal (the official e-government portal). The strategic action plan for 2019-2020 (henceforth referred to as "the action plan") also describes certain challenges that need to be addressed: publicly owned versus privately owned digital infrastructure (e.g., eID), the IT strategy of public organizations (or the lack thereof), limited interoperability of disparate government IS, and the need for a government-led prioritization and coordinated action in government IT matters. Hence, the government authorized a plan that assigned IT governance and IT development of the state to FJR and SÍ. This authorization was critical for the SÍ program as it enabled the acquisition and deployment of IT resources (human resources and infrastructure). Furthermore, having a single ministry in control (FJR) was strategically important to accelerate the implementation of the program.

2.2.3 Digital functions and tasks reorganized (ca. November)

In the last months of 2019, government information technology was restructured and divided into separate organizational units under FJR. Both the IS function and the IT function had previously been organized by the SÍ. In the newly approved action plan described above, it is stated that tasks belonging to these functions (i.e., IT infrastructure and IS management

and development) be handled by the FJR ministry. However, it did not specify how IT governance should be structured. According to one of the respondents who was interviewed, the executives at the ministry decided to create a separate (sub)unit, Umbra, to handle technical support such as services to internal IT users. Consequently, SÍ's role became clearer; it was to focus exclusively on the development and deployment of digital shared services for public organizations and their service users (i.e., citizens and businesses). This was, one executive shared, a strategic decision that allowed SÍ to become more focused on specific tasks. Most notably, it could concentrate its efforts more effectively on digital infrastructure development - seen as crucial in the action plan - enabling effective and secure digital services development and data sharing between its clients (i.e., public organizations), respectively. Currently, both SÍ and Umbra operate as (semi)independent organizational units responding to government executives at the FJR. Their clients constitute all public organizations within the Icelandic government, including government agencies or institutions, as well as different local governments on the island (around 250 organizations).

In addition, a draft for Ísland.is' technical direction was subjected to public deliberation in November (Island.is, 2019a). The draft received several suggestions for improvement (reviews), mostly from experts in the local web development community. The document supports the government's action plan as it details web development approaches concerning Ísland.is. In the document, SÍ said that they would start developing solutions based on a "*centralized services portal under the brand Ísland.is*" (Island.is, 2019a, p. 4)¹. Notably, this policy document is the first IT policy based on the action plan that was submitted to a deliberation process at the public deliberation web portal (samradsgatt.is). Although never published, SÍ cited the action plan elsewhere, e.g., in an advertisement for the first cross-functional procurement (or agile procurement) event (ICEPRO, 2019; Island.is, 2019b):

As a part of [the action plan], SÍ calls for the participation of diverse teams from powerful companies to cooperate with SÍ to deliver improved services to the public and organizations.

The "diverse teams" in the quoted advertisement, concerns a particular requirement of the mentioned IT policy, i.e., that they adhere to agile approaches in the development of Ísland.is infrastructure and services "*such as Scrum with Continuous Delivery*" (Island.is, 2019a, p. 6).

2.3 The second year - 2020

2.3.1 Team assembly (January-February)

In February 2020, the government hired its first CIO. it marked a turning point in the SÍ program. Hiring a (government) CIO was a radical innovation in government, altering the governance capacity of the unit and enabling it to attract talent from industry — a contextual condition that proved critical to achieving subsequent program outcomes. Indeed, some of

¹Ísland.is' technical direction is now published online as a live document (in English), continuously being revised and updated. It serves as documentation for developers who contribute to SÍ's open software libraries, see also Stafrænt Ísland (2023).

the talented individuals I interviewed mentioned that this decision, i.e., to hire that particular person as CIO, motivated them to apply for a position at SÍ.

A month before, i.e., in January, a cross-functional procurement bidding involving participants from the software industry was held for the first time. 26 companies, both local and foreign, participated and 18 cross-functional agile teams were recruited (Ríkiskaup, 2020). In my interview with the CIO, he explained that agile procurement, as he called it, is a novel approach in public procurement. Innovative procurement strategies, involving agile procurement and dynamic purchasing system (DPS)². He also said that agile software procurement allowed SÍ to move faster and make better use of resources compared to traditional software procurement. Adapting procurement policies to agile approaches was thus needed for the SÍ program. This has also been the case in other countries involving agile approaches in government, such as in the US (cf. Mergel, 2016).

More concretely, introducing agile procurement in government gave SÍ access to capabilities and expertise that the team did not possess. For instance, SÍ could use and control agile teams in ad-hoc IT development projects. In contrast, government tenders had hitherto been based on the so-called "waterfall" approach, i.e., all system specifications and requirements were predefined. Such approaches have, according to the CIO, usually lacked considerations about user needs: "So the traditional procurement, i.e., to have long tendering specifications before you have received feedback from the user, does not work", the CIO said. "Instead of procuring a specific project, we procure a large number of hours. We are just searching for skilled teams with experience and knowledge in solving comparable projects irrespective of the specific project they will actually solve", he added. Both small and large companies could participate in the bid. 3-5 members in each team were required (with the possibility to scale to 10 members). In a subsequent bid 20 cross-functional agile teams were selected as SÍ development partners (compared to 18 in the current bid). Thus, SÍ was able (at least in theory) to scale its team up to 200 individuals. According to SÍ's development/technical lead, the agile teams (or software teams) had expertise in different areas of web development, from design to information technology, from programming to consulting: "Although we are only 10 [individuals], we have strong backing from our [development] partners". She explained that by partnering with the IT sector, thus securing necessary IT resources, the government increased its operational capabilities and capacity, which she considered essential for agility and scalability.

2.3.2 Increased funding (March)

In March 2020, the government announced a substantial increase in government IT investments (Government of Iceland, 2020). As part of the government's pandemic recovery package, SÍ was expanded to deal with pandemic-related IT projects to keep the national economy afloat. SÍ was responsible for the allocation of this money. The pandemic is treated here as a contextual trigger that created the conditions for increased resourcing and accelerated digitization, rather than as an independent variable in the subsequent analysis. For this purpose, a particular application process was reinstated; eligible digitalization initiatives at public organizations were co-financed³.

²Dynamic purchasing system (DPS) is a procurement mechanism allowing any company to participate in a bidding that meets certain basic requirements. The bid can be any application or product.

³The application process was created by the Information Society (section 996 of the public budget) for the allocation of funds dedicated to IT development at public organizations. This arrangement is based

2.3.3 Ísland.is refurbished (September)

As previously stated, the government placed great emphasis on Ísland.is' in the SÍ program (Sections 2.2.2-2.2.3). Accordingly, one of the first tasks emphasized by the newly appointed CIO was redesigning the shared-services portal in terms of increased usability and functionality. 'User-centric' or 'citizen-centric' approach to digital service development was and continues to be central to Iceland's digital strategy. This strategy concerns placing the citizen-user's needs as a priority in the development of digital services. This citizen-centricity is reflected in Ísland.is' front-end design. Life events are an excellent example of this, i.e., important events in one's life are presented to the user, e.g., (major) events such as getting a driver's license, earning certificates or diplomas from one's studies, getting married, having a child, etc. As mentioned by the SÍ team, the number of such life events and related services has grown significantly since the SÍ program was launched. According to the team, the increased supply of shared digital services has contributed to increased user adoption.

At the time of the refurbished site's launch, it was promoted extensively, such as at joint speeches delivered by Mr. Benediktsson and the CIO. Marketing campaigns involving TV and online ads were also used with the slogan "that way (i.e., by using Ísland.is) we are all on the same page and can 'get right to it', safely and simply". This 'it' in the cited slogan, of course, refers to all of the services the government provides to citizens and businesses made accessible on the site. Many of the practices adopted by SÍ and the ideas it represented were (and to some extent still are) quite novel and different. Meaning that these ideas and practices are not typically seen in public administration in general.

Various technical issues arose when scaling the digital infrastructure. Notably, the challenge of handling increased end-user traffic to the website, especially so-called end-user peaks. Two such peaks were shared by the interviewees. One peak during the elections in 2021 in relation to authenticating voters presenting a digital driver's license on their mobile phones (see below). Another when the travel voucher issued by the government during the pandemic and made available for citizens to use on Ísland.is was about to expire. These events caused a high load on the digital infrastructure. In the latter, the load exceeded the capacity of the servers causing the site to crash. According to one manager, her IT staff managed to restore the digital infrastructure by scaling the servers' capacity, quickly resolving the issue. She said that the capable team and scalable cloud infrastructure behind Ísland.is made SÍ able to respond quickly. Thanks to this strong digital infrastructure capacity, restoring servers and systems was a matter of minutes and caused minor disruptions to SÍ's operations. As a result, the inconvenience for citizens was small and brief, she claimed.

on best practice in co-financing (Guðrún Sigurðardóttir [pseudonym], personal communication, Sept. 2024). According to the SÍ team, the application process was reinstated. Suffice it to say, the process involves the team meeting regularly to review and evaluate the applications from public organizations, deciding whether these initiatives should receive funding based on certain selection criteria (partially subjective and partially objective selection criteria are used in the decision-making process).

2.4 The third year - 2021

2.4.1 National strategies involving digital tech (March, July)

Some notable strategies have been implemented in the Icelandic e-government. Before SÍ, a small team of e-government experts, known as the Information Society (Upplýsingasamfélagið), was employed by the government. This team implemented various IT-related initiatives and reported to the Prime Minister's Office. Despite its strong start, digital governance issues were not sufficiently emphasized by the government over time. Consequently, due to the government's unfavorable prioritization, Iceland's digital governance development diverged from the trajectory of leading Nordic countries such as Denmark and Sweden. This absence of coordinating mechanisms was manifested in public budgeting and the government's "bottom-up approach" to digital governance⁴. Regardless of the specific reasons (that are beyond the scope of this thesis), based on existing reports, coordination mechanisms supporting digital governance were not in place⁵, which can be seen as a problem⁶.

The current coordinated digital governance/national digital strategy (Government of Iceland, 2021a) echoes earlier aspirations of the Icelandic government to become a "leading country in the utilization of IT for increased economic and human prosperity" (Government of Iceland, 2002, p. 3). Although such discursive practices of earlier governments reflect current practices to some extent, there are fundamental differences today.

In addition to the national digital strategy, the government published its first national AI strategy (Government of Iceland, 2021b). One would expect that the two strategies would be interlinked, at least to some extent. However, there is little relationship between them. The reasons for this became clear in my talk with a policymaker at FJR. He seemed somewhat disappointed when he explained that deliberation with FJR in the making of the latter strategy was limited⁷. Notwithstanding, the AI strategy has a section pertaining to the SÍ program, 'Digitalization of the public sector' (Government of Iceland, 2021b, p. 24), citing a presentation given by SÍ to the AI strategy's working committee prior to its publication. Moreover, the AI strategy states:

*The journey that was started on the basis of the **government's strategic action plan for enhanced digital services** is far from over and it is important to continue this work, e.g., on the basis of the*

⁴This particular problem is based on responses from an executive working at FJR and a former leader of the Information Society (Guðrún Sigurðardóttir, personal communication, Sept. 2024) who's testimonies varied significantly as to explaining the varied outcomes produced by implementations of previous e-government programs

⁵Although such mechanisms had been in place (which was likely the case), they were not activated (cf., the challenges stipulated in the memorandum, as stated in Section 2.2.2)

⁶In fact, in a survey about digital transformation in government, public managers requested a new digital strategy for the public sector (Kristjansson & Olafsdóttir, 2020). It should be led and coordinated by the government. This was really lacking, as no e-government strategy currently existed; the interval between the publications of the prior strategy and the new one is 8 years, i.e., the former was published in 2013 (e-government strategy 2013-2016; see Government of Iceland, 2013) and the latter in 2021 (e-government strategy 2021-onward; see Government of Iceland, 2021a), leaving a substantial 'gap' in between.

⁷The policy maker might not have been aware that the government CIO and an expert at FJR had both been consulted in the writing of the AI strategy, as indicated in a document appendix, 'Respondents and reviewers' (Government of Iceland, 2021b, p. 37).

ideas that are presented in a new digital strategy. It is important that the authorities set a good example and encouragement and do not, for instance, compromise on security issues when using AI in public service. This applies, for instance, to decisions related to data storage and security issues that must be addressed (Government of Iceland, 2021b, p. 24, emphasis added in bold).

According to one interviewee, the government had not been investing in public-sector AI. One SÍ member stated: "...the question is if [AI] will be connected to the capital. What will happen then? Doors will open". SÍ's contribution to the AI strategy has mostly been educational, according to one of its managers⁸. In addition to its educational role, according to another manager, it has offered an AI-enabled chatbot solution as part of its hosted shared-services portal. The bot, called Askur, has allowed SÍ and the District Commissioners' Office to customize content published on Ísland.is⁹:

"We [SÍ] implemented [Askur] for the District Commissioners [website], and this is my responsibility. We monitor what people are asking. We cannot really improve our content unless we know what people are interested in", she said.

In addition to the District Commissions office, SÍ has received inquiries from several other client organizations concerning AI chatbots for public service delivery. Accordingly, SÍ planned a DPS and received valid bids from two major IT companies in Iceland offering chatbot applications from different vendors (Boost.ai and Watson). Although not explicated in the SÍ program, certain public-sector AI applications are creating traction in the Icelandic public sector, notably AI bots. However, there are various barriers that my respondents mentioned. Most relatedly, the government CIO claimed that the understanding of AI among public managers is often lacking, and public organizations rarely possess the IT resources to adopt AI and use it for their different operations. In addition, he argued that public-sector AI strategies have had the tendency to be overly optimistic, overlooking some of the challenges concerning AI adoption and use:

"People [public managers] have been talking about this [AI] for a long time, but they haven't really shown an understanding of it. It's one thing to talk about artificial intelligence and something else to expect it to solve something, but when you go to the next step, then the understanding is not quite strong enough throughout [the public administrative] system, especially among the authorities, what exactly this is. The other thing is that the [IT] infrastructure is not quite ready for [adopting AI]."

2.4.2 Digital Mailbox laws (July)

In June, Althing (Parliament) approved new e-communication laws concerning SÍ's Mailbox solution (Alþingi, 2021). The solution is not new as it has been available since 2011 (Baldursdóttir, 2011). Through the "Digital Mailbox" (stafræna pósthólfð), as the solution is commonly called, public organizations can publish announcements, decisions, etc. pertaining

⁸For example, the Elemennt AI awareness campaign based on the Finnish example that the FJR and the Prime Minister's Office launched together.

⁹The District Commissioners Office was the first to adopt this service, i.e., migrated its website to the citizens' web portal, i.e., the content is tailored to citizens and businesses searching for information by monitoring inquiries of service users (Paper IV)

to citizens on the shared-services portal, which the citizen can then access by logging on to ‘My site’ on Ísland.is (Baldursdóttir, 2011). FJR has supervising authority over these laws, coming into force in July 2021. The Digital Mailbox laws align with one of the key goals of the SÍ program, outlined above (see Section 2.2.2) (Alþingi, 2021, art. 1, emphasis added):

"The aim of these laws is to promote efficient public service, increase transparency in case handling and efficiency in administration and ensure a secure way to communicate data to individuals and legal entities. Furthermore, it is the aim of the laws that *the main communication channel of the authorities with individuals and legal entities be digital and centralized in one place*".

These laws require public organizations to publish their data to the Digital Mailbox (a service currently accessible only through Ísland.is). This has considerable implications for SÍ as it is the sole provider of the service. In addition, according to the implementation plan accompanying these laws, SÍ is the systems integrator, i.e., onboarding client organizations that have not adopted the solution. In particular, "SÍ's role is to handle the implementation according to the implementation plan, offer consulting about integrating parties' IS with the digital mailbox, and instruct parties' concerning its use"(Government of Iceland, 2022). Furthermore, these laws state that the plan should be fully implemented by end of 2024 (Alþingi, 2021, art. 10). Accordingly, the plan details how this work will be conducted (see also Island.is, 2023).

In brief, the aims articulated in Article 1 of the Digital Mailbox laws (cf. the above quote) clearly reflect those stated in the SÍ program¹⁰. This way, the program became formalized. Indeed, one of its goals is to establish digital as a primary communication channel of government vis-à-vis the public, as already stated¹¹.

2.4.3 First elections involving eIDs (September)

SÍ was involved during the 2021 government elections. Its role was to ensure that a mobile app authenticating voters was up and running during the elections. SÍ's involvement in the elections is a significant event for two reasons. First, it was a high-profile event where SÍ received great attention. The fact that this was the first government election where citizens could use a digital identity made it a historical event. Second, it was a high-stakes event where several things could go sideways. Volunteers who worked at polling stations on election day used the app to register a number of voters who showed up to vote. The volunteers had to rely on a new app that, according to a SÍ member, had not been subjected to extensive user testing. The member said that this was rather unusual because the standard release process includes thorough user testing and gathering feedback from users during software development and implementation, respectively. Decisions concerning the use of the digital driver's license during the elections happen only a few weeks prior to the event. Such short notice put pressure on the team to finalize an app solution. A solution that was not yet fully developed, however. A project like this would, under normal circumstances, take months to complete. The same SÍ member also shared with me that what worried him the most was the uncertainty of whether the app would withstand the extreme load during election day. There were over 200.000 people who voted in the 2021 elections (Wikipedia, 2022).

¹⁰see Section 2.2.2

¹¹ibid.

The 2021 elections in Iceland highlighted the potential of digital identities in a nation’s digitalization journey, which has been noted as a critical aspect for digital governments, e.g., in Scandinavia (Eaton et al., 2018). However, currently, the digital driver’s license used in the elections does not meet certain international personal identification standards¹². The future of digital IDs as internationally recognized documents, especially for travel, hinges on overcoming legal challenges and revising international regulatory frameworks.

In 2021, Iceland became a full member of NIIS¹³, enabling cross-border e-government services (Hardy, 2024). This could yield benefits in important policy areas like security, mobility, services, and economics, according to a recent paper by Hardy (2024). Drawing on the X-road platform-based e-government solutions in Finland and Estonia, he demonstrated how this cooperation has allowed cross-national data sharing between organizations and enabled cross-border public service consumption for their citizens. However, it’s important to clarify that, to the best of my knowledge, Iceland has not yet implemented such cross-border e-government services.

2.5 Longitudinal context: from early Icelandic e-government to DigIS

The DigIS case can be situated in a longer trajectory of Icelandic digital governance research and practice. Earlier work on Icelandic e-government, most notably Arnthorsson’s 2008 empirical study of electronic government in Iceland, documented how high levels of computer and Internet access among the public (around 96% in 2005) translated into substantial use of digital channels, while the State’s centralized computing structures and integrated portals remained underdeveloped in comparison to other Nordic countries.¹⁴ This earlier research identified a number of baseline conditions: first, that access and usage were not the main bottlenecks for e-government in Iceland; second, that organizational outcomes of information and communication technology adoption—such as increased integration across administrative levels (*sambætting*), job enlargement (*aukið starfssvið*), and decentralization (*valddreifing*)—were beginning to materialize inside organizations; and third, that the limited development of centralized infrastructure and a unified portal constrained the maturation of online public services despite strong user-side capabilities.

Against this backdrop, the DigIS program and the establishment of the shared-services center (SÍ) mark a distinct new phase in the Icelandic digital transformation journey. The case description in this chapter shows how, from 2019 onwards, government actors deliberately sought to address the structural limitations identified in earlier work by investing in shared digital infrastructure, consolidating portal development around *Ísland.is*, and experimenting with new governance arrangements such as agile procurement and co-creative partnerships with IT companies. The timeline of key events—including the formal creation of SÍ, the approval of the first strategic plan, the refurbishment of *Ísland.is*, the enactment of Digital Mailbox legislation, and the first elections involving eID (see Figure 2.1)—therefore provides the empirical

¹²For instance, citizens must present a physical ID card, e.g., a passport, when applying for the Auðkenni eID.

¹³This suggests that Iceland had partial membership to NIIS, although the source does not mention this (see Section 2.2.1)

¹⁴See, for example, Arnthorsson (2008) for detailed survey evidence on access, usage, and *organizational outcomes*.

foundation for the later realistic evaluation of governance mechanisms and strategies presented in the current longitudinal case study of SÍ/DigIS (Papers III-IV).

By juxtaposing the formative years of DigIS with the earlier portrait of Icelandic e-government, this chapter thus sets up a longitudinal perspective: it allows the thesis to move from describing access, IT usage, and organizational outcomes at the time of Arnthorsson's study to explaining how specific governance strategies and mechanisms in DigIS build on, and partially resolve, those earlier structural constraints that he identified. The realistic evaluation in subsequent chapters uses this case history as a baseline for assessing which mechanisms are activated in this new phase of digital transformation, under what contextual conditions, and with what implications for public value creation.

References for Chapter 2

- Alþingi. (2021). Lög um stafrænt pósthólf í miðlægri þjónustugátt stjórnvalda. <https://www.althingi.is/altext/151/s/1815.html>
- Arnthorsson, H. (2008). *Rafræn stjórnsýsla: Forsendur og áhrif* [Doktorsritgerð í stjórnsýslufræði]. Háskóli Íslands.
- Baldursdóttir, H. B. (2011). Ísland.is - Upplýsinga og þjónustuveita stjórnvalda. *Yearbook of the Association of Chartered Engineers in Iceland*, 23(1), 175–180. <https://timarit.is/page/5704510?iabr=on#page/n177/mode/2up/search/%C3%ADsland.is>
- Eaton, B., Hedman, J., & Medaglia, R. (2018). Three different ways to skin a cat: Financialization in the emergence of national e-ID solutions. *Journal of Information Technology*, 33(1), 70–83. <https://doi.org/10.1057/s41265-017-0036-8>
- Government of Iceland. (2002). *Skýrsla nefndar um rafræna stjórnsýslu (drög)*. Forsætisráðuneytið. Reykjavík. https://www.stjornarradid.is/media/forsaetisraduneyti-media/media/skyrslur/skyrsla_pdfdreg.pdf
- Government of Iceland. (2013, April). Nýtt skipulag fjármála- og efnahagsráðuneytis. <https://www.stjornarradid.is/efst-a-baugi/frettir/stok-frett/2013/04/03/Nytt-skipulag-fjarmala-og-efnahagsraduneytis/>
- Government of Iceland. (2018). Bætt stafræn þjónusta hins opinbera með innleiðingu Straumsins. <https://www.stjornarradid.is/efst-a-baugi/frettir/stok-frett/2018/11/30/Baett-starfraen-thjonusta-hins-opinbera-med-innleidingu-Straumsins/>
- Government of Iceland. (2019). Fundur ríkisstjórnarinnar 31. maí 2019. <https://www.stjornarradid.is/rikisstjorn/rikisstjornarfundir/rikisstjornarfundur/2019/05/31/Fundur-rikisstjornarinnar-31.-mai-2019/>
- Government of Iceland. (2020). Umfangsmikil aukning í fjárfestingu í stafrænum innviðum. <https://www.stjornarradid.is/efst-a-baugi/frettir/stok-frett/2020/03/25/-Umfangsmikil-aukning-i-fjarfestingu-i-stafrænum-innvidum/>
- Government of Iceland. (2021a). *Stafrænt Ísland: Stefna um stafræna þjónustu hins opinbera*. Stjórnarráð Íslands: Fjármála- og efnahagsráðuneytið. Reykjavík.
- Government of Iceland. (2021b, April). Stefna Íslands um gervigreind. <https://www.stjornarradid.is/gogn/rit-og-skyrslur/stakt-rit/2021/04/29/Stefna-Islands-um-gervigreind/>
- Government of Iceland. (2022). 8 milljónir skjala birtar í stafrænu pósthólfi. <https://www.stjornarradid.is/default.aspx?pageid=e5cf150d-33a7-11e6-80c7-005056bc217f&newsid=7a304101-79d9-11ec-8144-005056bc8c60>
- Hardy, A. (2024). Estonia’s digital diplomacy: Nordic interoperability and the challenges of cross-border e-governance. *Internet Policy Review*, 13(3). <https://doi.org/10.14763/2024.3.1785>
- ICEPRO. (2019, December). Útboð - 18 teymi fyrir stafrænt ísland.
- Island.is. (2019a). Samráð um tæknistefnu island.is.
- Island.is. (2019b). Útboð: 18 teymi fyrir stafrænt ísland. https://web.archive.org/web/20200218201334mp_/https://stafraent.island.is/utbod-18-teymi-fyrir-stafrænt-island/
- Island.is. (2023). Stafrænt pósthólf. <https://island.is/s/stafrænt-island/thjonustur/stafrænt-postholf>
- Kristjansson, S. H., & Olafsdóttir, H. A. M. (2020). *Stafræn umskipti ríkisins: Eru stofnanir búnar undir stafræna framtíð?* (September).

- Mergel, I. (2016). Agile innovation management in government: A research agenda. *Government Information Quarterly*, 33(3), 516–523. <https://doi.org/10.1016/j.giq.2016.07.004>
- Ríkiskaup. (2020, January). Þverfagleg teymi fyrir stafrænt ísland. <https://www.midlaegirsamningar.is/is/moya/news/21018-thverfagleg-teymi-fyrir-staфраent-islанд>
- Stafrænt Ísland. (2023, November). Technical direction island.is. <https://docs.devland.is/technical-overview/technical-direction>
- Wikipedia. (2022, September). Alþingiskosningar 2021.

Chapter 3

The strategic use of AI in the public sector

A public values analysis of national AI strategies

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Abstract

Governments worldwide are strategically investing in artificial intelligence (AI) to improve public services and streamline internal operations. In this context, national AI strategies play a pivotal role. This study uses combined qualitative research methods analyzing 28 national AI strategies (i.e., the texts). Our aim is to delve into how governments define and position AI applications within the public sector. Specifically, the study explores how the texts convey AI's application in this context employing a public value(s) perspective. Its discursive analytical approach coupled with a comprehensive take on public value theory (Moore, 1995) engenders novel insights into national discourses on AI in the public sector. Against this background we draw on public administration and policy research in our analysis of three dominant discourses that we identify in the texts, i.e. empowerment through information, enhanced administrative practices, and improved service delivery. We find that the discourses involve different positions in relation to governments' use of AI and depend on particular actors and types of public service. Commonly, they concern government objectives to tackle critical societal issues through AI, such as in the areas of health and social care and employment. In particular, the discourse of enhanced administrative practices commonly positioned AI as a tool to optimize internal processes, resource allocation, and organizational management. On the other hand, the discourse of improved service delivery similarly placed public services front and center, while the discourse of empowerment through information framed AI as being able to enhance citizens' service experiences. Interestingly, discourses emphasizing the policymaking function, i.e., AI applied to the development of public policy,—receives limited attention. Our findings underscore strategic prioritizations. While efficiency and service delivery dominate the discourse, citizen engagement remains underemphasized. We argue that policymakers must strike a balance, ensuring AI aligns with broader societal outcomes while addressing democratic imperatives.

Keywords: artificial intelligence, public value, e-government, strategy, technology application, national strategy, discourse analysis

3.1 Introduction

Artificial intelligence (AI) has developed rapidly over the past decade, and interest in its abilities and potential has grown accordingly. An increasing focus on AI coincides with rapid growth in digital data volumes, catalyzed by mobile computing, the Internet of Things, and significant investments in the private sector, especially by the “Big Five”: Google, Apple, Facebook, Amazon, and Microsoft. Moreover, the overall private equity investments in AI start-ups are rising (OECD, 2018). AI is also gaining traction in the public sector and is viewed as “a response to the growing complexity of the public sector, and a need to handle larger and more advanced forms of data” Schou and Hjelholt, 2017, p. 7. These developments give rise to new opportunities but also challenges for governments. Furthermore, the ongoing expansion of the public sector and welfare states in many countries is driving demand for more efficient and effective provision of public services.

No universally accepted definition of AI exists (Stone et al., 2016). For the purposes of this paper, we will use the term to describe a set of computational techniques that have been developed to perform tasks that typically require human capabilities or intelligence, e.g., task completion or information retrieval and organization. These techniques originated in various computer science disciplines, including machine learning (ML), deep learning, and natural language processing (NLP) (Jurafsky & Martin, 2022). Modern AI applications often use a combination of techniques such as NLP and ML algorithms to recognize or classify objects and to optimize search results, for instance. Some researchers find it useful to distinguish between weak and strong forms of AI (Searle, 1990): weak AI refers to applications that can solve specific tasks equally as well as or better than humans can; strong AI or artificial general intelligence (AGI) refers to applications that can solve any task. Reflecting the substantive focus of this paper, we are interested in the former type of AI (henceforth referred to simply as “AI”).

Many governments worldwide have defined national AI strategies in recent years. In 2019, the Organisation for Economic Co-operation and Development (OECD) published a comprehensive report outlining the focus areas of these public sector AI strategies (Berryhill et al., 2019, p. 73):

[National AI strategies are] guiding policies to set strategic visions and approaches to AI. These include AI-related priorities and goals and, in some cases, a roadmap for achieving them. Such strategies can help countries build a common foundation for success in their AI progress, as well as align the capacities, norms and structures of the relevant AI actors and ecosystems.

National strategies on AI in the public sector include government strategic documents or plans concerning the use of AI for public services, including healthcare, transportation, and education (Berryhill et al., 2019). These documents are either published as separate strategies or embed a dedicated focus within a broader strategy document—often a national AI strategy (Berryhill et al., 2019). Following the publication of the OECD report, research interest in this topic has grown immensely to cover topics usually found in public policy, including economy, energy, environment (protection), education, public safety, mobility, and health (Wirtz et al., 2021). According to a comprehensive literature review of 189 articles by Wirtz et al. (2021), the most frequent research themes around AI in the public sector are strategy, followed by regulations and standards. Wirtz et al.’s review also demonstrated that the legal and regulatory risks involved in implementing and applying AI were commonly mentioned (in 50 articles) as a major challenge. While a large majority of the studies were

interested in enabling or facilitating the policymaking role that governments play, few focused on governments' application of AI systems and the different implications of this for policy and managerial practices, as this study does. Accordingly, scholars have called for more public sector AI research that considers different contextual factors, including domain-specific challenges (de Sousa et al., 2019; Kankanhalli et al., 2019) and different national contexts (Sharma et al., 2020; Wirtz et al., 2021).

Initial empirical evidence concerning AI applications in different policy domains, such as social security and public healthcare (Kuziemski & Misuraca, 2020; Sun & Medaglia, 2019), highlights the various managerial challenges and ethical concerns that affect strategic priorities. Notably, potentially adverse effects seem to stem from misalignment between different stakeholders concerning the expected and realized value of the technology. These problems can be exacerbated when stakeholders' understanding of AI is inchoate. In addition, AI policy documents have been examined from different perspectives, including (but not limited to) public sector management, policy development, and societal perspectives. For instance, Fatima et al. (2020) analyzed the scope of AI strategies from several countries, as well as the associated challenges and opportunities; Wilson (2022) examined the relationship between government and citizens in selected national AI strategies to inform AI policy development; Paltieli (2021) investigated different imaginaries (or visions of the future) conveyed in national AI strategies, including democratic and sociotechnical imaginaries focusing on the relationship between technology and society; and others have systematically analyzed several national AI strategies, reporting on differences and similarities across cultures—for example, comparing value systems between countries in the Nordic region and countries from other regions (Van Berkel et al., 2020)—or uncovering certain narratives in AI policy discourse (Guenduez & Mettler, 2023). These scholars all agree on the importance of considering different (public) values in the formulation of AI strategies. They also more or less agree that stakeholder engagement, transparency, and accountability are critical to ensuring that AI strategies align with public values and address social issues. However, to the best of our knowledge, there are no comparative studies of national AI strategies that explain how domain-specific or national differences might influence governments' use of AI. We see a logical need to explore this further to better understand, prepare for, and adapt to the potential societal impact of AI.

We analyzed 28 national and cross-national AI strategy texts, focusing our attention on the passages in which governments outlined their strategic plans and policy goals for public sector AI. The following overarching research question (RQ) guided our analysis: *What are the (discursive) positions in national strategies concerning AI applications for important functions of government, and how do the texts convey public values (democratic and managerial values) differently in this context?* We addressed the RQ qualitatively to convey how national AI strategies envision the application of AI in the public sector from a public value(s) perspective (Alford & Hughes, 2008; Moore, 1995). In particular, we analyzed various definitions of AI and their different understandings of the technology. We assessed the scope of the public sector AI strategies by manually extracting any reference to the public sector in the texts, and then we performed additional manual coding to search for examples involving AI application by public sector domains. Lastly, we identified dominant discourses around public sector AI applications and determined how they conveyed public values. Overall, the results show that the texts highlight particularly important public sector domains, including public services, healthcare, education, and transportation. There are also discursive nuances that reveal interesting insights into national differences. These discourses

(or texts), in their positioning of AI, communicate public value, especially concerning empowerment through information, including agility, equity, and inclusion.

Our study responds to calls for research into the development and implementation of national AI plans and the possible implications for public sector practices (Fatima et al., 2020; Toll et al., 2019; Viscusi et al., 2020). So far, very few studies have disentangled how public value is defined in AI strategies (Toll et al., 2019; Wilson, 2022). This study aims to contribute by uncovering the public values envisioned in dominant discourses in national AI strategies concerning the use of AI in the public sector. At the same time, the contribution extends to further developing public value research in e-government (Panagiotopoulos et al., 2019; Twizeyimana & Andersson, 2019) and adds to the growing body of work within public sector AI (cf. Medaglia et al., 2023; Wirtz et al., 2021).

The paper’s structure is as follows: Section 3.2 reviews related empirical work about the application of AI in the public sector. The first subsection highlights prior research conducted in the field, and the second reviews studies on national AI strategies. In the second subsection, we also describe the research “gap” our study aims to address. In Section 3.3 we describe the study’s theoretical approach and the public value concept, and in Section 3.4 we outline the study’s methods and how we conducted the data analysis. In Section 3.5 we present the results of our analysis. In Section 3.6 we discuss the study’s findings, as well as implications for research and practice. In Section 3.7 we summarize the study’s main contributions and suggest avenues for further research.

3.2 Background and prior research

3.2.1 Applications of AI in the public sector

The application of AI in the public sector is broadly categorized into three distinct governance functions, as proposed by Misuraca and Viscusi (2013): (1) policymaking, (2) public service delivery, and (3) internal management of public organizations. This classification framework has been reapplied in a comprehensive analysis of AI use cases within EU public organizations, highlighting administrators’ predominant focus on functions 2 and 3 (van Noordt & Misuraca, 2022). Our literature review corroborates van Noordt and Misuraca’s observations, indicating that there is a significant emphasis on AI’s role in streamlining service delivery and enhancing the operational efficiency of public sector organizations.

Henman (2020) further categorizes AI applications within public services into three types: (1) automated decision-making applications, (2) virtual agents or (AI) chatbots, and (3) applications related to public governance and public security. This differentiation is particularly noteworthy for its distinction between conventional algorithms, such as chatbots, and more advanced ML algorithms, which include AI-powered virtual agents. Henman (2020) outlined certain features of AI systems in pattern detection (e.g., face recognition), population sorting (e.g., identifying children at risk of maltreatment), and prediction making (e.g., predicting patient numbers in hospitals), which are crucial to decision-making processes within the public sector.

The breadth of AI applications in the public sector demonstrates the versatility of this technology across various public policy domains, including general public services, infrastructure management, and public health. Examples of such

applications range from citizen-facing AI chatbots (Androutsopoulou et al., 2019) to AI-driven public sector recruitment and unemployment services (Desiere & Struyven, 2021; Keppeler, 2022), power grid maintenance (Kamwa et al., 2012), environmental planning for effective waste management (Yu et al., 2021), stroke recovery treatment planning (Jiang et al., 2017), and disease surveillance and outbreak response (Zeng et al., 2021). Considering that one application type may be more applicable to a specific governance function (e.g., public organizations that use AI chatbots for service support), and that AI may be used for several purposes with divergent impacts on both the application domain and its users (van Noordt & Misuraca, 2022), the wide-ranging impact of AI adoption—both direct and indirect—in different contexts, must be carefully scrutinized before it is deployed in public organizations. In the remainder of this subsection, we will review studies involving the government’s use of AI applications for effective public service delivery and internal management of its organizations, respectively.

3.2.1.1 AI to improve public service delivery:

In government, AI has been used to improve the delivery of different public services. Gesk and Leyer (2022) considered context-specific approaches to AI implementation in their study of user acceptance of AI technology. They theorized that users’ acceptance of AI varies between types of public service, including education, social services, healthcare, public safety, and infrastructure services (Gesk & Leyer, 2022, p. 2). Similarly, other studies have focused on how AI influences government–citizen communication. For instance, one study examined the interaction between public sector organizations and citizens through AI chatbots (Androutsopoulou et al., 2019), highlighting the potential of such applications to significantly alleviate the administrative burden on public sector organizations and enhance government–citizen communication. Another study surveyed the public in relation to an AI voice robot in government. It built a model to assess the robot’s value from a citizen-user perspective, which indicated enhanced value creation from the government’s use of AI for public service delivery (Wang et al., 2021). Overall, research suggests there is growing public acceptance of and appreciation for AI’s role in improving service delivery.

During the COVID-19 pandemic, AI was instrumental in advancing public health services through the enhancement of accuracy, efficiency, and outcomes (Berryhill et al., 2019; European Commission, 2020; Gerli et al., 2021; Jiang et al., 2017; OECD.AI, 2020). It was also critical in the delivery (or provision) of education during lockdowns (Bortoló et al., 2023). In this context, AI assisted educators to implement adaptive teaching strategies and enhanced tutors’ ability to teach, potentially leading to better learning outcomes (Chiu et al., 2023). For instance, AI chatbots were used to engage students and foster learning (Chiu et al., 2023).

Despite the optimistic outlook of governments concerning the development and use of AI, such as its potential to stimulate economic growth and public value creation, the empirical evidence supporting AI’s positive impacts in public service provision remains limited. Nonetheless, the perceived potential of AI to innovate and transform public sector operations, policymaking, and service delivery is widely acknowledged (Berryhill et al., 2019).

3.2.1.2 AI for improved management in public sector organizations

The application of AI in relation to the internal management of public organizations primarily concerns automated decision-making, where AI-driven profiling, scoring, and classification systems are employed for the customized delivery of public services (Boyd & Wilson, 2017; Chiu et al., 2023; Dencik et al., 2019; Kuziemski & Misuraca, 2020). However, the use of AI in such contexts has raised concerns regarding its legitimacy, administrative discretion, and accountability. Trust in AI systems' ability to make unbiased and equitable decisions is central to this debate. The disbandment of an AI profiling tool in Poland due to discrimination concerns underscores the necessity for careful evaluation of AI's impact and the establishment of appropriate governance mechanisms to mitigate potential negative effects (König & Wenzelburger, 2020; Kuziemski & Misuraca, 2020).

Boyd and Wilson (2017, p. 41) have voiced their concerns regarding the risks that AI poses to democracy and human rights, critiquing the lack of comprehensive risk assessment in government reports on AI: "Given the risks, policy development is critical so that we don't throw away advances in democracy and human rights by succumbing to insidiously anti-democratic risks like persuasive computing." They advocated for the development of policies to balance the benefits of AI against its potential risks, ensuring that advances in technology do not compromise democratic values and human rights.

3.2.2 Debates concerning AI's societal impact and its potential

With regard to the societal impact of AI, two views dominate in scholarly debates concerning AI strategies: (1) AI is used (by governments or firms) for the public good and to improve people's quality of life; or (2) AI is used to manipulate and control people, eroding the basis of democracy. The two contrasting viewpoints—i.e., the utopian and dystopian imaginaries of AI—reflect fundamental anxieties about the future of AI development. However, both sides agree on one crucial point: AI is a powerful technology with the potential for significant societal impact. It can be used in benign or malignant ways, and there are different visions for how it should be used in society (Ossewaarde & Gulenc, 2020).

In recognition of AI's potential societal impact, governments globally have responded by allocating substantial resources to the development of integrated AI technologies and their deployment into society (Bareis & Katzenbach, 2021). A few studies have analyzed national AI policy documents that outline such strategies, to explore how these policies might shape the future of democracy. These studies see national AI strategies as a means for governments to shape the development of AI and its societal impact. In brief, the AI strategies focus on areas such as research and development, ethical guidelines, and data regulations specific to AI technologies.

Nevertheless, some scholars remain concerned that governments might be neglecting the human implications of AI. Research has shown a tendency for AI strategies to be more technology focused than human focused (Salo-Pontinen & Saariluoma, 2022), thereby prioritizing technology over human concerns. However, another study found that the documents do in fact contain sections that express intentions to foster positive democratic development (Paltieli, 2021). These contrasting findings highlight the complex and multifaceted nature of national AI strategy texts.

The debate surrounding government involvement in AI use is equally complex, reporting inconsistent results. One

piece of research points to numerous examples of public sector AI applications in these texts (Fatima et al., 2020), while the results of another study indicate that the opposite is true; as argued by its authors (Guenduez & Mettler, 2023, p. 10): “Overall, governments’ role as user is not prominent in the [AI policy] narratives, indicating that governments are prioritizing enabling, regulating, and promoting AI rather than using AI applications themselves.” Notably, neither of these studies specifically focused on public sector AI applications as such, which is precisely the gap our present study aims to address.

3.3 The public value concept

Public value is a contested concept and researchers have somewhat different ideas about what constitutes public value. At an abstract level, public value is a desired outcome of a given government initiative. Just as private organizations aim to create private (economic) value, the goal of public organizations is to create public (social) value for citizens (Moore, 1995). In his seminal work, Moore (1995) emphasized the role of public managers in the creation of public value, adopting a managerial perspective on public administration. Managerialism was a common yet contested paradigm in New Public Management (NPM) discourse in the 1980s until the early 2000s (see also Sigurdarson, 2016 or Hood, 1998 for a critical review and discussion).

Although the public value concept in Moore’s original work centered around public organizations adopting a managerial style of governance, subsequent research has also used the concept in the context of a collaborative style of public management intended to foster deliberation about goals. Scholars argued that the latter approach, often referred to as New Public Governance (NPG) (Klijn & Koppenjan, 2015), brings together the stakeholders responsible for the provision of public services to deliberate on common goals (Stoker, 2006). Scholars’ tendency to claim that one particular paradigm or another is “the best one” in any given situation remains questionable. On this note, Alford and Hughes (2008) argued that we should follow public value pragmatism, rather than adopting a one-size-fits-all public management paradigm. In other words, we should recognize that different circumstances demand different managerial tactics. Public management is first and foremost about achieving results that align with the ideas of public value.

The way to achieve results is to focus on problem solving and, as far as possible, problem solving through pragmatic means. There are many possible solutions to problems. Each has costs and benefits in social and political terms as well as narrower economic or managerial ones. Optimizing them requires the discarding of one-best-way thinking for once and for all. (Alford & Hughes, 2008, p. 141)

In the above quote, “means” refers to the aforementioned styles of public management, such as NPM and NPG. For the purpose of this paper, we adopted a contingent approach, similar to Alford and Hughes’ public value pragmatism, and we define public value as the strategic outcomes or ends of certain public policy programs or services where the outcomes are valued by a community of beneficiaries, such as citizens or businesses. The means to reach desired ends vary; they are contingent on the task or problem being addressed.

Contingencies of public value creation refer to the fact that public value outcomes can mean different things to different people. Varying perceptions often introduce challenges in multi-stakeholder e-government projects and may sometimes

create conflict between the different stakeholders involved, including citizens. For example, when services are digitized, citizens may lack the required digital skills or resources and will thus be excluded. Hence, several (public) values, including efficiency, equality, and fairness, become embedded in e-government-mediated public value creation (Paletti, 2021).

Another important perspective to consider here concerns how values are prioritized. A recent study of the implementation of a government AI program in Shenzhen, a pilot city for digital transformation in China, showed that the government prioritized benefits related to the operational or internal aspects of public service delivery over service-oriented or strategic ones. However, it noted that the latter outcomes were rhetorically common in AI policy discourse (Li et al., 2025). In the study, Li et al. (2025) thus conceptualized public value in terms of *operational* and *strategic* public values, arguing that by emphasizing the former type of public value, the government realized the latter type, which in turn enhanced the creation of public value.

Similarly, Bonina and Cordella (2009; Cordella and Bonina, 2012) conceptualized public value to evaluate IT deployments in government. For this purpose, they classified public values into two value groups or classes: (1) managerial values, including efficiency, effectiveness, and performance of tasks; and (2) democratic values, including equity, fairness, and honesty. Other scholars have tried to create taxonomies of public values in the context of e-government, such as Rose et al. (2015) and Twizeyimana and Andersson Twizeyimana and Andersson (2019). The latter built on an established e-government framework (Ndou, 2004) that included different dimensions representing different application domains: e-administration, e-services, and e-society. Overall, the theoretical frameworks commonly position IT as being able to positively or negatively impact public value(s). Notably, some scholars have argued that public sector AI could have a more radical value impact than traditional e-government applications (Selten & Meijer, 2021). For example, Scutella et al. (2024) studied the use of AI bots in a public organization. Their results demonstrate that AI bots can enable public value co-creation with citizens (i.e., value is created through collaboration and engagement) and can be a valuable tool for governments to deliver public services. Indeed, the co-creation, they argued, is what makes AI different from traditional e-government applications, at least in terms of the features offered by these systems.

Prioritizing public value is reflected in AI discourse. Influential research discussing such prioritization has positioned intelligent systems as a means to improve citizen engagement and public service delivery (Mehr, 2017). On the other hand, certain economic rationales for public sector AI adoption resemble the rhetoric of IT adoption in government, motivated by a narrow focus on better efficiency and productivity in the internal management of public organizations. Historically, public sector reforms using IT have arguably been driven by an “efficiency imperative” (Bannister & Connolly, 2014; Cordella & Bonina, 2012; Rose et al., 2015). These critiques have arisen because the envisioned transformative impact of IT in government strategies has repeatedly not been realized. Given that public sector AI and public value research are at an embryonic stage and the real impact of this technology in the public domain is not well understood, our empirical exploration constitutes a vital initial step into this exciting field.

3.4 Methods

We adopted combined qualitative methods to analyze 28 national AI strategies. The primary method chosen was discursive positioning (Wood & Kroger, 2000), a particular form of discourse analysis whereby ‘position’ is used to examine discourse (or text) involving objects and subjects in a specific context. A position in discourse can refer to a human subject who is being subjected to a discourse in a controlled environment, such as a student in a classroom or an office employee in a corporate environment.

Discursive positioning is a popular technique in discourse analysis that has been applied to different empirical settings, including organizational field studies—e.g., Tannock’s famous paper about employee training at a canning factory (Tannock, 1997, as cited in Wood and Kroger, 2000)—and document/text analysis, e.g., how authors of qualitative methods textbooks or journal papers use technology positioning in their writing (Paulus et al., 2013, 2017). Some scholars have found it useful to adopt a combined approach using different qualitative methods. For example, Paulus et al. used qualitative content analysis (CA) in a study to establish which researchers were using QDA software (i.e., software applications used for analysis of textual data) and “how they reported its use” (Paulus et al., 2017, p. 37). Following their mode of reasoning, we chose qualitative as opposed to quantitative CA (Fingfeld-Connett, 2014) for our analysis. The former approach is appropriate when dealing with material that requires interpretation, as with our aim to better understand governments’ strategic use of AI in the public sector. According to Fingfeld-Connett (2014, p. 342), qualitative CA is a “flexible data analysis method [...] for systematically and rigorously integrating, interpreting, and synthesizing qualitative findings that have been extracted from multiple qualitative reports”. As such, our final coding scheme emerged from the data, rather than driving our analysis. In other words, our CA approach was primarily text-driven (Krippendorff, 2019), which we felt was appropriate for answering our RQ, as the interpretive approach was necessary to be able to derive public values from the text.

Nonetheless, as we were interested in passages pertaining to AI use in the public sector in national AI strategies (the materials), we initially relied on a general classification of public sector functions when extracting relevant passages (the corpus material) from the documents (cf. Wirtz et al., 2021; see Table 3.1). The purpose was to establish to what extent governments were using (or intended to use) AI in the public sector and how they reported its use (or envisioned benefits resulting from its use). When analyzing discourses in the corpus material, on the other hand, we “presumed that the metaphors evoked and discourses used around technology were always doing something” (Paulus et al., 2013, pp. 641-642)—for example, indicating how governments make sense of the relationship between public service provision and AI technology.

Table 3.1: First level of the classification of public sector functions (based on de Sousa et al., 2019; Fatima et al., 2020)

A. Transportation	G. General public services
B. Revenue and tax	H. Environment and natural resources
C. Public safety	I. Energy and utilities
D. Immigration, custom and border protection	J. Education
E. Information and communication technology	K. Defense and national security
F. Healthcare	L. Courts and the judiciary

Throughout the analytical process, we considered the extent to which AI technology use was positioned as an au-

tomation tool or an augmentation of human work, and whether a discourse of democratic values, a discourse of managerial values, or some other discourse was taken up when discussing the use of AI in the public sector. The analytic process was iterative, and memos were used to store analytical and theoretical ideas or interpretations about “what these language choices were doing” (Paulus et al., 2017, p. 37). We selected representative governments (national and supranational) based on the size of their overall economy, who have defined and published national AI strategies with public sector emphasis (for more details about our purposeful sampling method and selection criteria, see Appendix A). The strategy documents were collected from an online repository, OECD.AI, which yielded 28 national and cross-national AI strategies (see Appendix B for a complete list). It should be noted that the governments involved were at different stages in AI development when these plans were published. A few regions have already issued a second version of their plans (e.g., the USA, EU, Germany), but most have only recently published a first version. It is logical to assume that the former group has more expertise in AI development and use than the latter.

Data analysis: To start, we assessed the documents using a structured coding approach. Specifically, we read through all the texts and searched for any mention of AI in the public sector and for definitions of AI. We coded the passages manually using NVivo’s coding function (v. 18.0.2). In total, 1582 references were coded as public sector domains and 18 as definitions of AI; together this represented the corpus material.

Next, the corpus material was subjected to more refined coding. We engaged with the corpus material to select and organize topics and categories around patterns across the texts (Paulus et al., 2013). We used the value groupings previously presented in Section 3.3 as our point of departure. We identified sentences and examples that positioned AI applications as a solution to a given problem, or that expressed intentions to use AI to enhance public values such as efficiency, effectiveness, fairness, or other values. The codes thus contain references to technology positions in which AI is considered to be of use in one form or another. We also considered the contextual factors. For example, when AI was positioned as a decision-support tool, we considered the context of this position (e.g., the application domain and national characteristics) and coded accordingly into a first-order code. Not only did this provide us with insight into the problem AI was positioned as being able to solve, it also helped us to understand its envisioned value.

We then organized the first-order codes described above around broad patterns of AI positioning in the discourse. These discursive patterns or second-order themes (cf. Gioia et al., 2013) stemmed from interpreting the codes and discourse produced (e.g., memos) (Wood & Kroger, 2000)—for example, to augment civil servants’ work or automate decision-making.

Lastly, we examined the themes and identified an aggregate dimension that we could classify as dominant discourses related to the use of AI in the public sector, such as themes *supporting the wellbeing and self-service of citizens* related to the *discourse of empowerment through information* (See Table 3.2). In these last steps we reduced the number of codes included because they did not relate to the central themes identified in the analysis. Appendix C contains more details on the analytical procedure (the Supplemental Material provides an overview of the final first-level codes and a list of all the quotes used to generate two of the codes, as well as a table that shows the codes by domain across the documents analyzed)¹.

¹Cf. Nyman et al. (2023), who conducted an analysis of algorithmic management discourses concerning a particular business application, and Fatima et al. (2020), who performed a systematic qualitative CA in their study on multiple national AI strategies.

The results of our analysis are reported below.

Table 3.2: Coding structure

Illustrative quote	Second-order theme/code	Aggregate dimension
<i>AI is increasingly able to support citizens in self-management of their health through the many possibilities offered by portable technology and health apps</i> (Netherlands) <i>Citizens are provided with a novel way of taking care of their own comprehensive wellbeing</i> (Finland) <i>...provide users with personalized and contextualized information to help them perform administrative procedures</i> (France) <i>...facilitate electronic access to, and the digitalisation of, public services, with AI being one of the enabling technologies</i> (Hungary) <i>take the initiative in decision-making and reactions—which will significantly elevate the capability and level of social governance</i> (China) <i>AI technologies can, for example, ease the burden on healthcare systems, improve hospital workflows, optimise the assignment of human and other resources</i> (EU) <i>AI tools can be used to develop automated teacher posting and transfer systems ... This would help in plugging of gaps in teacher distribution more effectively</i> (India) <i>...supporting the generation of assessment tests by automatically synthesizing questions, answers and distractors according to a given textbook</i> (Bulgaria) <i>...the enhancement of the efficiency of planning, forecasting, and management decision-making processes</i> (Russia) <i>AI systems that incorporate and accommodate the situations and goals of users so that AI systems and users can work collaboratively in both anticipated and unanticipated circumstances</i> (US) <i>reducing the burden on healthcare workers through AI utilization for medical treatment</i> (Japan) <i>Smart solutions can contribute to improved quality and coherence in patient treatment and also help healthcare staff in their tasks</i> (Denmark) <i>the implementation of kratts (AI) does not necessarily replace humans, but rather supports humans in their work, meaning that processes still become more effective</i> (Estonia) <i>AI technologies can help teachers enhance their teaching, using innovative tutoring and higher value-added interactions</i> (Belgium)	Support the wellbeing of citizens through AI-enabled apps Support self-service of citizens through AI-enabled digital solutions Automate decision-making in public service through AI systems More efficient processes through AI automation Support the work of civil servants through human-AI collaboration Augment civil servants' capacity to deliver services through AI systems	Discourse of empowerment through information Discourse of enhanced administrative practices (through AI automation) Discourse of improved service delivery (through AI decision-support)

3.5 Results

Our approach to addressing the RQ concerned the following points: (1) determining how AI was defined in the text, (2) assessing the application scope of AI in government and identifying priority areas involving its use, and (3) identifying what dominant discourses around public value were taken up. Our findings section is organized around these three points.

3.5.1 Defining AI in national AI strategies

We analyzed the AI definitions used in the plans (or corpus) and, in the process, we considered how this affected the positioning of AI in discourse. The governments relied on traditional definitions of AI, based on the understanding that AI has human-like cognitive ability (van Noordt & Nurkse, 2022). The human mind thus becomes a metaphor for AI. This is akin to entity linking in discourse analysis (Jurafsky & Martin, 2022). It evokes powerful images and helps to simplify abstract phenomena, enabling readers to better grasp complex ideas by connecting to something familiar. Several plans used entity linking explicitly. For instance, some strategies proposed that AI:

...means devices, software and systems that are able to learn and make decisions in almost the same manner as humans. [It] allows machines, devices, software, systems and services to function in a sensible way according to the task and situation at hand (Finland, p. 16)

...is a set of technological solutions that makes it possible to simulate human cognitive functions (Russia, p. 4)

...is a programme whose ambitious objective is to understand and reproduce human cognition; creating cognitive processes comparable to those found in human beings (France, p. 4)

...[is] a machine’s ability to mimic human behavior and, to an extent, human intelligence (Luxembourg, p. 8)

The European Commission (EC) defines AI as “systems that display intelligent behaviour by analysing their environment and taking actions – with some degree of autonomy – to achieve specific goals” (EC, as cited in Belgium, p. 6). The EC then describes these systems as “purely software-based” or “embedded in hardware devices,” and provides examples of each. Compared to the EC’s definition, the OECD’s definition is much more explicit in describing certain technological features or functionality. It defines AI as “machine-based systems, with varying levels of autonomy, that can, for a given set of human-defined objectives, make predictions, recommendations or decisions using data.” Most countries that relied on secondary sources based their definitions of AI on one or both of the aforementioned sources, as shown in Table 3.3.

Table 3.3: AI definitions based on secondary sources

National AI strategy	Source
Belgium AI Strategy	EC
Brazilian AI Strategy	OECD
Bulgaria AI Strategy	EC
Denmark AI Strategy	OECD and EC
Estonia AI Strategy	EC
Ireland AI Strategy	OECD
Lithuania AI Strategy	EC
Malta AI Strategy	EC’s AI HLEG
Netherlands AI Strategy	EC

Most of the reports contained a definition of AI. Half outlined their own definitions. It is worth noting that the commonly used definitions (i.e., from the OECD or EC) referred to “weak” AI as opposed to AGI. By using phrases such as “with some degree”/“varying levels” of autonomy and “specific”/“a given set of” objectives, they better reflect technologies in use today, instead of futuristic machines with human-like capabilities. On the other hand, the OECD and EC used

“passive” language when describing the technology. In the context of discursive analysis, the technology’s positioning was not specified. Put simply, the quote “to varying levels of autonomy” in the OECD’s definition is open to interpretation.

This conceptual ambiguity had significant implications for the strategies when discussing AI in the public sector context. To make sense of AI in this novel context, the governments had to frame it. The strategies were consistent in portraying AI primarily as decision-support technology. We identified two different positions in this regard: AI as an automation tool and AI to supplement civil servants. The extent to which AI is positioned to automate or supplement decision-making varies and depends on the type of decision-support system (Griffith et al., 2008). The strategies favored the former over the latter—i.e., they positioned AI primarily as supplementing rather than automating decision-making. Correspondingly, the plans used negative framing when referring to public service automation, but positive framing when AI would supplement the work of civil servants. We found the latter to be more prominent in the corpus, indicating the generally positive framing of AI in government discourse.

Finland’s plan serves as an example here. First, it clarified the concept in its labor market strategy by emphasizing the supportive role of AI: “Artificial intelligence is support intelligence, and often certain tasks are best performed by the combination of a man and a machine” (p. 97). Finland then conveyed the supplementary position of the technology in the context of healthcare: “AI and human physicians are currently at about the same level in making diagnoses, but a ‘centaur’, a combination of a machine and physician, is absolutely the best” (p. 99). Centaurs (mythical creatures with physical features of both a horse and a human) can symbolize AI’s supplementary role as it appears in the strategies’ definitions, emphasizing the augmentation of specific capabilities, including strength and agility. Correspondingly, the definitions indicate a public sector becoming more effective and efficient in its operations and service provisioning.

3.5.2 The application scope of AI in government

In the corpus material, we searched for AI applications and found that all plans mentioned the use of AI in the public sector. We performed mapping of the public sector AI applications based on the classification of public sector functions (Table 3.1). In principle, by examining each plan in this way, we should get a general picture about the scope of the public sector AI strategy contained therein and, at the same time, the context in which AI use is prioritized. In particular, we identified 23 plans with ≥ 4 AI application domains, and five plans with ≤ 3 AI application domains (Brazil, Malta, Portugal, Spain, and Sweden). The country reporting the most AI application domains (and hence the greatest scope) is Hungary (11 out of 12 domains), and the country with the fewest is Brazil (1 domain). Moreover, by comparing the plans’ pattern of application areas, we noticed certain similarities. In fact, five plans from EU countries—Denmark, Germany, Ireland, Hungary, and Italy—have similar patterns that closely resemble the EU’s coordinated plan. This indicates that these five governments are committed to following the EU’s coordinated plan for AI development and use in the region.

Sweden seems to be an outlier (only three domains). However, this can be partially explained by the fact that Sweden’s national strategy is quite brief (12 pages), and the advancement of AI research and development by the government is emphasized over its use of the technology. Nevertheless, it acknowledges that “AI has considerable potential to contribute to a more effective and relevant public sector.” Sweden’s strategy, like many others, refers to public sector AI applications in rather unspecific or general terms. The above quote is illustrative of this and is common in many strategies. In our

analysis, however, we were interested in passages that explain how AI can be applied to particular government functions. This does not mean that all of the public sector AI strategies that had less scope lacked specificity. Indeed, we did not find any relationship between scope and depth in our analysis.

Not only did the mapping of the public sector AI applications allow us to assess the scope of public sector AI and detect general use patterns between different governments, it also helped us to identify certain important “AI application domains” in the source material, as shown in Table 3.4. The table summarizes our CA and gives an overview of the policy domains most frequently mentioned in the plans—i.e., with at least half of the documents ($\geq 50\%$) mentioning the government’s use of AI in this context (for a comprehensive overview of the mapping of the public sector AI applications by policy domains, see Table C2 in the Supplemental Material in Appendix C).

Table 3.4: Governments’ Most Frequently Mentioned Areas for Applying AI

Application-domain	Example use case	No. of docs
Healthcare	Diagnosing and treating disease	26
General public service	Profiling job seekers	20
Education	Enabling adaptive and personalized learning	19
Transportation	Automating public transport	17
Public safety	Enabling timely response to cyber-security threats	16
Environment and natural resources	Facilitating efficient planning and management of resources	14

A prominent theme in the plans is the enabling role of government for AI in society. This applies to several policy areas. Notably, two public sector domains, healthcare and education, position the role of government as being manifold. First, government plays an enabling role in the healthcare industry, e.g., in making public health data open and accessible for companies (Fatima et al., 2020) (not addressed here), and as a user of AI in public healthcare (cf. Table 3.4). Second, government plays an enabling role in the area of education, e.g., in higher education facilitating AI research and development (Guenduez & Mettler, 2023) (not addressed here), and as a user of AI in the education domain (cf. Table 3.4). Whereas the former position is not addressed in this study, the latter role occupies our central focus of attention: the application of AI by governments in the public sector domain, in particular health and social care, welfare, transportation, public safety, and environment. This deserves mentioning because of the comprehensive nature of the source material’s content. As such, we argue that a comprehensive take on public value theory (Moore, 1995) provides a more complete understanding of public values conveyed in the corpus. Moreover, AI in the public sector is a young field of research (Wirtz et al., 2021), and as research in this area matures, more general studies will be considered useful (Kankanhalli et al., 2019, p. 308). Accordingly, AI’s impact on public value in this study applies to government, its agencies, and different public sector organizations responsible for the different functions of government, as stated above. Next, within this scope and in line with the aim of our study, we discuss dominant discourses on AI.

3.5.3 Positioning AI in public sector AI discourses

This section reports the results from the interpretive data analysis (see Section 3.4). Below, we discuss three dominant discourses and outline and interrogate certain discursive positions or patterns that emerged when we engaged with the corpus material (see Table 3.2).

3.5.3.1 The discourse of empowerment through information

In the documents, public sector AI was described as an opportunity to improve citizens' access to information and, in particular, to enhance knowledge transfer through technology, reflecting what we call the discourse of empowerment through information. This comprises the themes of *supporting the wellbeing of citizens* and *supporting the self-service of citizens through AI-enabled citizen services* (see Table 3.2). The strategies thus positioned AI as being able to serve citizens in different ways, notably in terms of accessing relevant information about themselves to make better decisions (e.g., helping students choose appropriate courses based on their profiles). Also, it could empower citizens to take care of their own affairs when dealing with the state by improving or facilitating new forms of e-services. In this way, the governments were addressing certain demand-side needs. Put differently, they considered the citizens' perspective when defining objectives related to the development and use of AI.

India, Malta, and Hungary positioned the government's use of AI in relation to their education programs. Commonly, their plans envision enhanced knowledge transfer through bespoke AI systems, including "intelligent tutoring systems" and "adaptive learning systems" (we refer to these as "AI-enabled learning systems"). India's plan is quite explicit when it comes to describing these systems and it sees these tools as a potential remedy to pressing local needs. Such tools, they explain (p. 37), "assist" (i.e., do not completely supplant) teachers by:

...judging learning levels of individual students, and allowing automated development of customised educational content adapted to each child's class and learning level [...] can provide great benefit to students through delivery of learning materials adapted to the child's proficiency level, learning style, and pace of learning.

India's plan thus "frames" AI as a potential automation tool in education. This is shown in the above quote, which positions the teacher as secondary and AI as primary in teaching, demoting the subject to an assistant teacher. This finding is unusual as governments generally favored human autonomy over machines, as noted above (Section 3.5.1). This serves as a reminder that the different ways in which governments discuss and position AI is influenced by and must be considered in the context of the given local situation (e.g., social, economic, demographic, and environmental). For instance, India's challenge to disseminate knowledge to a vast number of people in rural areas likely affects its singular positioning of AI.

In their policy programs, Hungary and Malta envision the use of AI-enabled learning systems for higher education. Accordingly, AI will support public sector educators in achieving their goals of providing "individual and adapted learning experiences" (Malta, p.38). Hence, India, Hungary, and Malta substantively share a belief in how adaptive and personalized learning may enhance knowledge transfer, although their strategies vary considerably in terms of how strategic objectives

are articulated. Whereas Hungary and Malta discuss AI as a strategic priority in their education sector, India positions it as a potential remedy to pressing local needs.

Our results indicate that in order to realize the objectives contained in the above-mentioned policy programs, governments must implement AI-enabled learning systems. To our surprise, any critical discussion about the use of these automation tools in education was absent from the discourse. Of course, these tools do not come without disadvantages—for example, subpar results for lower achievers using such systems compared to their peers were reported in a large-scale study (du Boulay, 2016).

In contrast, several plans envisioned more accessible and inclusive public services. Bulgaria shared its aims to use AI to make education more inclusive and open, and Germany’s purpose was to accommodate individual differences in learning better. Moreover, some governments positioned AI as being able to support governments in better serving people with disabilities and diverse needs. For instance, those who are visually impaired or who have low levels of hearing could access digital content more effectively through AI-based interface design (France) or AI-enabled speech-to-text applications (Belgium). In this way, citizens with such disabilities could more effectively communicate with civil servants (e.g., concerning their health, as in Italy), while civil servants, conversely, could deliver their services more effectively to citizens (e.g., deaf children could follow tutors in class without a human interpreter being present, as in Belgium). Similarly, Ireland addressed enhanced access to health or social care in its plan—for instance, demanding fewer human resources by providing health services using AI robots and intelligent home assistants.

Governments expressed interest in investing in proactive AI-enabled services by leveraging AI’s ability to make predictions and recommendations based on data. For instance, countries in the Nordic-Baltic region (Finland, Estonia, Denmark) plan to use such AI applications in employment. In this context, we discovered discursive nuances between the texts in terms of the different linguistic styles deployed when positioning AI use:

[AI] can be used in the employment area to better match citizens and businesses on the basis of job ads and applications. (Denmark, p. 56)

[AI has been introduced in the] Unemployment Insurance Fund – profiling jobseekers and generating suggestions for open position. (Estonia, p. 18)

These quotes more or less describe the same application of AI as (potentially) assisting jobseekers in finding jobs more easily. However, there are noticeable nuances in their styles of writing: “matching citizens and businesses” versus “profiling jobseekers.”

Apart from being applied to employment, proactive AI-enabled services can also be applied to other policy areas. Indeed, Hungary plans to implement these solutions into its education system to help students choose courses for the upcoming semester based on what they have already learned. Another issue that governments expressed and that they positioned AI as being able to solve is the “need” to proactively identify students who require special attention in order to support them appropriately. For example, Spain and Russia expressed willingness to identify high or outstanding levels of competency in students, and in that way match talent with challenges and opportunities.

In this discourse, public value is linked to how governments aligned AI technologies with democratic and managerial values. The strategies defined specific goals concerning AI-enhanced communication between citizens and government,

wherein citizens often assumed the role of users. In this role as citizen-users, the value of empowerment was highlighted through efforts to improve access to information and self-services. These initiatives further supported the values of inclusion and equity by addressing the diverse needs and skills of a broader segment of the population than before. Managerial values, too, were emphasized within the empowerment through information discourse, particularly regarding the improvement of efficiency and effectiveness. Automation and self-service systems were anticipated to conserve resources, although this was not always explicitly mentioned. Instead, the focus was on expanding services. The plans positioned the use of AI as a potential answer to various challenges or as a strategic imperative. However, framings of this sort might risk neglecting the potential threats AI poses to democracy and human rights, as discussed by Boyd and Wilson (2017). Considering such risks is pertinent, nevertheless, concerning the collection of and access to information, for instance.

3.5.3.2 The discourse of enhanced administrative practices

In our study, the term “administrative practices” refers to certain tasks or duties overseen by public administrators that could loosely be qualified as “bureaucratic” or “managerial,” the execution of which should comply with formalized procedures or political mandates. We found that several national AI strategies engaged in the discourse of enhanced administrative practices, emphasizing the application of AI to process automation. For example, 23 strategies mentioned that governments could apply AI to their decision-making processes (see the Supplementary Materials, Appendix C for all the citations related to the code “helps professionals make the right decision”). This reflects two major themes: *automated decision-making in public services* and *more efficient processes through AI (automation)*. Like the theme’s labels suggest, the plans envisioned that using AI to automate decision-making processes would thereby improve productivity. for all the citations related to the code ‘helps professionals make the right decision’). It reflects two major themes, namely, *automate decision-making in public services* and *more efficient processes through AI (automation)*. Like the theme’s labels suggest, the plans envisioned the use of AI to automate decision-making processes thereby improving productivity. Whereas such positions were implied in the previous discourse on AI-enabled citizen services discussed above, related to the realized benefits of empowering citizens through better access to data, public values associated with enhanced productivity were easily discernible in the texts in relation to AI-enabled process automation:

AI comes mainly in the form of companion technologies, which are already augmenting the diagnostic capacities of our medical staff [...] and taking care of repetitive tasks. (Luxembourg, p. 7)

[The healthcare sector should] take a position on how staff can use artificial intelligence as a tool to add value for patients. (Denmark, p. 62)

The above two quotes concern particular AI applications in particular contexts for particular outcomes—i.e., AI-enabled task automation for productivity gains in the healthcare field. Consequently, Denmark and Luxembourg conveyed similar public values—i.e., greater efficiency in the performance of tasks. There are, nonetheless, certain nuances in the way these texts position AI use. First, the former quote is written in the passive voice, attributing agency to the software rather than to the user (for Luxembourg, the technology is doing the augmenting). In contrast, the latter quote uses active voice (for Denmark, the staff use the tool for value-added services), making it clear that it is the user who is controlling

the process, rather than the system. We conjecture that these differences could be explained by the different definitions of AI used by the two countries, as we have noted above (see Section 3.5.1).

We have also noted that the AI strategies portrayed AI primarily as a decision-support technology. Furthermore, we found that they often did so in relation to public health. Medical professionals already use AI decision-support systems to diagnose cancer and rare diseases and to create treatment plans for patients (e.g., Belgium, Bulgaria, Sweden, Russia). Furthermore, administrators use AI to manage hospital resources more efficiently (Denmark), which leads to better service provision and frees up staff time for care (UK). Governments have also used AI to manage pandemics, such as the COVID-19 pandemic, which led to improved forecasting and enabled them to monitor the effectiveness of different COVID-19 measures (Germany, Ireland, UK). In addition to public health, countries mentioned other critical application domains addressing various time-sensitive problems. Here, the strength of the technology concerning the recognition or detection of patterns and objects was highlighted in the texts:

Artificial Intelligence systems have potential applications in numerous activities related to security and defense, whether in the context of the Public Power or in the private sector. One of the main applications of AI in the field of security concerns solutions that allow the identification of objects and people in images and videos [e.g.,] the detection of a person [doing illegal or harmful things]. (Brazil, p. 14)

[Tax] has been trialing AI algorithms to detect companies [...] conducting fraudulent operations. (Mexico, pp. 23)

The above quotes illustrate “public” as well as “private” value. The Brazil quote implies that adopting AI would lead to benefits that would be valued equally by firms in the security “business” and by the legal authorities (note that a prerequisite for utilizing AI in this manner was that it complied with data protection regulations and respected citizens’ right to privacy, cf. Brazil, pp. 14–15). In Mexico’s case, the results of the trial led to the detection of 1200 “fraudulent companies,” thus saving thousands of labor hours (Mexico, p. 23). This case contains certain concrete outcomes that were used to demonstrate the value that AI can produce in administrative activities, such as saving time and the public’s money in tax administration.

As indicated, this discourse primarily highlights the managerial values of efficiency and effectiveness, emphasized in its related discursive themes mentioned above, i.e., automating decision-making and enhancing process efficiency. Many governments, for instance in Europe, face significant pressure to expand and improve their services amidst a stagnating or low-growth economy and an aging population. Against this background, the texts conveyed AI’s value concerning its potential to tackle such issues more efficiently, utilizing fewer resources. Automation through AI prompts important questions, such as the extent to which it is legitimate for governments to incorporate AI into decision-making processes.

3.5.3.3 The discourse of improved service delivery

Finally, the discourse of improved service delivery is specific to the organizational level. Our corpus materials reveal that most texts envisioned the use of AI at this level, positioning it as being able to support public organizations in delivering their services more effectively. This concerns particular objectives for an increased adoption of public sector AI,

such that AI systems and users (e.g., civil servants), through collaboration, can deliver high-quality services and value-added interactions. Two major themes relate to this discourse: *supporting the work of civil servants through human–AI collaboration*, and *augmenting civil servants’ capacity to deliver services through AI systems*. These themes were shared by (at least) 15 strategies—for example, in relation to educators applying AI to enhance their teaching (see the Supplementary Materials in Appendix C for all the citations related to the code “supports teaching and learning”). Not only is AI positioned as being able to help teachers “enhance their teaching”, such as in Belgium (see also the discourses above), Estonia’s plan explicitly stated:

[AI] applied in the public sector in Estonia [does] not adopt decisions independently, but rather help[s] humans in making faster and better decisions. (Estonia, p. 18)

Thus, Estonia envisions AI’s strategic use in the public sector to enhance specific organizational capabilities, including increased agility and adaptiveness. This positioning of AI is akin to Finland’s “centaur” metaphor (see Section 3.5.1). Such articulations echoed across the corpus. In particular, the more recent plans (UK, EU, Germany, Ireland) positioned AI as playing an important supportive role in governments’ response to pandemics:

AI can assist in the management of pandemics, for example in pandemic forecasting, monitoring and modelling the course of the epidemic or the effectiveness of different measures. (Germany, p. 7)

AI has played an important role in the global response to the COVID-19 pandemic. (Ireland, p. 18)

Moreover, according to Ireland’s plan, the pandemic accelerated the use of AI in public service delivery. In this context, the text positioned AI applications as being beneficial for service delivery in the area of healthcare—e.g., in imaging procedures, decision-making, self-monitoring by patients, and early detection of diseases. Such uses could help the government “tackle some of the toughest challenges in health and social care [and achieve its goal of] improved health outcomes for patients and service users” (UK, p. 46). During the COVID-19 lockdowns, governments relied on new technologies (including AI) for the remote provision of public services (including healthcare and education) that otherwise would not have been accessible to citizens.

Countries prioritized access to public services in this discourse, briefly addressed here. There was often a focus on making health and social care more easily available to citizens, particularly individuals of lower socioeconomic status who may suffer from poor health. Some governments saw AI as a potential solution to this issue, by making healthcare services cheaper and more accessible to a larger population. For instance, Mexico talked about using AI to promote greater access to high-quality healthcare. India shared how AI has been used for decision support in providing cancer treatment at a low cost, making it more accessible to lower-income households. In addition, it shared its experience of using AI-enabled technologies to provide medical aid in remote regions with limited internet connectivity. Italy similarly emphasized the need for a more equitable and inclusive healthcare provision by reducing socioeconomic and cultural differences through AI.

To summarize, governments view AI technology as a tool to help public sector organizations enhance the delivery of services to citizens. This enhancement is characterized by key managerial values such as increased efficiency, effectiveness,

responsiveness, and accountability in various decision-making processes. The aim, connected to democratic values, is to render service provision more equitable and fairer, tackling socioeconomic disparities. AI aided responsiveness plays a notable role, in this respect, concerning public organizations' ability to accommodate diverse and evolving individual needs. However, the objectives set by governments in the discourse—such as in the context of AI applications for healthcare services—often lack detailed or significant strategies for achieving these goals. Thus, in agreement with prior research (Wilson, 2022), we find that these goals tend to be aspirational and lack concrete details (refer to Table 3.5).

Table 3.5: Illustrative quotes from dominant discourses conveying public value

Public value	Dominant discourse		
	Discourse of empowerment through information	The discourse of enhanced administrative practices	The discourse of improved service delivery
<i>Efficiency</i>	Society will benefit from access to improved, personalized public services, which will result in time-saving, increased transparency and more customer-oriented services (Luxembourg, p. 15)	[T]he enhancement of the efficiency of planning, forecasting, and management decision-making processes (Russia, p. 8) Use of AI may significantly enhance the efficiency of employment services (Finland, p. 97)	(AI) applied in the public sector in Estonia do not adopt decisions independently, but rather help humans in making faster and better decisions. (Estonia, p. 18) Promotion of AI technology development in medical fields in where Japan has strengths and reducing the burden on healthcare workers through AI utilization for medical treatment (Japan, p. 36)
<i>Effectiveness</i>	[AI has been used in:] Unemployment [Agency]- profiling jobseekers and generating suggestions for open positions (Estonia, p. 18) (AI) can be used in the employment area to better match citizens and businesses on the basis of job ads and applications (Denmark, p. 56)	Promote changes in health management from point-like monitoring to continuous monitoring, from short process management to long process management (China, p. 19)	[A]ugmented human awareness could enable a medical assistant to point out a mistake in a medical procedure, based on data readings combined from multiple devices (US, p. 17) AI can assist in the management of pandemics, for example in pandemic forecasting, monitoring and modelling the course of the epidemic or the effectiveness of different measures (Germany, p. 7)
<i>Agility</i>	[A]ssist administrators and educators to provide individual and adaptive learning experiences to students (Malta, p. 28) [P]rioritise patients with the most acute needs and contribute to better capacity utilisation at hospitals (Denmark, p. 62)	[A]pplications of AI in the field of security concerns solutions that allow the identification of objects and people in images and videos, [including] applications such as the detection of a person jumping over a wall [or] people carrying guns on the street [/] assaulting others (Brazil, p. 14) Cybersecurity algorithms will require the ability to adapt to new kinds of attacks and respond accordingly and autonomously in real time. Moreover, AI will minimise the elapsed time between the detection of an attack and the system's corresponding reaction (Portugal, p. 32)	Artificial intelligence can help physicians make the right decisions...(which) means better opportunities for quick and accurate diagnosis and better opportunities to focus on patients who require special attention (Denmark, p. 63) [P]redicting the need for student intervention to reduce dropouts or recommend vocational training (India, p. 20)
<i>Equity</i>	Deaf children can follow classes with their peers through speech-to-text conversion (Belgium, p. 4) [AI] technologies to extract digital content can render navigation and access easier and more effective for people with low levels of vision (Ireland, p. 18)	A few application examples are medical devices and services in screening and diagnostic areas such as omics and medical imaging...and predictive models of healthcare needs (Italy, p. 17)	[AI may] help teachers to assess the needs of learners more effectively (Mexico, p. 10) AI-supported and automatic setting of exam tasks or learning paths, AI-supported feedback on learning processes or AI-supported assistants for analysing, planning or organising studies (Germany, p. 11)
<i>Fairness (and honesty)</i>	[S]ervices could be targeted effectively from the viewpoint of state economy...and misuse and overuse of resources and disruptive demand for services could be eradicated (Finland, p. 86)	[Tax] has been trialling AI algorithms to detect companies [...] conducting fraudulent operations. [...] Data is not neutral [it can be biased, such as] when an AI system is taught how to take decisions from a data set which is not representative (Mexico, pp. 23, 36)	[T]o develop and integrate AI technologies and tools [for improved] education management [IS] to optimize data collection and processing to achieve a fairer, more inclusive, open and personalized education (Bulgaria, p. 37)
<i>Inclusion</i>	Certain AI-based assistive technology can improve the living conditions of disabled people (France, p. 147)	[H]elp users express their needs and requalify them in administrative terms with the help of natural language processing techniques (France, p. 143)	[E]nabling distance education for children in remote regions and specialised products that can assist non-traditional learners and children with diverse needs (Ireland, p. 55)

3.6 Discussions and practical implications

We have examined how AI strategies convey public values in relation to public sector AI. Addressing this question, we reviewed the existing literature on public sector AI with a focus on public value creation. Against this background, we analyzed 28 national and cross-national AI strategies from nine major economies. We explored the extent to which the strategies position AI as a technology that impacts public sector practices. This is where our research contributes and responds to several study calls (Fatima et al., 2020; Toll et al., 2019; Viscusi et al., 2020); in particular, it contributes to the field of public sector AI research in three important ways, discussed below.

Firstly, we contribute to the nascent literature on public sector AI and AI policy studies by analyzing discursive nuances in (cross-)national AI public sector strategies, and the different understandings, possibilities, and limitations of this novel phenomenon. Understanding is currently limited but is urgently needed to advance research and policies around AI in the public sector (van Noordt & Nurkse, 2022; Wirtz et al., 2019). We noted that commonly used definitions of AI (i.e., from the OECD and EC) frame the technology passively or neutrally (see Section 3.5.1). Such framing is to be expected when dealing with novel technologies with multiple unknowns, like AI. Several strategies framed AI as a supporting technology that supplements civil servants' decision-making to address conceptual ambiguity stemming from passivity in the definitions of AI. These strategies relied on use cases to provide context for AI applications, including application domain, utility, and users. Some strategies presented a humanoid AI, thereby depicting the technology in a future-focused way rather than emphasizing immediate issues. According to Krafft et al. (2020), framing AI in a human-like way is common in the broader AI policy discourse. Our results support their findings. Moreover, we found the OECD's definition, used in several AI strategies, to be more pragmatic than other definitions, as it better represents current AI technologies. A clear and concise understanding of AI is needed to advance public sector AI research (Wirtz et al., 2019), and the OECD's definition can serve as a useful definition of AI for this purpose (Krafft et al., 2020).

Secondly, this study contributes to existing literature on AI in the public sector by highlighting strategic domains of AI applications and national priorities concerning the ways in which governments envision applying bespoke AI solutions. For example, India's dispersed population necessitates customized solutions to deliver government services to citizens living in rural areas. Responding to the recent COVID-19 pandemic has accelerated the development of new solutions, such as remotely delivering health services to citizens in confinement. Faced with workforce constraints (Mehr, 2017), "AI-augmented government" (Eggers, 2017) proposes AI automation to free up labor hours and deliver public services more effectively and sustainably. While AI's impact on the workforce is a major concern (Boyd & Wilson, 2017; Wirtz et al., 2019), countries also envision benefits like public value creation and new opportunities for civil servants to focus on specialized tasks (Wirtz et al., 2019). Indeed, in our analysis we identified dominant discourses on public sector AI that emphasize substantive outcomes and public value. These discourses' conception of public values involves opportunities that are not always clear-cut in terms of procedures and outcomes. For instance, researchers found that AI-enabled learning systems are more effective than human-led tutoring only in particular classroom settings (du Boulay, 2016), and AI systems used for the diagnosis and treatment of disease in hospitals may create certain procedural inefficiencies, according to the doctors who use them (Sun & Medaglia, 2019). Thus, an optimistic view of AI that involves various benefits for public organizations, which is characteristic of many of the AI strategies analyzed (Toll et al., 2019), should be considered in the

context of relevant studies on the application of AI from different perspectives (e.g., Kuziemski and Misuraca, 2020; Gerli et al., 2021) to build a more balanced picture of public sector AI.

In addition, our study contributes to existing literature on AI policy by highlighting the limited attention that is given to the policymaking function in AI discourse. Indeed, our study shows that these policy texts positioned public sector AI in the discourse primarily as supporting public service provisions and the internal management of public organizations. Notably, while the latter two were reflected in our results, particularly in relation to the discourse of enhanced administrative practices and the discourse of improved service delivery (Section 3.5.3), the former was rarely mentioned. Our study's findings thus reflect those reported in a recent study assessing AI implementation in public organizations (van Noordt & Misuraca, 2022) (see also Section 3.2). Notably, the formulation and implementation of AI strategies as reflected in the national AI strategy (or policy) texts seem to be similar in regard to this.

The strength of our study in comparison to others that study these texts is its empirical grounding in public administration. This has been fruitful for understanding the synergistic relationship between the formulation and implementation of public sector AI strategies. More importantly, it has helped to address gaps that we identified in AI research. Our study thus sheds light on prior AI policy studies inquiring into the different priorities emphasized by governments (Paltieli, 2021; Salo-Pontinen & Saariluoma, 2022; Toll et al., 2019; Wilson, 2022) or the role that they play in AI development and use domestically (Fatima et al., 2020; Guenduez & Mettler, 2023). For instance, by highlighting strategic prioritizations our study helps to explain why research has not found citizen engagement to be a priority in AI strategies. In brief, our study adds valuable insights to the field by bridging theory and practice, emphasizing the policymaking function (or the lack thereof), and providing a nuanced view of AI policy priorities.

Thirdly, our study contributes to the emerging public value and AI literature. For one, our analytical approach, which is unique, involved discursive positioning to uncover public value creation. Expected managerial values (efficiency, effectiveness) were prominent in service and administrative discourses, but not in empowerment discourse, where democratic values (equity, fairness, honesty) emerged. We identified agility and inclusion as additional values. While aspirational, AI's use lacked specific measures to realize these values, echoing Wilson (2022) on abstract public engagement references. Furthermore, agility—the value of organizational adaptability through AI—received scant academic attention, despite support from Selten and Meijer (2021) and Li et al. (2025). We link effectiveness to service quality, thus aligning with managerial discourses. Notably, civil servant agency remained implicit in AI strategy discussions, potentially due to the focus on outcomes over means. This challenges Weberian bureaucracy theory (accountability through transparent procedures) and raises concerns about public trust and professionalism, as noted by Wilson (2022). Our findings suggest that governments favor human autonomy over autonomous AI, but attributing some agency to AI systems might impact established accountability.

3.6.1 Practical implications

This study has at least two implications for policy and practice. Firstly, our results might help policymakers and strategic managers formulate and implement better AI strategies by, on the one hand, clarifying what the technology can and cannot do (i.e., defining boundaries through definitions of AI), and on the other, having a shared vision of the goals and objectives

of the AI plan in order for the stakeholders involved in its implementation to get a clear understanding of these boundaries. We propose that the OECD’s definition serves as a helpful point of departure to this end, as mentioned above.

Secondly, the strategies examined frequently positioned AI use within discourses concerning specific important public sector domains (see Table 3.4). Whether or not these domains are the most appropriate for experimenting with decision-support systems remains an open topic. In their research on public sector AI, Kuziemski and Misuraca (2020) made a similar point and called for domain-specific ad hoc pilot experiments of such systems to determine the appropriateness of AI in public services. This, we argue, makes sense because, on the one hand, experimentation allows for causal inference in real-world settings (Hansen & Tummers, 2020), and on the other, it enables public sector stakeholders to assess whether or not a service delivers public value in a cost-effective manner. As we see it, well-planned pilots (with established boundaries through a shared understanding of the technology) that use a public value approach can fact-check conjectures about an AI system’s positive public value impact before fully deploying it. Such public value conjectures were noted in this study concerning the various benefits envisioned through governments’ use of AI for service delivery and internal management (see Table 3.5).

3.7 Conclusion and future research

This study analyzed AI strategy texts, focusing on the sections that concern governments’ application of AI to the public sector. We adopted a public value perspective, distinguishing between democratic and managerial values. Furthermore, we applied combined qualitative research methods to these texts, highlighting three dominant discourses. The discourses reflect major discursive themes that we have identified, in which the strategies position AI as being able to enhance public value creation, particularly by supporting more effective and equitable public service delivery. Notably, these positions vary and depend on particular actors and types of public service. For instance, the texts envision using AI to address critical societal issues, such as in the area of health and social care.

The study contributes to the discussion about the potential impact of AI applications in the public sector. It does so by highlighting that service-oriented government transformation through AI is rhetorically common in two of the discourses: the discourse of empowerment through information, and the discourse of improved public service delivery. Such rhetoric is common in public sector AI discourse (Li et al., 2025). Process automation for enhanced productivity is also a common theme in the strategies, and this finding adds more nuanced insights to AI policy research. At the same time, it is concerning because it might challenge traditional administrative practices and potentially have serious consequences for democratic values and human agency in decision-making.

This study has some limitations. We noted in our results that the data were sometimes vague or described public sector AI applications in general terms. Hence, we were limited by the corpus material when interpreting the corpus material, which affected our analysis and therefore our results. To compensate for this, we reviewed each other’s coding and deliberated in situations where we were unsure how to ensure the reliability of our findings. Discussion of countries’ social and cultural environments has necessarily been brief due to word limitations, but this deserves closer attention because, as we have noted, socioeconomic differences may influence how AI is positioned in the discourse. Future research

could examine this further and delve deeper into particular discursive nuances in understanding AI applications in important public sector domains domestically.

We call for further research into the responsible development and use of AI, including the establishment of suitable accountability mechanisms (i.e., mechanisms to explain and justify and action) to ensure that public sector applications align with the public values of equity, fairness, and inclusion. There is arguably a lack of these values in AI decision-support systems in the context of public service delivery (Gualdi & Cordella, 2021) and a need for “mutually recognizable ethical models for socially beneficial AI” (Saveliev & Zhurenkov, 2021, p. 656). Moreover, researchers should seek to contribute to leveling the playground for developing and using honest, fair, and unbiased AI. In particular, inclusion of the perspectives of marginalized individuals and other vulnerable groups is urgently needed to support the development of inclusive services, as previous studies have suggested concerning public sector AI (Criado & Zarate-Alcarazo, 2022). For example, introducing AI-enabled learning systems in schools could risk creating increased educational inequity among students (Chiu et al., 2023), which challenges the envisioned positive impact of such systems for teaching and learning shared by multiple AI strategies. In light of this, there exists a dire need to explore AI’s impact on democratic values from the perspective of excluded individuals in developed and emerging economies in order to realize trustworthy AI in the public sector.

Appendices

Appendix A: Sample

When searching for national strategies, we followed Wilson (2022) and relied on a single data source: the OECD AI Policy Observatory (OECD.AI, 2021). This aggregates AI initiatives undertaken by governments around the world, including documents related to AI plans in 63 countries. The documents were collected in Q4 of 2021. To be included, policy documents had to address national issues with a specific focus on AI, rather than broader digital government issues (e.g., Australia). Furthermore, documents considered for the final analysis had to: (1) be written in English, (2) include section(s) on the public sector, and (3) be issued by the central government of the respective country or region. We adopted a purposefully heterogeneous sampling approach to select representative governments (national and supranational). This is recommended if the number of cases is small and the objective is to analyze key themes (Saunders et al., 2006, pp. 239-240). Although heterogeneity can be a problem for small samples, as each case is distinct, the heterogeneous sampling strategy turns this weakness into a strength based on the following logic: “Any common patterns that emerge from great variation are of particular interest and value in capturing the core experiences and central, shared dimensions of a setting or phenomenon” (Patton, 2002, p. 235). We based the purposeful sampling method used in this research on the criteria stipulated in Table 3.6.

Table 3.6: Selection criteria

Issue	Criteria
Size of the country or region	Must be one of the 10 largest economies in terms of GDP PPP*
Publisher of document	Published by the central-government
Language of document	Accessible in English
Strategic focus	Must include one or more sections on the public sector

Two major factors had an influence on our sample: (1) diversity, in that our research emphasized geographic and cultural variation; and (2) influence, in that our objective was for our sample to consist of countries that could potentially have a great impact on AI investment in their regions. Hence, we gathered data from the World Bank about the gross domestic product based on purchasing power parity (GDP PPP) (The World Bank, n.d.). We then compiled a list of countries and regions (with the EU considered as a single entity) based on their GDP PPP in 2021. We found that the 10 largest economies, which accounted for 71% of the world’s GDP PPP that year, met our criteria. These are countries with cultural diversity and geographic breadth (they span four major continents) and they hold considerable economic power. Thus, they met both of the mentioned factors and will likely shape future trajectories of AI development. The list of the top 10 economies is presented in Table 3.7. Two major factors had an influence on our sample: (1) diversity, in that our research emphasized geographic and cultural variation; and (2) influence, in that our objective was for our sample to consist of countries that could potentially have a great impact on AI investment in their regions. Hence, we gathered data from the World Bank about the gross domestic product based on purchasing power parity (GDP PPP) (The World Bank, n.d.). We then compiled a list of countries and regions (with the EU considered as a single entity) based on their GDP PPP in 2021. We found that the 10 largest economies, which accounted for 71% of the world’s GDP PPP that year, met our criteria. These are countries with cultural diversity and geographic breadth (they span four major continents) and they hold considerable economic power. Thus, they met both of the mentioned factors and will likely shape future trajectories of AI development. The list of the top 10 economies is presented in Table 3.7.

Table 3.7: GDP PPP of the top 10 economies (The World Bank, n.d.)

Country Name	2021 [YR2021]
China	\$ 27.312.548.291.586
United States	\$ 22.996.100.000.000
European Union	\$ 21.648.464.335.747
India	\$ 10.218.572.963.097
Japan	\$ 5.396.818.536.178
Russian Federation	\$ 4.785.445.021.584
Indonesia	\$ 3.566.265.111.447
Brazil	\$ 3.435.882.150.019
United Kingdom	\$ 3.344.467.827.749
Mexico	\$ 2.609.993.159.828

Nine countries, including eight EU member states, did not meet our criteria and were excluded. They either had not yet published a national AI strategy or did not have one accessible in English (e.g., Indonesia’s plan was not accessible in English). Twenty-seven countries remained, of which 19 are EU members. In addition, the EU’s Coordinated Plan on Artificial Intelligence was included. Thus, the AI plans of individual member states that are available in English, as well as the EU’s coordinated plan, are included in this study. For an overview of the 28 plans included, see Table 3.8 in Appendix B.

Appendix B: The corpus

Table 3.8: AI strategies included in this study (the corpus)

Country	Strategic Plan	Author/ Issuing Agency	Published
1. Austria	AI Mission Austria 2030	Ministry of Innovation and Technology, Austria	01/10/2018
2. Belgium	AI 4 Belgium	Ministers for Digital Agenda, Belgium	01/03/2019
3. Brazil	Brazilian Artificial Intelligence Strategy (English version)	Ministry of Science, Technology and Innovations	01/01/2021
4. Bulgaria	Concept for the Development of Artificial Intelligence in Bulgaria Until 2030	Ministry of Transport [...] Republic of Bulgaria	01/10/2020
5. China	Next Generation Artificial Intelligence Development Plan	The Foundation for Law and International Affairs, Republic of China	01/09/2017
6. Czech Republic	National Artificial Intelligence Strategy of the Czech Republic	Ministry of Industry and Trade of the Czech Republic	01/05/2019
7. Denmark	National Strategy for Artificial Intelligence	Ministry of Finance and Ministry of Industry, Business and Financial Affairs, Denmark	01/03/2019
8. Estonia	Estonia's National Artificial Intelligence Strategy 2019-2021	Ministry of Economic Affairs and Communications, Estonia	01/05/2019
9. EU	Coordinated Plan on Artificial Intelligence 2021 Review	European Commission	21/04/2021
10. Finland	Leading the way into the age of artificial intelligence	Ministry of Economic Affairs and Employment, Finland	12/06/2019
11. France	For a Meaningful Artificial Intelligence	French Parliament	01/03/2018
12. Germany	AI Strategy	Federal Ministry of Education and Research [...] Social Affairs, Germany	01/12/2020
13. Hungary	Hungary's Artificial Intelligence Strategy	Ministry for Innovation and Technology, Hungary	01/05/2020
14. India	National Strategy for AI #AI for All	NTI Aayog	01/06/2018
15. Ireland	AI - Here for Good: A National Artificial Intelligence Strategy for Ireland	Department of Enterprise, Trade and Employment, Government of Ireland	01/07/2021
16. Italy	Strategic Programme on Artificial Intelligence 2022-2024	Ministries of Education, University and Research, and Economic Development	24/11/2021
17. Japan	AI for Everyone: People, Industries, Regions and Governments	Strategic Council for AI Technology, Japan	11/06/2019
18. Lithuania	Lithuanian Artificial Intelligence Strategy	Ministry of Economy of the Republic of Lithuania	01/04/2019
19. Luxembourg	Artificial Intelligence: A Strategic Vision for Luxembourg	Ministry of Digitalization, Luxembourg	01/05/2019
20. Malta	The Ultimate AI Launchpad	Parliamentary Secretariat for Financial Services, Digital Economy and Innovation, Malta	01/10/2019
21. Mexico	Toward an AI Strategy in Mexico: Harnessing the AI Revolution	National Digital Strategy Office, Mexico	01/06/2018
22. Netherlands	Strategic Action Plan for AI	Ministry of Economic Affairs, Netherlands	01/10/2019
23. Portugal	AI Portugal 2030	INCoDe.2030	01/06/2019
24. Russia	Development of Artificial Intelligence in the Russian Federation	Office of the President of the Russian Federation	01/10/2019
25. Spain	Spanish RDI Strategy in Artificial Intelligence	Ministry of Science, Innovation and Universities	01/01/2019
26. Sweden	National Approach to AI	Ministry of Enterprise and Innovation, Sweden	01/05/2018
27. UK	National AI Strategy	HM Government, United Kingdom	01/09/2021
28. USA	The National AI Research and Development Strategic Plan: 2019 Update	National Science and Technology Council, USA	01/06/2019

Appendix C: Supplementary data

[Supplementary online material](https://bit.ly/ITH-PHD-som): to view/download, visit bit.ly/ITH-PHD-som

References for Paper I

- Alford, J., & Hughes, O. (2008). Public value pragmatism as the next phase of public management. *The American Review of Public Administration*, 38(2), 130–148. <https://doi.org/10.1177/0275074008314203>
- Androutsopoulou, A., Karacapilidis, N., Loukis, E., & Charalabidis, Y. (2019). Transforming the communication between citizens and government through AI-guided chatbots. *Government Information Quarterly*, 36(2), 358–367. <https://doi.org/10.1016/j.giq.2018.10.001>
- Bannister, F., & Connolly, R. (2014). ICT, public values and transformative government: A framework and programme for research. *Government Information Quarterly*, 31, 119–128.
- Bareis, J., & Katzenbach, C. (2021). Talking AI into being: The narratives and imaginaries of national AI strategies and their performative politics. *Science, Technology, & Human Values*, 47(5), 855–881.
- Berryhill, J., Heang, K. K., Clogher, R., & McBride, K. (2019). *Hello, World: Artificial intelligence and its use in the public sector*. OECD.
- Bortoló, G. M., Valdés, J. Á., & Nicolas-Sans, R. (2023). Sustainable, technological, and innovative challenges post Covid-19 in health, economy, and education sectors. *Technological Forecasting and Social Change*, 190. <https://doi.org/10.1016/j.techfore.2023.122424>
- Boyd, M., & Wilson, N. (2017). Rapid developments in Artificial Intelligence: How might the New Zealand government respond? *Policy Quarterly*, 13(4), 36–43. <https://doi.org/10.26686/pq.v13i4.4619>
- Chiu, T. K., Xia, Q., Zhou, X., Chai, C. S., & Cheng, M. (2023). Systematic literature review on opportunities, challenges, and future research recommendations of artificial intelligence in education. *Computers and Education: Artificial Intelligence*, 4, 100118. <https://doi.org/10.1016/j.caeai.2022.100118>
- Cordella, A., & Bonina, C. M. (2012). A public value perspective for ICT enabled public sector reforms: A theoretical reflection. *Government Information Quarterly*, 29, 512–520. <https://doi.org/10.1016/j.giq.2012.03.004>
- Criado, J. I., & Zarate-Alcarazo, L. O. (2022). Technological frames, CIOs, and Artificial Intelligence in public administration: A socio-cognitive exploratory study in Spanish local governments. *Government Information Quarterly*, 39(3), 1–13. <https://doi.org/10.1016/j.giq.2022.101688>
- de Sousa, W. G., Melo, E. R. P. de, Bermejo, P. H. D. S., Farias, R. A. S., & Gomes, A. O. (2019). How and where is artificial intelligence in the public sector going? A literature review and research agenda. *Government Information Quarterly*, 36(4). <https://doi.org/10.1016/j.giq.2019.07.004>
- Dencik, L., Redden, J., Hintz, A., & Warne, H. (2019). The ‘golden view’: Data-driven governance in the scoring society. *Internet Policy Review*, 8(2), 0–24. <https://doi.org/10.14763/2019.2.1413>
- Desiere, S., & Struyven, L. (2021). Using artificial intelligence to classify jobseekers: The accuracy-equity trade-off. *Journal of Social Policy*, 50(2), 367–385. <https://doi.org/10.1017/S0047279420000203>
- du Boulay, B. (2016). Recent meta-reviews and meta-analyses of AIED systems. *International Journal of Artificial Intelligence in Education*, 26(1), 536–537. <https://doi.org/10.1007/s40593-015-0060-1>

- Eggers, D. W. (2017). AI-augmented government. Using cognitive technologies to re-design public sector work. *Deloitte Center for Government Insights*. https://www2.deloitte.com/content/dam/insights/us/articles/3832_AI-augmented-government/DUP_AI-augmented-government.pdf
- European Commission. (2020). *On artificial intelligence-a european approach to excellence and trust white paper on artificial intelligence a european approach to excellence and trust*. https://ec.europa.eu/commission/sites/beta-political/files/political-guidelines-next-commission_en.pdf.
- Fatima, S., Desouza, K. C., & Dawson, G. S. (2020). National strategic artificial intelligence plans: A multi-dimensional analysis. *Economic Analysis and Policy*, 67, 178–194. <https://doi.org/10.1016/j.eap.2020.07.008>
- Finfeld-Connett, D. (2014). Use of content analysis to conduct knowledge-building and theory-generating qualitative systematic reviews. *Qualitative Research*, 14(3), 341–352. <https://doi.org/10.1177/1468794113481790>
- Gerli, P., Arakpogun, E. O., Elsahn, Z., Olan, F., & Prime, K. S. (2021). Beyond contact-tracing: The public value of eHealth application in a pandemic. *Government Information Quarterly*, 38(3). <https://doi.org/10.1016/J.GIQ.2021.101581>
- Gesk, T. S., & Leyer, M. (2022). Artificial intelligence in public services: When and why citizens accept its usage. *Government Information Quarterly*, 101704. <https://doi.org/10.1016/J.GIQ.2022.101704>
- Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2013). Seeking qualitative rigor in inductive research: Notes on the gioia methodology. *Organizational Research Methods*, 16(1), 15–31. <https://doi.org/10.1177/1094428112452151>
- Griffith, T. L., Northcraft, G. B., & Fuller, M. A. (2008). Borgs in the org? Organizational decision making and technology. In G. Hodgkinson & W. Starbuck (Eds.), *Handbook of organizational decision making* (pp. 97–115). Oxford University Press. <http://www.oup.co.uk/academic/rights/permissions>.
- Gualdi, F., & Cordella, A. (2021). Artificial intelligence and decision-making: The question of accountability. *Proceedings of the 54th Hawaii International Conference on System Sciences*, 2297–2306.
- Guenduez, A. A., & Mettler, T. (2023). Strategically constructed narratives on artificial intelligence: What stories are told in governmental artificial intelligence policies? *Government Information Quarterly*, 40(1), 101719. <https://doi.org/10.1016/j.giq.2022.101719>
- Hansen, J. A., & Tummers, L. (2020). A systematic review of field experiments in public administration. *Public Administration Review*, 80(6), 921–931. <https://doi.org/10.1111/PUAR.13181>
- Henman, P. (2020). Improving public services using artificial intelligence: Possibilities, pitfalls, governance. *Asia Pacific Journal of Public Administration*, 42(4), 209–221. <https://doi.org/10.1080/23276665.2020.1816188>
- Hood, C. (1998). *The art of the state : Culture, rhetoric, and public management*. Oxford University Press. <https://doi.org/10.1093/0198297653.003.0001>
- Jiang, F., Jiang, Y., Hui, Z., Dong, Y., Li, H., Ma, S., & Al., E. (2017). Artificial intelligence in healthcare: Past, present and future. *Stroke Vasc. Neurol.*, 2(4), 230–243. <https://doi.org/10.1136/svn-2017-000101>
- Jurafsky, D., & Martin, J. H. (2022). Speech and language processing (3rd ed. draft). <https://web.stanford.edu/~jurafsky/slp3/>

- Kamwa, I., Samantaray, S. R., & Joós, G. (2012). On the accuracy versus transparency trade-off of data-mining models for fast-response PMU-based catastrophe predictors. *IEEE Transactions on Smart Grid*, 3(1), 152–161. <https://doi.org/10.1109/TSG.2011.2164948>
- Kankanhalli, A., Charalabidis, Y., & Mellouli, S. (2019). IoT and AI for smart government: A research agenda. *Government Information Quarterly*, 36(2), 304–309. <https://doi.org/10.1016/j.giq.2019.02.003>
- Keppeler, F. (2022). No thanks, dear AI! Understanding the effects of disclosure and deployment of artificial intelligence in public sector recruitment. *Journal of Public Administration Research and Theory*.
- Klijn, E. H., & Koppenjan, J. (2015, August). *Governance networks in the public sector*. Routledge. <https://doi.org/10.4324/9781315887098>
- König, P. D., & Wenzelburger, G. (2020). Opportunity for renewal or disruptive force? How artificial intelligence alters democratic politics. *Government Information Quarterly*, 37(3), 101489. <https://doi.org/10.1016/J.GIQ.2020.101489>
- Krafft, P. M., Young, M., Katell, M., Huang, K., & Bugingo, G. (2020). Defining AI in policy versus practice. *AIES 2020 - Proceedings of the AAAI/ACM Conference on AI, Ethics, and Society*, 72–78. <https://doi.org/10.1145/3375627.3375835>
- Krippendorff, K. (2019). Content analysis: An introduction to its methodology (Fourth Edi). <https://doi.org/10.4135/9781071878781>
- Kuziemski, M., & Misuraca, G. (2020). AI governance in the public sector: Three tales from the frontiers of automated decision-making in democratic settings. *Telecommunications Policy*, 44(6). <https://doi.org/10.1016/j.telpol.2020.101976>
- Li, Y., Fan, Y., & Nie, L. (2025). Making governance agile: Exploring the role of artificial intelligence in China’s local governance. *Public Policy and Administration*, 40(2), 276–301. <https://doi.org/10.1177/09520767231188229>
- Medaglia, R., Gil-Garcia, J. R., & Pardo, T. A. (2023). Artificial intelligence in government: Taking stock and moving forward. *Social Science Computer Review*, 41(1), 123–140. <https://doi.org/10.1177/08944393211034087>
- Mehr, H. (2017). *Artificial intelligence for citizen services and government*. Harvard Ash Center for Democratic Governance and Innovation. Cambridge, MA.
- Misuraca, G., & Viscusi, G. (2013). Managing e-governance: A framework for analysis and planning. In Z. Mahmood (Ed.), *Developing e-government projects: Frameworks and methodologies* (pp. 204–224). IGI Global. <https://doi.org/10.4018/978-1-4666-4245-4.CH010>
- Moore, M. H. (1995). *Creating public value: Strategic management in government*. Harvard University Press.
- Ndou, V. (2004). E-government for developing countries: Opportunities and challenges. *Electron. J. Inf. Syst. Dev. Ctries.*, 18(1), 1–24.
- Nyman, S., Bødker, M., & Blegind Jensen, T. (2023). Reforming work patterns or negotiating workloads? Exploring alternative pathways for digital productivity assistants through a problematization lens. *Journal of Information Technology*. <https://doi.org/10.1177/02683962231181602>
- OECD. (2018). *Private equity investment in artificial intelligence*. OECD / OECD. Paris.
- OECD.AI. (2020). ICELAND’S AI STRATEGY (FORTHCOMING, 2021) policy initiative - oecd.ai. <https://oecd.ai/dashboards/policy-initiatives/2019-data-policyInitiatives-26847>
- OECD.AI. (2021). National AI policies & strategies. <https://oecd.ai/>

- Ossewaarde, M., & Gulenc, E. (2020). National varieties of artificial intelligence discourses: Myth, utopianism, and solutionism in west european policy expectations. *Computer*, 53(11), 53–61.
- Paletti, A. (2021). *The complexities of government as a platform , co-production and public value creation : The need of public value orchestration* [Doctoral dissertation, London School of Economics].
- Paltieli, G. (2021). The political imaginary of national AI strategies. *AI & Society*, 37(4), 1613–1624.
- Panagiotopoulos, P., Klievink, B., & Cordella, A. (2019). Public value creation in digital government. *JAI*. <https://doi.org/10.1016/j.giq.2019.101421>
- Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). SAGE Publications.
- Paulus, T., Lester, J., & Britt, V. (2013). Constructing hopes and fears around technology: A discourse analysis of introductory qualitative research texts. *Qualitative Inquiry*, 19(9), 639–651. <https://doi.org/10.1177/1077800413500929>
- Paulus, T., Woods, M., Atkins, D. P., & Macklin, R. (2017). The discourse of QDAS: Reporting practices of ATLAS.ti and NVivo users with implications for best practices. *International Journal of Social Research Methodology*, 20(1), 35–47. <https://doi.org/10.1080/13645579.2015.1102454>
- Rose, J., Persson, J. S., & Heeager, L. T. (2015). How e-Government managers prioritise rival value positions: The efficiency imperative. *Information Polity*, 20(1), 35–59. <https://doi.org/10.3233/IP-150349>
- Salo-Pontinen, H., & Saariluoma, P. (2022). Reflections on the human role in AI policy formulations: How do national AI strategies view people? *Discover Artificial Intelligence*, 2(1).
- Saunders, M., Lewis, P., & Thornhill, A. (2006). *Research methods for business students* (4th ed.). United Kingdom: Pearson Education M.U.A.
- Saveliev, A., & Zhurenkov, D. (2021). Artificial intelligence and social responsibility. *Kybernetes. The International Journal of Cybernetics, Systems and Management Sciences*, 50(3), 656–675. <https://doi.org/10.1108/K-01-2020-0060>
- Schou, J., & Hjelholt, M. (2017). Digitalizing the welfare state: Citizenship discourses in Danish digitalization strategies from 2002 to 2015. *Critical Policy Studies*, 13(1), 3–22. <https://doi.org/10.1080/19460171.2017.1333441>
- Scutella, M., Plewa, C., & Reaiche, C. (2024). Virtual agents in the public service: Examining citizens’ value-in-use. *Public Management Review*, 26(1), 73–88. <https://doi.org/10.1080/14719037.2022.2044504>
- Searle, J. R. (1990). Is the brain’s mind a computer program? *Scientific American*, 262(1), 25–31.
- Selten, F., & Meijer, A. (2021). Managing algorithms for public value. *International Journal of Public Administration in the Digital Age*, 8(1), 1–16. <https://doi.org/10.4018/IJPADA.20210101.oa9>
- Sharma, G. D., Yadav, A., & Chopra, R. (2020). Artificial intelligence and effective governance: A review, critique and research agenda. *Sustainable Futures*, 2, 100004. <https://doi.org/10.1016/j.sftr.2019.100004>
- Sigurdarson, H. T. (2016). *The ministry of desire: Anxiety and entrepreneurship in a bureaucracy* [Doctoral dissertation, Copenhagen Business School [Phd] / Copenhagen Business School]. <https://doi.org/10.2/JQUERY.MIN.JS>

- Stoker, G. (2006). Public value management: A new narrative for networked governance? *The American Review of Public Administration*, 36(1), 41–57. <https://doi.org/10.1177/0275074005282583>
- Stone, P., Brooks, R., Brynjolfsson, E., Calo, R., Etzioni, O., Hager, G., & Hirschberg, J. (2016). *One hundred year study on artificial intelligence*. Stanford University. Stanford.
- Sun, T. Q., & Medaglia, R. (2019). Mapping the challenges of Artificial Intelligence in the public sector: Evidence from public healthcare. *Government Information Quarterly*, 36(2), 368–383. <https://doi.org/10.1016/j.giq.2018.09.008>
- The World Bank. (n.d.). GDP, PPP (date accessed: 15/07/2022). *Data accesses*. <https://data.worldbank.org/indicator/NY.GDP.MKTP.PP.CD>
- Toll, D., Lindgren, I., Melin, U., & Madsen, C. Ø. (2019). Artificial intelligence in swedish policies: Values, benefits, considerations and risks. *International Conference on Electronic Government*, 301–312. https://doi.org/10.1007/978-3-030-27325-5_{_}23
- Twizeyimana, J. D., & Andersson, A. (2019). The public value of E-Government – A literature review. *Government Information Quarterly*, 36(2), 167–178. <https://doi.org/10.1016/j.giq.2019.01.001>
- Van Berkel, N., Papachristos, E., Giachanou, A., Hosio, S., & Skov, M. B. (2020). A systematic assessment of national artificial intelligence policies: Perspectives from the nordics and beyond. *ACM International Conference Proceeding Series*. <https://doi.org/10.1145/3419249.3420106>
- van Noordt, C., & Misuraca, G. (2022). Artificial intelligence for the public sector: Results of landscaping the use of AI in government across the European Union. *Government Information Quarterly*, 39(3), 101714. <https://doi.org/10.1016/J.GIQ.2022.101714>
- van Noordt, C., & Nurkse, R. (2022). Conceptual challenges of researching Artificial Intelligence in public administrations. *Dg.o 2022: The 23rd Annual International Conference on Digital Government Research*, 183–190. <https://doi.org/10.1145/3543434.3543441>
- Viscusi, G., Rusu, A., & Florin, M. V. (2020). Public strategies for artificial intelligence: Which value drivers? *Computer*, 53(10), 38–46. <https://doi.org/10.1109/MC.2020.2995517>
- Wang, C., Teo, T. S., & Janssen, M. (2021). Public and private value creation using artificial intelligence: An empirical study of AI voice robot users in Chinese public sector. *International Journal of Information Management*, 61, 102401. <https://doi.org/10.1016/j.ijinfomgt.2021.102401>
- Wilson, C. (2022). Public engagement and AI: A values analysis of national strategies. *Government Information Quarterly*, 39(1), 101652. <https://doi.org/10.1016/j.giq.2021.101652>
- Wirtz, B. W., Langer, P. F., & Fenner, C. (2021). Artificial intelligence in the public sector - a research agenda. *International Journal of Public Administration*, 44(13), 1103–1128. <https://doi.org/10.1080/01900692.2021.1947319>
- Wirtz, B. W., Weyerer, J. C., & Geyer, C. (2019). Artificial intelligence and the public sector—applications and challenges. *International Journal of Public Administration*, 42(7), 596–615. <https://doi.org/10.1080/01900692.2018.1498103>
- Wood, L. A., & Kroger, R. O. (2000). *Doing discourse analysis : Methods for studying action in talk and text* (1st ed.). Sage Publications.

- Yu, K. H., Zhang, Y., Li, D., Montenegro-Marin, C. E., & Kumar, P. M. (2021). Environmental planning based on reduce, reuse, recycle and recover using artificial intelligence. *Environmental Impact Assessment Review*, 86, 106492. <https://doi.org/10.1016/j.eiar.2020.106492>
- Zeng, D., Cao, Z., & Neill, D. B. (2021). Artificial intelligence-enabled public health surveillance—from local detection to global epidemic monitoring and control. In L. Xing, M. L. Giger, & J. K. Min (Eds.), *Artificial {intelligence} in {medicine}* (pp. 437–453). Academic Press. <https://doi.org/10.1016/B978-0-12-821259-2.00022-3>

Chapter 4

Power and discourse in national AI strategies

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Illugi T. Hjaltalín and Hallur Þór Sigurðarson (in press)

Power and discourse in national AI strategies

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Abstract

Artificial intelligence (AI) is a disruptive technology that can transform societies. This potential is highlighted in AI policy discourses. This chapter examines discourses on AI applications in government, represented in 28 national AI strategies published in recent years. They articulate intentions to invest in AI research, development, and use that can have substantial societal impact. Focusing on aspects of AI in the public sector, we consider how power and empowerment appear in this context. We explore the strategic use of AI, considering how AI's power is situated and the implications for existing power relationships between various public sector actors and citizens. We demonstrate how a framework of power coupled with discursive positioning can effectively uncover power relationships expressed in strategic texts. Our findings show that AI's power in dominant discourses is situated as facilitating and supportive rather than controlling and autonomous. However, there are important exceptions and missed opportunities in this approach. The study highlights the risk of AI automation in critical fields. We argue that the design and implementation of AI should critically consider power dynamics and conclude that while AI may significantly increase productivity, it poses ethical challenges that must be addressed to ensure fairness.

The full text of this chapter is withheld until the book in which it will appear has been published (expected 2027). It is available as a separate, closed file in IRIS.

Chapter 5

Adopting digital government shared-services centers

A case from Iceland

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Abstract

The overall objective of this study is to understand how shared services adoption by governments can affect public sector reforms and public value. In this ongoing research paper, a case study involving a deployment of a government digital shared-services center is outlined. The adoption process is analyzed through a framework inspired by systems theory and public value theory. Initial results suggest that networked collaborative governance in the form of cross-sector collaborations can play an important role in public value (co)creation. However, the findings also indicate a barrier to public innovation. This involves a zero-error culture in state agencies. In this context, strong leadership skills and diverse use of relevant administrative instruments at various stages in the innovation process are found to be critical factors for the successful adoption of shared services. This study contributes empirically and theoretically to the latest research on ICT and public value by scrutinizing a successful case of a shared-services unit within central government. *Keywords:* shared services, public value, public management, reforms, digital government, innovation

5.1 Introduction

In the past four decades, many governments have launched extensive reforms that has fundamentally altered their administrative practices. New public management (NPM), introduced in the 1980s and 1990s, has shifted the focus from bureaucratic practices to an increased emphasis on efficiency gains. The NPM movement promoted a more business-like approach to public administration and public managers should have a high level of autonomy in decision-making (Hood, 1991). NPM reforms have emphasized distributed power through a decentralized public sector and more autonomy for public managers. It has been found that this combination, i.e. power distribution and increased autonomy, gives rise to a more diverse application of administrative instruments (e.g., risk management, quality management, user testing, etc.) (Kristinsson & Matthíasson, 2014). Moreover, the same study shows that varied use of administrative instruments leads to better results in public sector reforms. Nonetheless, NPM reforms have constructed organizational silos making coordination and collaboration between state agencies difficult.

At the same time, different management ideas have been adopted by governments to provide efficient and effective public service. For example, the *shared services* idea has been diffused in the public sector in the past two decades that has led to increased synergy and enhanced service quality (Ulbrich, 2010). Similar services once provided by different public agencies, such as IT services (Grant & Ulbrich, 2010), have been relocated and organized into shared-services centers (SSCs). This has reduced costly duplication in public administration and made the use of IT infrastructure more effective (Hafizi et al., 2014). The popularity of the shared service idea has been explained in terms of the opportunities it presents to governments and public organizations for enhanced value creation (Grant & Ulbrich, 2010). However, there is limited understanding how e-government services can be combined or configured to implement shared services (Mensah et al., 2020).

Kristinsson and Matthíasson (2014) argue that there may be a relationship between varied use of administrative instruments and successful public sector reforms. In an extensive review covering over 500 NPM reform studies in Europe, Pollitt and Dan (2011) highlight a need to better assess the impact of NPM reforms because empirical evidence is scarce. Based on the EC's COCOPS dataset, both studies indicate a general need for research into the outcomes and results of public sector reforms. Our study meets this need by examining the adoption of the shared services idea by the government. The overall objective is to understand how shared services adoption by governments can affect public sector reforms and public value. This paper contributes empirically to the public value literature and to public sector innovation research by applying a systems theory and public value theory to explore administrative instruments required for public value creation in government digital shared-services centers (GD-SSCs).

5.2 Theoretical foundations

5.2.1 Centers of excellence and innovation

Ulbrich (2010) highlights different types of SSCs in terms of the center's primary goals:

Among them are centers of excellence, which focus on professional and advisory services and provide expert knowledge on specific tasks [...] The literature suggested creating centers of excellence by moving existing specialists from decentralized units into one common center for service provision (Ulbrich, 2010, p. 251).

GD-SSCs are centers of excellence in digital government and ICT-enabled reforms in the public sector. They are based on the shared services idea which is a management idea that has been adopted by many governments.

Rogers (1995, p. 11) defines innovation as "an idea, practice, or object that is perceived as new by an individual or other unit of adoption". In this study, the GD-SSC idea represents innovation, and the unit of adoption is the Icelandic government. Ulbrich (2010) performed a similar study where he examined the adoption of a shared-services idea in the Swedish public administration. He found that the idea or innovation is not merely adopted but transformed "into a specific configuration that reflects the organization's individual conditions" (p. 249). In the remainder of this section, the innovation process is divided into three stages, implementation, configuration, and deployment. Following a description of each stage, a research question related to that stage is presented. The section concludes with our discussion of public value theory.

5.2.2 The innovation process and research questions

First, the implementation stage follows the discovery and initial planning phase. It involves formulating the implementation strategy and identifying the relevant stakeholders. The national digital strategy may serve as a high-level point of departure. A central administrative instrument at this stage is a joint strategic plan where stakeholders have been consulted outlining clearly defined agreed-upon objectives to be pursued by the innovation team as well as the estimated time and budget. Resource acquisition may involve relocating staff from different public organizations which can be a challenge, e.g. employees may resist relocating for personal reasons (Ulbrich, 2010). Successful adoption of shared services takes more than simply implementing a strategy in its original form. It must be adapted to fit the local political and social circumstances (Ferreira, 2016).

RQ 1 - How are strategies concerning GD-SSC defined and implemented by government?

Second, the shared services idea is configured and adapted to the available resources and fitted into the policy context. The innovation may require specialized talent and possibly changes to, or the creation of new, policies. Thus, policymakers within the government may be mobilized to facilitate a smooth roll-out of the innovation. At this stage, a bundle of administrative instruments comes into the mix which may put great stress on the management team. This includes accessibility of services, moral code, risk management, quality management, public consultation, etc. (Kristinsson & Matthíasson, 2014).

RQ 2 - Who are involved in the adoption process and which administrative instruments characterize various adoption stages?

Third, successful implementation and configuration stages lead to the final and perhaps most important stage, i.e., deployment of the innovation. This requires buy-in from stakeholders who represent the beneficiaries or users of the

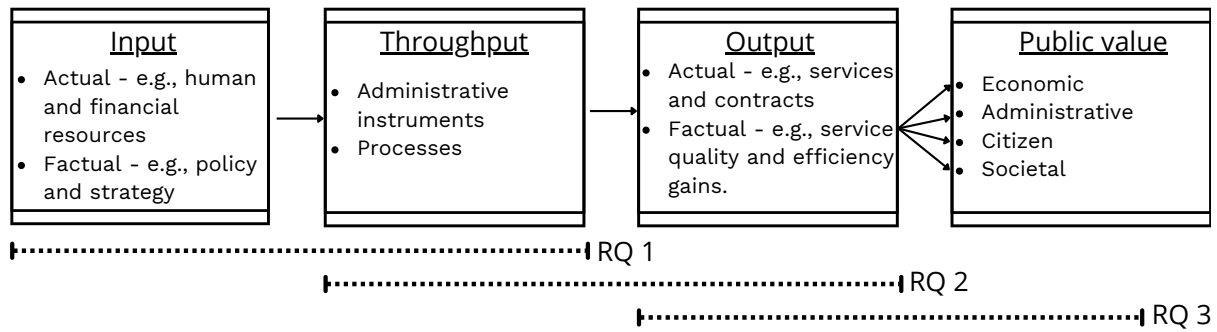


Figure 5.1: Conceptual framework

shared services. A successful roll-out demands strong administrative capacity (e.g., adequate contract management skills, leadership skills, and strategic planning skills). It has been noted that possessing leadership skills and experience of close cooperation with the private sector have been found to have a positive effect on performance (Pollitt & Dan, 2011, p. 40).

RQ 3 - How is public value affected as perceived by the employees at a GD-SSC?

5.2.3 Public value and co-creation

Public value involves public service delivery and policy development outcomes including social and economical aspects of administrative practices. The term, originally coined by Moore in 1995 (see Moore, 1995), is encompassing and considers input, throughput and output, as well as social aspects in the evaluation of public sector reforms. It has been applied to evaluation frameworks in e-government as its socio-economic view on public sector reforms is more applicable than evaluation frameworks used in the private sector (Cordella & Bonina, 2012). The latter having a too narrow focus only assessing efficiency and performance outcomes (i.e. output) that seems ill-suited in the public sector context. Public value theory is widely used in public administration to evaluate outcomes of different public policy and service programs (Bryson et al., 2014) including e-government initiatives (Bannister & Connolly, 2015; Rose et al., 2015). *Co-creation* captures a recent transformative trend where various public and private actors contribute to the creation of public value. This involves close collaboration between the parties involved in the development of new or improving existing solutions to shared problems and challenges (Torfing et al., 2019).

One can argue that public value (co)creation is ultimately the aim of shared services. Indeed, a key success factor in the governance of shared services was found to be "a common vision about shared services among all stakeholders" (Ramphal, 2013, pp. 4-5). It makes sense that a common vision is attained only through a close collaboration and careful deliberation between all of the participants. This study contributes to the public value literature by proposing a public value framework (Figure 5.1) to assess shared-services performance in public value terms. Senior management can use the model as a decision-support and evaluation tool to assess the success of its shared services.

5.3 Methodology

5.3.1 The framework

From a systems theory perspective, the inputs are actual and factual. The actual inputs stem from people involved in the adoption of the GD-SSC and the factual inputs consist of strategies and objectives informing their actions. The throughput represents the innovation process.

The process is divided into three stages: (1) implementation, (2) configuration, and (3) deployment. These correspond to the three RQs as depicted in Figure 5.1. Administrative instruments are used to manage the process including people who carry out the work necessary to complete each stage of the process. The actual and factual outputs consist of different outcomes, that may involve the creation (or the destruction) of public value. The success of these reforms can be assessed in public value terms (Moore, 2013). Public value is grouped into different value categories, economic, administrative, citizen, and social values.

5.3.2 The case study

In this section a brief description of the approach and the case is presented. The case is appropriate and relevant to understand the public value creation by a GD-SSC deployment. First, it is appropriate because of its relatively small size, making it feasible because everyone in the organization can be interviewed thereby eliminating sampling bias. Second, it is relevant because it has recently been established, making it a current phenomena, only partially retrospective. Thus, the respondent memories of the events is likely to be accurate. Triangulation of data as proposed by Yin (2003) will be used to complement respondents' testimonies of the events that took place thereby increasing the reliability of findings.

5.3.2.1 Analytical approach

Data for the longitudinal case study was collected from multiple sources as suggested by Yin (2003) including primary and secondary data. This approach is appropriate when examining a process such as the adoption of an innovation. The primary data is principally interview transcripts derived from 13 interviews with employees at the ministry (FJR). They were interviewed in the period September 15th 2021 - June 2nd 2022. 10 respondents work in the GD-SSC/SÍ and three at the Department of Public Management and Reforms, the latter being responsible for defining and implementing the national digital strategy. I asked them about their background, projects they have worked on after joining the team and the shared services project, e.g. its successes, failures, politics, etc. The respondents were asked open-ended questions to allow them to freely formulate or articulate their lived experiences. Observation data were also collected from SÍ meetings, the annual SÍ conference, online media discussions, and reporter interviews with SÍ's executive manager. The aim was to get a comprehensive picture of the way the public perceives SÍ and its work. In addition, government documents, either publicly available or shared with the researcher, were used where appropriate.

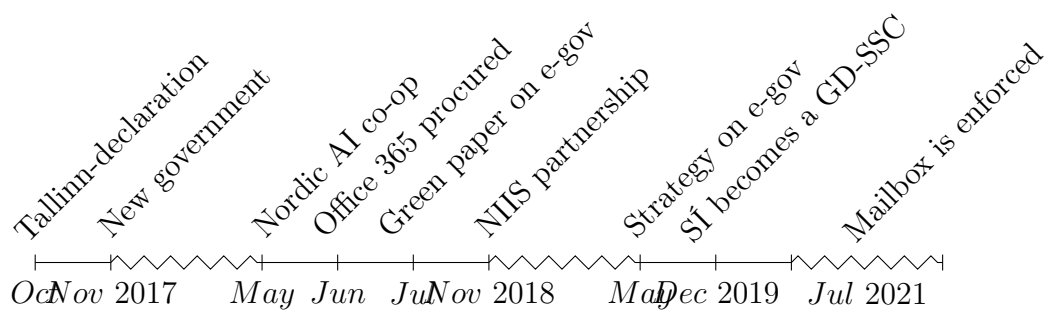


Figure 5.2: Significant events in SÍ's history (Source: The author)

5.3.2.2 Case description

Although the name Stafrænt Ísland (digital Iceland, SÍ) did not appear publicly until 2018, the foundation on which it is based was formed a year earlier. In this context, at least two significant events took place (see timeline). First, a declaration was signed in Tallinn in October 2017 where digital leaders in the Nordics pledged to align their e-government strategies with Europe's coordinated strategy for 2016-2020. Second, a new government was elected in November 2017, and government IT issues were transferred from the Ministry of Transportation to FJR (Samgöngu- og sveitarstjórnarráðuneytið, 2018). Prior to the transition, a team of IT leaders in government was in the process of defining a strategy for an IT-SSC at FJR involving cloud technologies and office applications. This predates SÍ but two members of the initial team currently work in SÍ. Initially, SÍ was only a small team of three managing internal ICT reforms and central e-government issues. In fact, the project was so vast that by the end of the year 2019 the issues were split into two, an IT-SSC (Umbra) and a GD-SSC (the PMO for digital Iceland, SÍ). Both SSCs belong to FJR (see Figure 5.3).

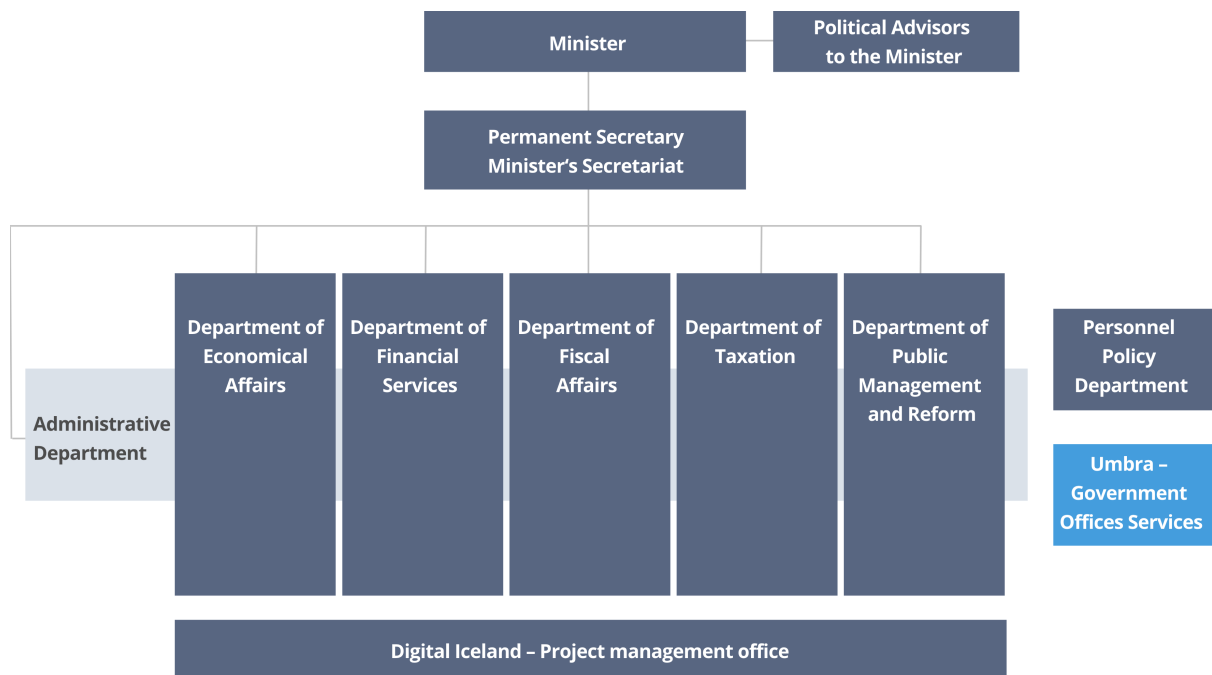


Figure 5.3: FJR's organizational chart (Government of Iceland, 2022)

The first phase for SÍ involved the implementation of ICT infrastructure and architecture that could serve state

agencies in their digital transformation. This included a cloud stack that facilitates the development of digital solutions as well as a data exchange platform for effective and safe sharing of data between agencies. SÍ inherited legacy systems that needed an upgrade, e.g., an authentication service, a self-service portal, and a mailbox. The team quickly became overloaded, as noted by one of the respondents (8): "These were my first projects at SÍ and in principle way, way too much! We were of course so few. We were getting things started, you see." SÍ delivers its e-services through its website, Ísland.is, and an app that was launched in 2021. The site serves the public including businesses and citizens with a wide variety of public services. Its use has been steadily growing since 2018. This growth has been proportionate to the number of new services being continuously added to the site. The aim of this study is to uncover the secrets behind the success and remarkable resilience of SÍ in its efforts to transform public services in Iceland.

5.4 Initial results and future work

5.4.1 Sub-systems of SÍ

5.4.1.1 Factual inputs

SÍ operates horizontally across all departments and ministries (see Figure 5.3). One respondent (2) describes it as a "huge transformation project" integral to a larger reform within government, e.g., shorter working days for civil servants: "Digital Iceland is just in the middle of this huge change process and technology is just such a big part of it." Public agencies cannot ignore the fact that digital services are necessary for this change process, e.g., offering their services to citizens 24/7. SÍ is responsible for building the infrastructure and digital services to make this change possible. State agencies are nonetheless responsible for public service delivery. "The [agency] or someone else is responsible for the service itself but we are there to help them to change it, but the responsibility is still with the [agency]."

Another respondent (9) states that SÍ's role is to advance the digital transformation of the State that has been lagging behind. She says that it surprised her to see "how much work there is left undone, especially regarding the infrastructure." The State is "still under-developed in terms of data and access to data", she says and adds that it "came as a surprise to me, also as a citizen, because the public has been ready for some time. The public is ready to use digital solutions, but they just have not been available".

5.4.1.2 Actual inputs

Some respondents were surprised by the scope of the work and the scarcity of resources for its implementation. "It has surprised me how enormous this project is", says Respondent 9. "Within the FJR the magnitude of the issues is huge and handled by only a few individuals . . . We are 10. You go to Denmark and there are 300", says Respondent 2. He adds that a person at SÍ may very well be responsible for administrative tasks that perhaps are performed by a dozen individuals in Norway. Financial resources are also limited, „... the other side of things is that it cannot cost anything. We cannot

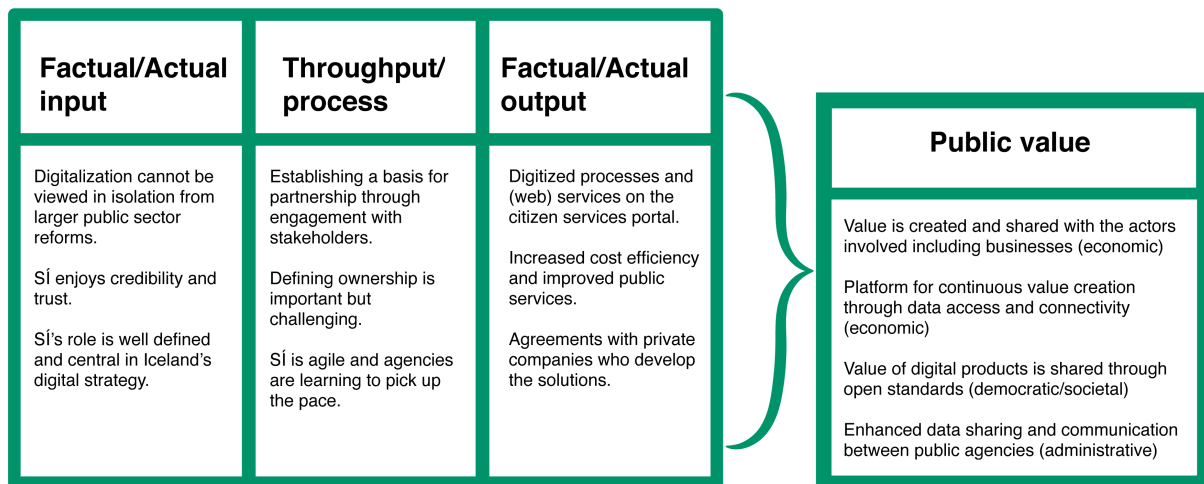


Figure 5.4: Overview of initial results

afford to run an administration of this size“ (Respondent 2). One respondent (9) claims that SÍ has credibility and trust in the public sector. This, she explains, is because it (1) employs competent and knowledgeable individuals, (2) has a clear mandate for action, and (3) has financial capital or budget (its annual spending or turnover is 2.2 billion Icelandic kroner or 15.8 million Euros). “These three things make it possible for us to actually do something. Not just state that we intend to do something or want to or creating a strategy for it but go and do it (Respondent 9)“.

5.4.1.3 Throughput

One respondent (2) shared in some detail a large digitization project implemented by SÍ involving multiple state agencies. Its approach was to, first, establish a basis for partnership. This required "building bridges between different partners" and engaging with relevant stakeholders. However, figuring out who are the "real players involved" can be complicated as the process may touch on services delivered by multiple state agencies. In this context, defining ownership was a crucial factor. This can be a challenge for the agencies because it involves taking certain risks and no one wants to be held accountable if something goes wrong. He described the difference between working for a private vis-à-vis a public organization which highlights this: "The rhythm is completely different. Decision-making is quicker, and actions are taken faster [in the private sector], while [in the public sector] decision-making is slow, and the fear of taking decisions is great. The fear of change is really enormous". Respondent 2 stated that the project needed access to data but was unsuccessful because the agency was unwilling to provide the access. In this situation, SÍ's response was to launch the service with limited functionality, while the agency came to decision concerning data sharing. This minimum viable product approach is new in the public sector. Historically, the solutions have been verified and thoroughly tested before deployment. This example gives an indication of the rapid pace of innovation happening at SÍ. It moves much quicker than its counterparts in the public administration. One could say that SÍ has a license to innovate.

5.4.1.4 Outputs

Respondent 4 described the output of SÍ's work as a digital platform that businesses can leverage to create value. For example, by developing web services (APIs) through X-Road, state agencies can provide access to its data for both public and private organizations. Increased data access can be used by private companies to create innovative solutions that can be sold in the market, he says, and adds that businesses complement SÍ's platform by building their solutions on top of it. This increases the value of its platform.

Relying on private companies to develop public services is mostly perceived as beneficial among the respondents. SÍ's contractual agreement contains a requirement which involves that the solution must be created using open standards and non-proprietary. Consequently, its platform and services can be replicated and used by other private or public organizations or governments. In addition, outsourcing the development of SÍ's solutions is seen as more beneficial than relying on in-house developers, as described by Respondent 4, who states that "we (SÍ) are using the most competent people currently available on the private market".

5.4.1.5 The system overall

Another important outcome of SÍ's shared services is the experience gained from government digital initiatives. The accumulative experience in SÍ's team strengthens the whole system performance. Hence, its capability to create public value will likely grow with time. As SÍ operates a public-private model the value is shared with multi-sector actors involved in public value co-creation. SÍ takes on a facilitator role in these networked collaborative arrangements. This includes coordination between actors, providing the necessary administrative mechanisms and involving senior management if needed throughout the innovation process.

Points of resistance were identified in the system's throughput concerning certain administrative values and policies that are not well suited for digital transformation. For example, a change in policy was required in some cases, i.e. to digitize an application for tour operator permit and an automated tax repayment plan.

5.4.2 Discussion and future work

Figure 5.4 contains an overview of initial results and a brief summary of the study's findings. The results suggest that co-creation is key in the success of shared digital services in government. This finding receives support elsewhere (Sancino et al., 2018). Addressing the research questions (RQ 1-3), policies and strategies such as resource allocation, planning, data access, open standards, and the like, must be configured to enable co-creation of public value in GD-SSCs. Not surprisingly, accountability issues arise when it comes to access to and sharing of data. These barriers can be related to organization's self-interests over common goals, and are well known barriers in collaborative e-government (Chun et al., 2012). Here a combination of different governance approaches (i.e. adapted governance) may be more effective to resolve problems and move things forward than solely relying on a single approach (Soe & Drechsler, 2018). Thus, in the configuration stage, top management might need to step in to resolve any disputes or resistance towards digitalization. In this context, management can leverage different administrative instruments akin to heightened inclusion and consultation with front-line

civil servants such as co-designing digital services thereby enabling a sense of shared ownership of the final product. Indeed, such management practices are suited to produce superior products that citizens like. Moreover, effective collaboration requires strong leadership and a shared agreement on goals and strategies (Chun et al., 2012).

In this ongoing research paper, I have outlined a case study involving the adoption of a shared services idea by the Icelandic central government: SÍ. As a key player in the State's digital transformation, SÍ not only serves as a center of excellence in digital government, it also represents a new institutional design that may perhaps serve as a model for an emerging approach to public management. Could SÍ be an exemplary case of a GD-SSC needed to reap the fruits of co-creation? Torfing et al. (2019) claim that more studies are needed to explain "how and why institutional designs work in practice and studies of how public leaders can lead processes in which a broad range of public and private actors with different experiences and ideas are participating on a voluntary basis" (p. 819). This ongoing research attempts to meet this need by examining SÍ practices and interrogating its leaders, both within the SSC and FJR (i.e. the ministry).

However, the findings indicate a barrier to public innovation. This involves a zero-error culture in state agencies. This requires systemic change where risks need to be weighed against the potential benefits of an innovation (Torfing et al., 2019) and the application of the appropriate administrative instruments such as risk management (Kristinsson & Matthíasson, 2014) and public engagement.

To conclude, this study complements latest research on ICT and public value (cf. Scupola and Mergel, 2022) by adopting a comprehensive approach to better understand the co-creation of public value in a more holistic way. Future work may include a cross-national comparison between digital transformation of public administrations that share a similar governance structure, e.g. in Denmark and Iceland.

References for Paper III

- Bannister, F., & Connolly, R. (2015). The great theory hunt: Does e-government really have a problem? *Government Information Quarterly*, 32(1), 1–11. <https://doi.org/10.1016/j.giq.2014.10.003>
- Bryson, J. M., Crosby, B. C., & Bloomberg, L. (2014). Public value governance: Moving beyond traditional public administration and the new public management. *Public Administration Review*, 74(4), 445–456. <https://doi.org/10.1111/puar.12238>
- Chun, S. A., Luna-Reyes, L. F., & Sandoval-Almazán, R. (2012). Collaborative e-government. *Transforming Government: People, Process and Policy*, 6(1), 5–12. <https://doi.org/10.1108/17506161211214868>
- Cordella, A., & Bonina, C. M. (2012). A public value perspective for ICT enabled public sector reforms: A theoretical reflection. *Government Information Quarterly*, 29, 512–520. <https://doi.org/10.1016/j.giq.2012.03.004>
- Ferreira, C. (2016). *Factors influencing the performance of shared services centres* [Doctoral dissertation, University of Liverpool]. <https://doi.org/10.13140/RG.2.2.28287.87202>
- Government of Iceland. (2022). Organisation chart of the ministry of finance. <https://www.government.is/ministries/ministry-of-finance-and-economic-affairs/organizational-chart/>
- Grant, G., & Ulbrich, F. (2010). Governance of IT-shared services: Moving between hierarchical and networked service provision. *International Conference on Information Resources Management*.
- Hafizi, R., Miskon, S., & Abdul Rahman, A. (2014). Shared service in E-government sector: Case study of implementation in developed countries. *2014 International Conference on Advanced Computer Science and Information System*. <https://doi.org/10.1109/ICACIS.2014.7065839>
- Hood, C. (1991). A public management for all seasons. *Public Administration*, 69(1), 3–19. <https://doi.org/10.1111/J.1467-9299.1991.TB00779.X>
- Kristinsson, G. H., & Matthíasson, P. B. (2014). Public Administration reforms and results. *Veftímaritið Stjórnmal og stjórnsýsla*, 10(2), 299. <https://doi.org/10.13177/IRPA.A.2014.10.2.6>
- Mensah, R., Cater-Steel, A., & Toleman, M. (2020). Towards a shared services model to support e-Government implementation in developing countries: Findings from Liberia. *31st Australasian Conference on Information Systems (ACIS 2020)*. <https://aisel.aisnet.org/acis2020/47>
- Moore, M. H. (1995). *Creating public value: Strategic management in government*. Harvard University Press.
- Moore, M. H. (2013). *Recognizing public value*. Harvard University Press.
- Pollitt, C., & Dan, S. (2011). *The impacts of the new public management in europe - a meta-analysis*. Katholieke Universiteit Leuven. Leuven. https://www.researchgate.net/publication/321027230_The_Impacts_of_the_New_Public_Management_in_Europe_-_A_Meta-Analysis
- Ramphal, R. (2013). A literature review on shared services. *African Journal of Business Management*, 7(1), 1–7. <https://doi.org/10.5897/AJBM12.1202>
- Rogers, E. M. (1995). Diffusion of innovations. In *Macmillian publishing co.* (3rd ed.). The Free Press. <https://doi.org/citeulike-article-id:126680>

- Rose, J., Persson, J. S., & Heeager, L. T. (2015). How e-Government managers prioritise rival value positions: The efficiency imperative. *Information Polity*, 20(1), 35–59. <https://doi.org/10.3233/IP-150349>
- Samgöngu- og sveitarstjórnarráðuneytið. (2018). Grænbók sem liður í stefnumótun á málefnasviði hagskýrslugerðar, grunnskráa og upplýsingamála.
- Sancino, A., Rees, J., & Schindele, I. (2018). Cross-sector collaboration for public value co-creation: A critical analysis. In M. Stout (Ed.), *From austerity to abundance? : Creative approaches to coordinating the common good* (pp. 59–73, Vol. 6). Emerald Publishing Limited. <https://doi.org/10.1108/S2045-794420180000006003>
- Scupola, A., & Mergel, I. (2022). Co-production in digital transformation of public administration and public value creation: The case of Denmark. *Government Information Quarterly*, 39(1), 1–11. <https://doi.org/10.1016/J.GIQ.2021.101650>
- Soe, R.-M., & Drechsler, W. (2018). Agile local governments: Experimentation before implementation. *Government Information Quarterly*, 35(2), 323–335. <https://doi.org/10.1016/j.giq.2017.11.010>
- Torfinn, J., Sørensen, E., & Røiseland, A. (2019). Transforming the public sector into an arena for co-creation: Barriers, drivers, benefits, and ways forward. *Administration and Society*, 51(5), 795–825. <https://doi.org/10.1177/0095399716680057>
- Ulbrich, F. (2010). Adopting shared services in a public-sector organization. *Transforming Government: People, Process and Policy*, 4(3), 249–265. <https://doi.org/10.1108/17506161011065226/FULL/PDF>
- Yin, R. K. (2003). Case study research . Design and methods. <https://doi.org/10.1097/FCH.0b013e31822dda9e>

Chapter 6

Agile governance in public sector digital transformation

A program evaluation

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Abstract

Public sector organizations increasingly use agile governance to manage digital transformation, yet limited research explains how agile governance mechanisms contribute to public value outcomes, or how contextual conditions enable or constrain their effectiveness. This paper addresses this gap by applying realistic evaluation to the DigIS program and developing a digital transformation evaluation framework. Drawing on an outcome-oriented public value perspective and context–mechanism–outcome (CMO) logic, it treats governance mechanisms not as neutral administrative instruments but as resources that trigger enabling or blocking reasoning responses among actors within specific institutional arrangements. Analyzing three DigIS initiatives, the study identifies three agile governance mechanisms — flexible policy, accountability, and collaboration — that contributed to improved service delivery, enhanced transparency, and increased responsiveness. However, these outcomes were contingent rather than automatic: mechanisms were activated unevenly across project, organizational, and inter-organizational levels, depending on contextual conditions such as trust, role clarity, resources, political support, shared infrastructure, and organizational receptivity. The study contributes to research on public sector digital transformation and digital governance by explaining how specific agile governance mechanisms operate as resource–reasoning configurations that generate public value outcomes under particular conditions, and by demonstrating the usefulness of the digital transformation evaluation framework and realistic evaluation for assessing public value in public sector digital transformation.

Keywords: digital transformation, digital governance, public value, capacity, agile, governance mechanisms, artificial intelligence

6.1 Introduction

Public sector organizations are increasingly adopting innovative governance approaches to improve their ability to generate public value. Among these approaches, agile governance has attracted particular attention because it promises to help public organizations manage the evolving strategic and operational demands of digital transformation (Mergel et al., 2018; Pauletto, 2024). Agile governance refers to *governance arrangements that support iterative decision-making, cross-functional coordination, stakeholder feedback, and adaptive implementation* (Luna et al., 2014, 2015).

Scholarly interest in public sector digital transformation is growing. However, we know less about how agile governance (AG) mechanisms contribute to digital transformation outcomes, and how contextual conditions enable or limit their effectiveness (Enang et al., 2022; Lewis et al., 2018; Van Acker & Bouckaert, 2018). Research suggests that public sector reform programs produce mixed, context-dependent outcomes (Pollitt & Dan, 2013), indicating that evaluation needs to ask not only whether a program works, but also how, for whom, and under what conditions it contributes to desired outcomes. Governments make substantial investments in digital transformation, which is expected to create tangible value for citizens and society through more effective and efficient public service delivery and administration. Relevant evaluation is therefore crucial (Enang et al., 2022; Lewis et al., 2018; Van Acker & Bouckaert, 2018). Because public sector digital transformation is expected to generate value beyond the technical, public value provides an appropriate evaluative lens

(Soe & Drechsler, 2018). We therefore ask: *under what conditions do AG mechanisms contribute to PV outcomes in public sector digital transformation?*

This article addresses this question by examining the Digital Iceland (DigIS) program through an outcome-oriented public value lens. Using a realistic evaluation approach, we analyze three digital transformation initiatives to examine under what conditions AG mechanisms contribute to PV outcomes. The study contributes to research on public sector digital transformation and agile governance by identifying three AG mechanisms, explaining how they contribute to PV outcomes, and specifying the contextual conditions that enable or limit their effectiveness in digital transformation.

6.2 Theoretical approach: digital transformation, public value, and agile governance

Digital transformation refers to an ongoing process through which the adoption and use of digital technologies transform value propositions, organizational identity, operating models, and value delivery arrangements (Mozaffar & Candi, 2025; Wessel et al., 2021). Public sector reform programs often produce mixed and context-dependent outcomes, while their evaluation remains contextually elusive and is at times “loose or even silent” about such issues (Pollitt & Dan, 2013, p. 24). We therefore examine under what conditions AG mechanisms contribute to PV outcomes in public sector digital transformation. To this end, we adopt Moore’s (1995) PV perspective as our primary theoretical lens, operationalized through Alford and Hughes’s (2008) outcome-oriented approach. This approach specifies PV in terms of the outcomes and impacts of public programs, rather than outputs alone, by focusing on their effects on people and valued states of the world. Taken together, Alford and Hughes (2008) and Pollitt and Dan (2013) frame our inquiry by linking an outcome-oriented understanding of public value with the need to examine the contextual conditions under which reform programs generate demonstrable results.

Prior research has shown that public sector digital transformation is often constrained by contextual barriers, including organizational capacity constraints, fragmented governance structures, legacy systems, data-sharing problems, risk aversion, accountability requirements, and uneven digital maturity (Enang et al., 2022; Gasco-Hernandez et al., 2022; Lember et al., 2018; Mergel et al., 2018; Van Acker & Bouckaert, 2018). Such obstacles shape the conditions under which AG mechanisms are activated, misfire, or remain only partially realized. This framing allows us to move beyond treating barriers as static constraints and instead examine how particular governance mechanisms overcome, work around, or become constrained by them in practice.

A key elaboration of the program evaluation method that directly informs our analytical approach, concerns the internal structure of mechanisms. Dalkin et al. (2015) argue that mechanisms should be disaggregated into two constituent parts: the *resources* introduced by an intervention—the tools, rules, or structural provisions made available to participants—and the *reasoning* those resources trigger in the participants who encounter them. It is this reasoning—the cognitive, emotional, or behavioral responses of participants to programmatic resources—that constitutes the generative engine of change, not the resources themselves (Dalkin et al., 2015; Pawson & Tilley, 1997). A stand-up meeting, a flexible policy framework, or a cross-functional accountability arrangement cannot produce outcomes on its own; outcomes are generated only when

such resources activate enabling forms of reasoning (such as felt ownership, cognitive relief, or relational trust) in the participants who encounter them, within a given context. Crucially, Dalkin et al. (2015) further argue that mechanisms should be understood as operating on a *continuum*—not as binary on/off switches—meaning that the same resource may trigger partial, blocked, or misfiring reasoning responses depending on contextual conditions (see Figure 6.1). The next

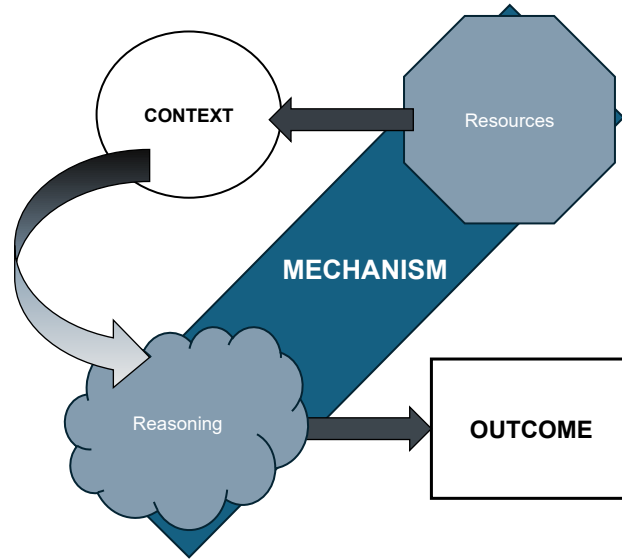


Figure 6.1: An extension of the CMO framework. Adapted from Dalkin et al. (2015).

section discusses this disaggregated, continuum conception of a mechanism, as Figure 6.1 illustrates, concerning the research design (Section 6.3.1) and analytical methods (Section 6.3.3).

Agile governance is understood as a socio-technical phenomenon in which governance mechanisms shape digital transformation in public sector settings (Luna et al., 2014). We focus specifically on AG mechanisms, understood as the processes through which agile governance influences the direction, coordination, and adaptation of digital transformation and contributes to PV outcomes. These mechanisms may support accountability, responsiveness, and adaptive coordination during digital transformation, but they do not automatically generate PV outcomes. Their effects depend on the contexts in which they are activated, including organizational capacity, role clarity, stakeholder alignment, and the ability of public organizations to respond to emerging challenges and service delivery needs. This mechanism-oriented view is consistent with prior research showing that agile governance can reduce risks and support PV creation in public sector digital transformation (Soe & Drechsler, 2018).

This mechanism-oriented view is especially important because public sector digital transformation may be both instrumental and symbolic (Christensen & Lægreid, 1998). It may generate practical improvements in services and administration, but it may also function as a reform narrative that signals modernization without producing demonstrable PV outcomes. This reinforces the need to examine not only reported progress or policy rhetoric, but also the mechanisms and contextual

conditions through which agile governance contributes to PV outcomes in digital transformation (Enang et al., 2022; Mei & Yang, 2025).

6.3 Methodology

6.3.1 Research design

We adopted a realistic evaluation approach (Pawson, 2013; Pawson & Tilley, 1997) within an explanatory case study design (Yin, 2009). This design is appropriate because the study asks how and under what conditions agile governance mechanisms contribute to PV outcomes in a real-life public sector digital transformation program, where the researchers had no control over events. Case studies are especially useful for “how” and “why” questions in real-life contexts (Yin, 2009), while realistic evaluation examines how and why an intervention works, in what settings, and for whom (Busetti & Scanni, 2025; Pawson & Tilley, 1997).

Because digital transformation is not a “magic bullet” that automatically generates public value, its outcomes need to be examined in relation to the governance mechanisms and contextual conditions through which it unfolds. Pawson and Tilley’s (1997) context–mechanism–outcome (CMO) configuration approach is useful for examining how mechanisms are activated in particular contexts and how they contribute to PV outcomes in public sector digital transformation. Consistent with the outcome-oriented public value lens, outcomes are understood as effects on people and valued states of the world rather than as technology outputs alone (Alford & Hughes, 2008). Consistent with realistic evaluation, PV outcomes are examined as the effects of AG mechanisms activated in particular contexts (Pawson, 2013; Pawson & Tilley, 1997). Prior research has applied CMO approaches to evaluate digital transformation efforts in Europe, including information-sharing and cybersecurity programs (Busetti & Scanni, 2025; Iannacci et al., 2022).

As mentioned above, the study adopted Dalkin’s et al. (2015) approach by disaggregating mechanism into its two constituent parts. The *resources* include the structures, frameworks and processes introduced in the program or particular initiatives, represented in Figure 6.1 as an octagon. The *reasoning* (the generative engine of the mechanism) refers to the cognitive and behavioral responses these resources trigger in social interactions among the organizational actors, represented in Figure 6.1 by the stakeholder reasoning cloud. This study focuses on two valences of reasoning, (i) enabling reasoning (occurs when agile governance resources activate felt ownership, cognitive relief, or relational trust among participants) generating the conditions for positive PV outcomes; and (ii) blocking reasoning (occurs when the same or similar resources instead trigger risk aversion, professional hesitation, or legal anxiety—responses that deflect or misfire the mechanism) producing constrained or absent outcomes. Consistent with Dalkin et al. (2015), and as we shall explain below, we treat these valences not as binary states but as positions on a continuum, where partial activation produces partial or uneven outcomes.

To summarize our research design, we use realistic evaluation as a theory-driven approach to program evaluation grounded in CMO logic (Pawson, 2013; Pawson & Tilley, 1997), rather than as a full adoption of critical realist philosophy (see footnote 5 in Chapter 1). In the study design, Yin’s (2009) case study method informed the protocols for data collection

and evidence management. In the analysis, Pawson and Tilley’s (1997) CMO logic structured the identification of contexts, AG mechanisms, and PV outcomes, and guided the comparison of how mechanisms operated across the case under study.

6.3.2 Empirical Setting: Digital Iceland (DigIS)

6.3.2.1 Case Selection and Data Collection

Digital Iceland (DigIS) is a program initiated by the government and implemented in Iceland’s public administration. It was launched in 2019 to enhance the coherence, accessibility, and effectiveness of digital public services across government agencies. This research studies the conditions under which AG mechanisms contribute to PV outcomes in public sector digital transformation. Hence, DigIS is an appropriate and relevant case.

Case data was drawn from diverse sources, including interviews with e-government professionals, government documents (e.g., memos and strategic documents), and observations (e.g., attending meetings, workshops, and conferences). Table 1 provides an overview of the data sources used in this study. The interview guide is provided in Appendix B. Government documents and strategic materials were identified through the DigIS CIO Office, public government websites, and interviewee references. They were selected when they related directly to DigIS governance, strategy, implementation decisions, or service agreements. Observations consisted of attendance at DigIS-related meetings, workshops, and conferences, with a focus on how actors discussed challenges, coordination arrangements, responsibilities, and public value aims. Video recordings, email communications, and meeting documents were used for triangulation, contextualization, and refinement of the CMO configurations.

Table 6.1: Overview of data sources (for detailed information, see Appendix A).

Type of evidence	Description of contents
Interviews with practitioners	16 interviews conducted with 14 people who oversaw, managed, or implemented DigIS (including the CIO Office professionals, policymakers at the Ministry of Finance, and a partner).
Government documents	Various strategic documents, memos, and reports, including evaluation reports, national digital strategy, and strategic plans.
First-hand observations	Attendance at meetings, workshops, and conferences related to DigIS.
Additional materials	YouTube videos, emails, meeting documents, and government agreements providing additional context and evidence.

6.3.2.2 Context background

Iceland’s advanced digital infrastructure and high citizen digital literacy provided a favorable context for DigIS, echoing the importance of technological capacity in public sector transformation (Lember et al., 2018). In 2024, Iceland ranked fifth among United Nations member states for digital public services, its highest position on the UNEGGOV list to date (United Nations, 2025). A former Minister linked this progress to sustained investment in digital infrastructure and service design (Morgunblaðið, 2024), alongside growing attention to AI in the public sector (Paper I). The DigIS program has been coordinated by the CIO Office (Stafrænt Ísland), established in 2018 within the Ministry of Finance and Economic Affairs. While not formally part of the center of government, the CIO Office has a coordination role, operating across

ministries and public organizations. Moreover, it is responsible for implementing the program and leads the government’s shared digital infrastructure and services development and design (Paper III).

6.3.2.3 DigIS Initiatives and Levels of Analysis

The case was analyzed through three initiatives (I-III) that we chose based on their perceived importance to DigIS effective implementation. These DigIS initiatives varied in their service focus, organizational involvement, and governance demands for in-depth study: a *digital driver’s license mobile app (DDL)*, *digitalization of a parental leave application process (PLA)*, and a *chatbot (Askur)*.

Table 2 describes the three initiatives, all of which are connected to Island.is, Iceland’s e-government services portal. The portal provides shared digital infrastructure for public services and organizes citizen-facing services around user needs and life events, such as having a child in the case of the PLA. Operating within the DigIS governance framework, the three initiatives therefore provide suitable empirical settings for examining how AG mechanisms contribute to PV outcomes in public sector digital transformation.

Table 6.2: The analyzed DigIS initiatives (POs=public organizations).

Initiative	Description
I: DDL (digital driver’s license)	The digital driver’s license initiative represented the most high-stakes implementation, culminating in its deployment during Iceland’s 2021 parliamentary elections, with a mobile application developed to authenticate voters using digital driver’s licenses. The CIO Office ensured that this mobile application functioned reliably under compressed development timelines and unprecedented user volume and expectations, while also managing information-sharing reluctance and legal complexity, which required activating hierarchy and ministry intervention to ensure timely delivery. Despite these challenges, the initiative provided the CIO Office with validation of its digital infrastructure capabilities under high-pressure conditions.
II: PLA (parental leave application)	A comprehensive digitization of parental leave applications was implemented and deployed. This initiative transformed PLA from paper-based processes to integrated digital workflows, enabling citizens to complete complex administrative procedures through a single digital interface. Like Initiative I, this initiative faced issues such as unclear ownership and organizational inertia that required escalation of change management to upper administrative levels, but ultimately it resulted in a shared e-application product with promotional value for DigIS and spurred growing interest among POs in shared e-services delivery.
III: Askur chatbot	This initiative delivered two main components: (a) migrating the District Commissioners to the Island.is portal, and (b) introducing an AI-powered virtual agent with a live web chat channel, thereby extending DigIS’s citizen-centric, self-service model into conversational interfaces. The implementation relied on close collaboration among the public sector, the vendor/service provider, and the CIO Office, with civil servants responsible for training the artificial intelligence (AI) chatbot by curating expert content and continuously reviewing citizen inquiry patterns (conversation logs) to strengthen the site’s information quality and service responsiveness. Clear ownership of the initiative, along with trustful relations among these actors, allowed the chatbot and migration to proceed with relatively few frictions, turning the District Commissioners into a prominent showcase that encouraged other POs to explore shared AI-enhanced public services delivered via the Island.is portal.

Relevant contextual conditions include Iceland’s administrative setting, digital infrastructure, centralized coordination through DigIS, and the governance conditions surrounding each initiative. We analyzed the activation of AG mechanisms across three governance levels: the project level, the organizational level, and the inter-organizational level. The project level captures the specific digital service, tool, or process through which a DigIS initiative was developed, coordinated, and adapted. The organizational level captures how participating agencies adjusted internal governance, resources, and

responsibilities during digital transformation. The inter-organizational level captures coordination and collaboration across public organizations to generate PV outcomes across organizational boundaries.

6.3.3 Methods of analysis

Our study followed a multi-stage analytical process, summarized in Figure 6.2. First, we designed a case study protocol by defining the program (DigIS) as the unit of analysis, the chain of evidence, and the logic linking data to the research question (Yin, 2009). Second, we developed a coding frame through an iterative qualitative content analysis (QCA) approach (Schreier, 2012). The initial coding frame was informed by primary materials, including memos and digital policy documents, as well as the study’s core concepts (PV, AG, digital transformation). Through iterative category development, we refined the coding frame to identify relevant contextual conditions, AG mechanisms, and PV outcomes in the DigIS program (Schreier, 2012). The resulting coding frame provided the analytical basis for examining how AG mechanisms operated in context and how they were associated with PV outcomes across the three initiatives studied (the full coding frame is presented in Appendix C).

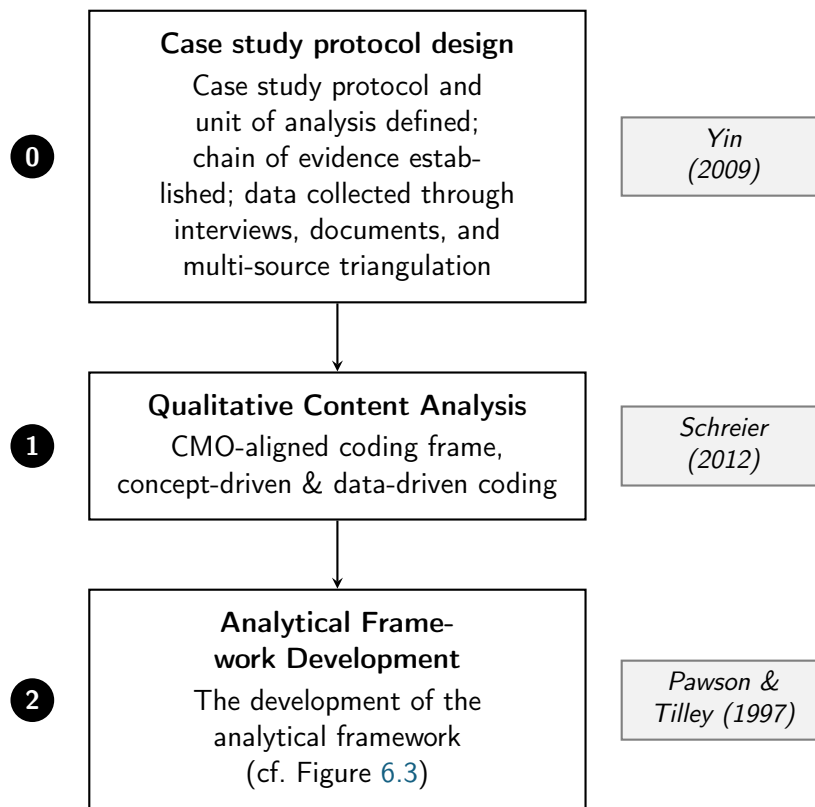


Figure 6.2: Research process: from case study protocol design to analytical framework development.

By carefully following established procedures in the research process (cf. Schreier, 2012; Yin, 2009), we ensured the reliability and validity of the findings. These steps involved performing reliability tests (double-coding) and triangulating case data, as outlined in Appendix C.

As the coding frame developed, we used QCA to systematize and reduce the contextual material (Schreier, 2012,

pp. 7-8). This process allowed us to organize the empirical material into analytically distinct but interrelated governance levels: (1) the project level, referring to the specific digital service projects examined in the study, namely the DDL, PLA, and Askur; (2) the organizational level, referring to the governance, resources, authority structures, and roles of the CIO Office and participating public organizations; and (3) the inter-organizational level, referring to cross-agency coordination, shared infrastructure arrangements, and governance networks spanning multiple public organizations. These levels are not independent. Project-level conditions are embedded in organizational circumstances, which in turn operate within inter-organizational collaborative arrangements. However, the levels provide analytically distinct governance contexts for examining CMO configurations. This three-level structure is consistent with prior research on multi-level governance in digital transformation (Breagh et al., 2023; Lember et al., 2018).

Third, we developed the digital transformation (DT) evaluation framework by linking contextual conditions, AG mechanisms, and PV outcomes through CMO logic. The framework integrates theory-informed sensitizing concepts with data-driven findings from the DigIS case. We then examined how AG mechanisms operated across the project, organizational, and inter-organizational levels. For a detailed account of this multi-level theorization process, see Appendix C.

6.4 Findings

The analysis identified three AG mechanisms that contributed to PV outcomes in DigIS: flexible policy, accountability, and collaboration. Flexible policy and collaboration are well established in prior agile governance research (Albrecht, 2024; Fontana & Marczak, 2020; Pauletto, 2024; Soe & Drechsler, 2018), while accountability was identified through the empirical analysis as a distinct mechanism in the DigIS case (Figure 6.3).

6.4.1 Flexible policy: enabling enhanced service delivery under supportive governance conditions

Flexible policy refers to adaptive governance arrangements that allow digital services to be developed through centralized coordination, shared infrastructure, co-creative partnerships, and iterative development rather than rigid, sequential public sector procedures. It does not imply an absence of structure. Rather, flexible policy combines central steering with adaptive development, allowing public organizations to move incrementally while remaining aligned with DigIS.

Enhanced service delivery was the PV outcome most clearly associated with flexible policy. As Interviewee 02 explained, “...because when we have digitalized something, people experience substantive change [and that’s] what we aim for.” Initiative II illustrates this mechanism clearly. The PLA was developed through co-creative partnerships, shared platforms, and common digital infrastructure — serving as a showcase for a shared e-service model that lowered the participation threshold for public organizations and demonstrated the value of centrally coordinated, adaptive delivery. In this configuration, flexible policy improved service delivery by supporting a more accessible and user-oriented application process.

Flexible policy also operated through the CIO Office’s strategic position. As Interviewee 09 noted, “...how well we have

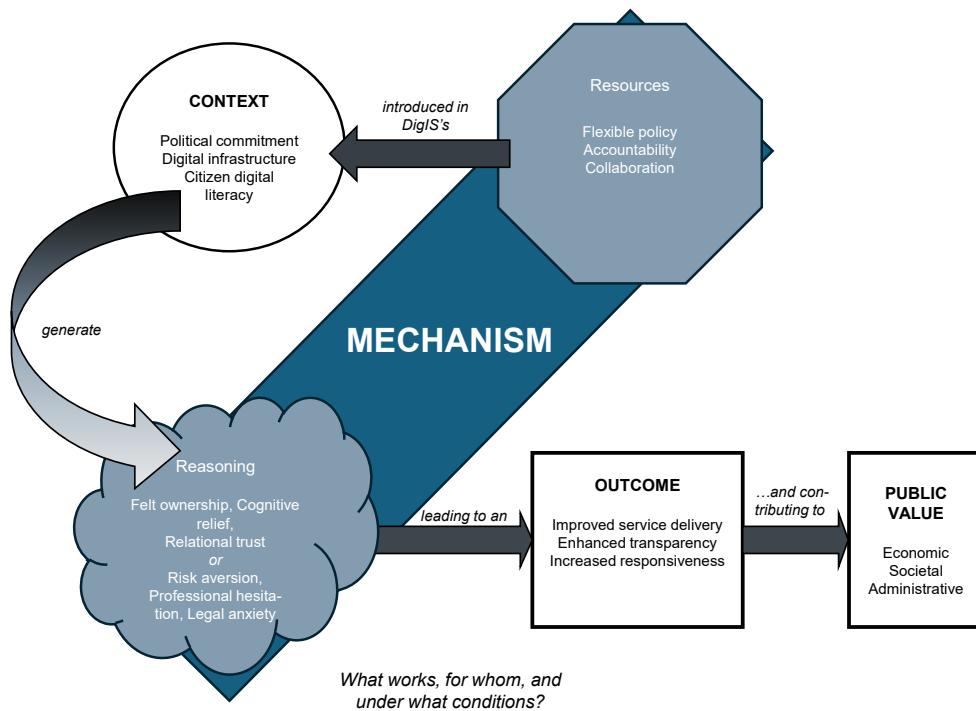


Figure 6.3: Digital Transformation (DT) evaluation framework: CMO configurations approach linking agile governance mechanisms to PV outcomes in the DigIS program. Mechanism activation operates through stakeholder reasoning, conditioned by contextual factors.

been received. There is great demand for this unit, i.e., [the CIO Office]. And there is this kind of independence and trust, which people seem to have towards the unit.” This was reinforced by the CIO Office’s ability to provide resources, including funding, development capacity, knowledge, and IT systems. As Interviewee 04 explained, “Usually we cover the expenses of development work...involving these teams. That is the budget we have and use for the POs.” At the inter-organizational level, cross-functional teams, shared infrastructure, and structured decision-making generated synergies. As Interviewee 07 observed, “[Experience] has shown us that [PO’s] services were poor, but are becoming better, as it now has more time to attend to the user.”

Consistent with the continuum conception of mechanism activation advanced by Dalkin et al. (2015), flexible policy was not activated equally across all initiatives. In Initiative I, the DDL, data access issues, reluctance from legacy organizations, and ambiguity over roles and responsibilities positioned the mechanism toward the constrained end of the activation continuum: blocking reasoning responses—specifically risk aversion and professional hesitation triggered by role ambiguity—limited transparency and responsiveness until higher-level intervention clarified governance authority and resource flows. Role clarity was essential for managing expectations and responsibilities; where it was absent, political and organizational complexity slowed progress as authority remained contested among many involved parties (Interviewee 04).

Initiative III, the Askur chatbot, showed stronger activation, with enabling reasoning responses—specifically felt ownership, cognitive relief, and relational trust—reinforcing the agile governance resources across organizational and project levels. Shared infrastructure, modular architecture, and clear ownership lowered the uptake barrier for public organizations. In a concrete illustration of modular architecture in practice, the District Commissioners’ sitemap was reused for Askur’s training, enabling public organizations to adjust content and integration points without wholesale redesign—supporting both service delivery and responsiveness.

Overall, flexible policy contributed to public value when embedded in supportive governance conditions: trust in the CIO Office, available resources, shared infrastructure, role clarity, and receptiveness to adaptive development. Where these conditions were absent, reasoning responses tilted toward the blocking end of the continuum: bureaucratic routines, role ambiguity, and risk aversion weakened or delayed the mechanism’s activation, producing limited or uneven service delivery outcomes.

6.4.2 Accountability: clarifying roles, authority, and transparency

Accountability refers to the clarification of public value goals, roles, responsibilities, decision rights, ownership structures, and performance expectations. It enabled agile working in a public sector setting by reducing ambiguity around responsibility, authority, and decision-making.

Enhanced transparency was the PV outcome most clearly associated with accountability. Transparency in DigIS concerned not only public visibility, but also clearer governance processes, stakeholder communication, role allocation, and evidence-based decision-making. At the project level, DigIS’s public value statement, “Simplify People’s Lives,” provided an orienting frame for teams and stakeholders. Accountability translated this broad ambition into expectations around roles, ownership, timely delivery, budget compliance, and service quality. Interview evidence from Initiative I underscores that role clarity was essential for managing expectations and responsibilities — its absence created barriers when the CIO Office was involved in changing services that formally remained the responsibility of other public organizations.

The importance of accountability became especially visible when it was absent or contested. In Initiative I, data access issues and uncertainty about service ownership created barriers because the CIO Office was involved in changing services that formally remained the responsibility of other public organizations. As Interviewee 04 elaborated, “Politics have sometimes slowed down this process...[there are so] many players involved.” Higher-level intervention and formal service and information-sharing agreements were therefore needed to reduce uncertainty and restore transparency.

At the organizational level, accountability was supported by the CIO Office and its centralized IT governance role. The CIO Office coordinated resources, external expertise, development teams, and decision processes across initiatives. As Interviewee 12 explained, “...for execution and rapid knowledge building, external teams of highly skilled software professionals are utilised.” Close communication cycles and active decision monitoring also supported transparency. As Interviewee 01 described it, “There are development teams who implement DigIS initiatives. That’s why you must keep your finger on the pulse. How is it going?... What decisions need to be made?... Let’s do it like this.” As Interviewee 12

elaborated, “This methodology allows us to move much faster and, in my opinion, use the money much, much better than we would in this old-fashioned waterfall approach.”

At the inter-organizational level, accountability helped manage coordination complexity. Structured decision-making clarified what needed to be decided, who needed to participate, and how progress should be coordinated. This mattered because DigIS initiatives involved organizations with different mandates, capacities, and routines. The challenge of aligning many parties and ensuring simultaneous action was highlighted in the interview evidence (Interviewee 01).

Thus, accountability was not merely a control mechanism. It enabled flexible policy and collaboration to operate without generating unacceptable uncertainty. Its activation varied across initiatives: in Initiative I, role ambiguities initially constrained transparency; in Initiative II, data-sharing agreements and change management practices helped overcome resistance and capacity asymmetries; and in Initiative III, clear ownership established at the outset reduced hesitation and supported timely, transparent delivery.

6.4.3 Collaboration: enabling responsiveness when supported by trust and low hierarchy

Collaboration refers to cross-functional teamwork, co-creation with public organizations, structured inter-organizational coordination, and shared arrangements that enabled actors to respond to changing stakeholder and user needs. While flexible policy provided adaptive governance arrangements and accountability clarified roles and authority, collaboration enabled coordination across organizational boundaries.

Increased responsiveness was the PV outcome most clearly associated with collaboration. Responsiveness refers to the ability to adapt to changing stakeholder and user needs, incorporate feedback, respond to emerging risks, and adjust digital services over time. Collaboration contributed to responsiveness only when supported by trust, clear ownership, adequate capacity, and relatively low hierarchical rigidity.

Initiative II shows how flexible policy and collaboration operated through co-creation, shared infrastructure, and a common e-service solution, with the PLA serving as a showcase for shared e-service delivery across the program. This improved service delivery by aligning participating actors around a concrete digital solution. However, collaboration did not automatically generate strong responsiveness. In Initiative II, change management practices were required to smooth the adoption of the digitized PLA process, as formal agreement processes, capacity asymmetries, and bureaucratic routines constrained how quickly organizations could adapt.

At the inter-organizational level, collaboration was necessary because DigIS initiatives involved multiple public organizations with different mandates, systems, incentives, and capabilities. As Interviewee 01 put it, “Aligning so many parties and ensuring everyone is operating simultaneously.” Collaboration therefore required more than willingness to cooperate; it required structured decision-making, clear ownership, and accountability to prevent coordination from becoming fragmented.

Initiative III provides the strongest example of collaboration generating responsiveness. The Askur chatbot involved shared arrangements, common infrastructure, and clear ownership structures that lowered the barrier to participation. The chatbot dynamic purchasing system enabled ready organizations to adopt the solution more easily, while accountability

structures clarified who bore risk and responsibility. As more organizations adopted Askur, the individual and collective benefits of joining increased, creating a reinforcing dynamic in which collaboration, flexible policy, and accountability worked together.

Collaboration also supported responsiveness through iterative refinement. Teams adjusted the chatbot’s knowledge base, improved content, and modified integration points based on citizen interactions and organizational needs. This was enabled by the modular architecture discussed in the Flexible Policy section (see Section 6.4.1 for a detailed account). Because ownership and decision-making responsibilities were clearer in this initiative, teams knew who was responsible for content quality, system performance, and decisions, reducing hesitation and enabling timely adjustment.

By contrast, collaboration did not consistently produce strong responsiveness in Initiatives I and II. In Initiative I, data access barriers, legacy organization reluctance, and unclear responsibilities limited adaptive change. In Initiative II, collaboration improved service delivery and adoption, but formal agreements and bureaucratic routines constrained responsiveness. These findings align with research suggesting that only a more complete, rather than superficial, application of agile governance generates organizational benefits (Neumann et al., 2024). Collaboration therefore required enabling conditions that allowed actors to share information, make decisions, allocate responsibility, and adjust in response to feedback. In the DigIS initiatives where bureaucratic routines, risk aversion, or unclear responsibilities persisted, mechanisms activated only partially on the continuum: blocking reasoning responses—specifically risk aversion and professional hesitation—constrained the agile governance resources, producing limited or uneven responsiveness.

6.4.4 Synthesis: what worked, for whom, and why

The findings show that DigIS generated public value through the contingent activation of flexible policy, accountability, and collaboration. These mechanisms contributed to enhanced service delivery, transparency, and responsiveness PV outcomes, but unevenly across the three initiatives. Their strength depended on contextual conditions such as trust in the CIO Office, adequate resources, clear ownership, political support, organizational receptivity, low hierarchical rigidity, and alignment among participating public organizations.

Table 4 summarizes the comparative pattern across initiatives. DDL showed the most constrained activation, PLA showed moderate-to-strong activation after initial resistance, and Askur showed the strongest and most consistent activation.

Across the three initiatives, flexible policy and collaboration enabled positive change at project, organizational, and inter-organizational levels. This confirms prior research emphasizing their centrality in agile governance (Lappi & Aaltonen, 2017; Simonofski et al., 2018), while extending understanding by showing that their effectiveness depends on trust, resources, political support, and organizational receptivity to digital transformation. Accountability was especially important in DigIS because it clarified public value goals, roles, decisions, and responsibilities. Our analysis shows how critical role clarity was for Initiative I, while evidence from the organizational level shows that centralized coordination and close monitoring supported rapid but controlled decision-making (Interviewees 01, 12).

The findings also show that AG mechanisms may misfire, activate partially, or reinforce one another depending on context. Where hierarchy, role ambiguity, risk aversion, or misaligned incentives were present, mechanisms produced weaker

outcomes or required procedural adaptation. This was visible in Initiative I, where flexible policy and accountability were constrained, and in Initiative II, where collaboration and change management supported adoption of the PLA following initial resistance but did not fully overcome constraints on responsiveness. By contrast, Initiative III showed how favorable conditions allowed mechanisms to reinforce one another. This pattern underscores that realistic evaluation must account for the full activation continuum—mechanisms may activate strongly, partially, or only weakly depending on contextual conditions—with implications for how digital transformation evaluation frameworks are designed and applied (Table 6.3).

Table 6.3: Comparison of AG mechanism effectiveness across the initiatives studied.

Initiative	Strength of PV outcomes	Mechanisms activated/ evaluated	Contextual conditions (constraints/enablers)
I: DDL	Limited (Initial transparency and responsiveness constrained)	Moderate to weak activation: Data access issues and misfiring mechanisms due to role ambiguity. Success required higher-level political intervention to restore enabling context.	Constraints: Data access barriers, legacy organization reluctance (Road Administration), role ambiguities. Enabler: Higher-level political intervention clarified governance authority and roles.
II: PLA	Moderate to Strong (Improved Service Delivery and Transparency; Responsiveness somewhat constrained)	Moderate to Strong activation after initial resistance. Mechanisms reinforced through change management practices and service-level agreement. Formal governance structures enabled cooperation but constrained rapid responsiveness.	Constraints: Initial resistance, misaligned governance structures. Enablers: Executive support, co-creation mandates, hybrid accountability structures set things in motion.
III: Askur	Strong across all outcomes: Service Delivery, Transparency, Responsiveness	Highest and most consistent activation: All three AG mechanisms worked together effectively. Collaboration mechanism enabled rapid adaptive pivots. Strong synergy across all governance levels.	Enablers: Favorable context with strong stakeholder buy-in, low hierarchical rigidity, collaborative problem-solving culture, trust, and organizational receptivity. Required supportive context fully present.

In sum, DigIS demonstrates that AG mechanisms can contribute to PV outcomes when activated in supportive contexts. Flexible policy was most closely associated with improved service delivery; accountability with enhanced transparency; and collaboration with increased responsiveness. The core finding is not simply that agile governance “works”

in public sector digital transformation, but that AG mechanisms work differently depending on organizational trust, role clarity, resource availability, political support, inter-organizational alignment, and receptivity to agile ways of working.

6.5 Discussion

The findings advance research on agile governance in public sector digital transformation by showing that AG mechanisms are not self-executing. In DigIS, flexible policy, accountability, and collaboration contributed to improved service delivery, enhanced transparency, and increased responsiveness, outcomes that correspond to economic, administrative, citizen, and societal public value dimensions (Scupola & Mergel, 2022). Yet these effects depended on mechanism–context fit: AG mechanisms were strengthened, constrained, or mutually conditioned by the enabling conditions identified above. The central implication is therefore not that agile governance generally produces value in public sector digital transformation, but that its public value contribution depends on how specific mechanisms are activated across project, organizational, and inter-organizational contexts.

Table 6.4 synthesizes the observed CMO relationships by linking AG mechanisms, governance levels, and associated PV outcomes. It is not intended as a universal mapping.

Table 6.4: Agile Governance Outcome Evaluation Matrix describing types of public value with respect to governance levels and AG mechanism.

Mechanism	Governance Level		
	Project	Organizational	Inter-organizational
Flexible Policy	<i>Societal:</i> Improved collaboration and service delivery efficiency; <i>Economic:</i> Cost savings from effective funding distribution	<i>Economic:</i> Streamlined innovation funding; agile methods minimize expenses and enable faster progress	<i>Citizen:</i> Reduced administrative burdens via effective collaboration; <i>Administrative:</i> Improved efficiency through structured decisions; shared arrangements and structured funding clarify responsibilities across organizations.
Accountability	<i>Administrative:</i> Strengthened cross-departmental communication and project alignment; <i>Societal:</i> Sustainability through reuse and open standards	<i>Administrative:</i> Enhanced coherence in inter-organizational processes; clearer roles, decision paths and information flows increase transparency and perceived fairness of processes. <i>Economic:</i> Cost-effective reuse of digital components ensures scalability	—
Collaboration	<i>Citizen:</i> Enhanced service responsiveness through co-creative, iterative development; <i>Administrative:</i> Efficient cross-functional coordination within project teams	<i>Citizen:</i> Smoother adoption of digital services through supportive transition strategies	<i>Administrative:</i> Cross-agency coordination enabled coherent service delivery across organizational boundaries; <i>Citizen:</i> More integrated and accessible public services through multi-agency collaborative arrangements

The findings also show that the three AG mechanisms should not be understood as uniformly mutually reinforcing. In practice, mechanisms may also constrain one another depending on context. Accountability may constrain flexible policy when legal responsibility, data access, or decision rights must be clarified before action can proceed. This tension was visible in Initiative I, where role ambiguity and data governance barriers limited flexible policy until higher-level

intervention clarified authority structures. Similarly, collaboration can enable cross-functional teamwork while also slowing responsiveness when formal agreements, capacity asymmetries, or distributed responsibility complicate decision-making. In Initiative II, co-design supported adoption of the PLA service process, but formal service-level agreements and capacity asymmetries constrained the speed and depth of organizational adaptation. These tensions suggest that agile governance in public sector digital transformation requires deliberate attention to the contextual conditions under which AG mechanisms are activated. Flexible policy requires sufficient accountability conditions to operate at scale, while collaboration requires explicit capacity-building and ownership clarification to avoid undermining responsiveness.

Our study contributes to the still limited use of the CMO configurations approach to assess public value in public sector digital transformation (Giulio & Vecchi, 2023; Iannacci et al., 2022). It shows how an outcome-oriented public value perspective can be combined with CMO analysis to evaluate how AG mechanisms contribute to PV outcomes. This responds to calls for greater attention to how public sector digital transformation PV outcomes are achieved, sustained, and evaluated (Enang et al., 2022; Lewis et al., 2018; Van Acker & Bouckaert, 2018).

Consistent with prior research on digital transformation and public value (Scupola & Mergel, 2022; Soe & Drechsler, 2018), the findings show that technology adoption alone does not create PV. They also extend digital government research by showing how technology-driven modernization contributes to public value through contextually activated AG mechanisms (Gao et al., 2023; Ruvalcaba-Gomez & Cifuentes-Faura, 2023).

The findings reinforce the argument that digital transformation efforts should be explicitly aligned with value creation goals (Zyzak et al., 2024). In DigIS, this alignment depended not only on stakeholder commitment and clear accountability, but also on shared infrastructure and the situational conditions under which mechanisms were activated. Outcome-oriented public value principles helped assess whether digital transformation produced observable improvements in service delivery, transparency, and responsiveness, rather than merely evidence of technological progress.

6.5.1 Implications for theory and practice

This paper contributes to theory by linking agile governance research with outcome-oriented public value research. Specifically, it explains how particular AG mechanisms contribute to PV outcomes in public sector digital transformation (Soe & Drechsler, 2018). Rather than treating agile governance as a general governance style, the study identifies flexible policy, accountability, and collaboration as AG mechanisms whose effects depend on contextual activation. It also extends prior work on project-level agile governance effects (Gasco-Hernandez et al., 2022) by showing how such effects can accumulate into digital transformation-level PV outcomes when supported by organizational and inter-organizational conditions.

A second theoretical contribution concerns accountability. Existing agile governance research foregrounds the flexibility and collaboration AG mechanisms, while the DigIS case demonstrates that accountability can function as an enabling AG mechanism. Accountability clarified public value goals, roles, decision rights, ownership, and responsibilities, thereby allowing flexible policy and collaboration to operate without generating excessive ambiguity. This finding is important because it challenges a simple opposition between agility and accountability. In public sector digital transformation, accountability may be a condition for agility rather than merely a constraint on it.

A third theoretical implication concerns the contextual transformation of AG mechanisms. Prior research identifies

experimentation and learning as important for reducing risks and fostering adaptation in public sector digital transformation (Albrecht, 2024; Pauletto, 2024; Soe & Drechsler, 2018). In DigIS, however, the most visible AG mechanisms were flexible policy, accountability, and collaboration. This suggests that AG mechanisms emphasized in prior settings may be transformed, absorbed into other mechanisms, or become less salient under centralized governance conditions. This observation has implications for digital transformation evaluation frameworks because it shows that evaluators should account not only for mechanisms that activate, but also for mechanisms that remain latent or take different forms across contexts. It also resonates with recent work on policy learning in public sector evaluation (Busetti & Scanni, 2025).

For practitioners, the study offers a diagnostic framework for evaluating what works, for whom, and why in public sector digital transformation. The findings suggest that policymakers, digital leaders, and evaluators should not assume that AG mechanisms can be transferred uniformly across organizations. Even within the same public administration, different organizations may require different combinations of flexible policy, accountability, and collaboration mechanisms, as well as different resources and ownership arrangements to realize aggregated outcomes from collaborative efforts (Lember et al., 2018). Practitioners should therefore assess whether the contextual conditions needed for AG mechanism activation are present before embarking on digital transformation initiatives. In particular, flexible policy should be supported by role clarity and decision authority, while collaboration should be supported by capacity-building and ownership clarification.

6.5.2 Limitations and future research

Several limitations should be acknowledged. First, Iceland’s high-trust, high-digital-literacy context and advanced digital infrastructure limit the direct transfer of the specific CMO relationships identified here to countries with different administrative, political, or technological conditions. Consistent with CMO logic, the evaluation framework is intended as a transferable explanatory resource rather than a claim about statistical generalizability (cf. Järvensivu & Törnroos, 2010). It should therefore be tested, refined, and, where necessary, revised in other national and institutional settings (cf. Breugh et al., 2023).

Second, the realistic evaluation of DigIS (Pawson & Tilley, 1997), while well suited to uncovering generative mechanisms, relies primarily on qualitative and perceptual data. Future research could triangulate these findings with quantitative performance, usage, and citizen-experience measures to assess the magnitude of PV outcomes and strengthen causal inference.

Third, inter-organizational value creation in cross-functional public sector digital transformation may involve trade-offs that are not fully visible at the program level. Outcomes that benefit one collaborating party may require compromises in another’s objectives, priorities, or resources. Future research should therefore examine how such trade-offs are negotiated across political and administrative contexts, including how public value is “framed” in national digital transformation strategies and policies (Paper I).

Our final limitation concerns the politics of public values in the design of shared, modular infrastructures. In principle, shared-services-based digital transformation can be governed either through *uniformity*—imposing identical solutions and processes across organizations—or through *conformity*, whereby diverse organizations retain some autonomy but align

with common standards and public value goals. The DigIS case illustrates how shared services and reusable components can support coherence and efficiency, yet our analysis is less equipped to disentangle when such arrangements foster productive conformity and when they drift towards problematic uniformity that may undermine local accountability or professional discretion. Future research should therefore examine how digital governance reforms negotiate this tension between alignment and autonomy, and how different choices along the conformity–uniformity spectrum shape public value outcomes in other institutional and political contexts.

Appendices

A. Lists of Interviewees and Case Evidence

Table A1: List of Interviewees and Their Roles in DigIS

Respondents/Job Title	Role in DigIS	Organization
Interviewee 01 – Specialist	Development	CIO Office
Interviewee 02 – Specialist	Implementation	CIO Office
Interviewee 03 – Specialist	Implementation & prioritization	CIO Office
Interviewee 04 – Specialist	Development	CIO Office
Interviewee 05 – Specialist	Development	CIO Office
Interviewee 06 – Manager	Communication & PR	CIO Office
Interviewee 07 – Manager ^a	IT support	CIO Office
Interviewee 08 – Specialist ^b	IT infrastructure support	CIO Office
Interviewee 09 – Executive	Decision-making	CIO Office
Interviewee 10 – Expert	Policy design	Ministry
Interviewee 11 – Executive	Program oversight	Ministry
Interviewee 12 – Executive ^c	Decision-making	CIO Office
Interviewee 13 – Executive	Program oversight	Ministry
Interviewee 14 – Partner	Development	External partner

^a Two interviews conducted (one in late 2021 and another follow-up interview done early 2024).

^b Two interviews conducted (both in 2021).

^c Key informant at the CIO Office (regular interactions, including formal and informal communications).

Table A2: Overview of Supplemental Case Evidence

Evidence	Description	Date
Evidence 01	Conference video recording: The DigIS dev team talk about agile and open innovation	22.09.2022
Evidence 02	E-mail correspondence with Interviewees 02 and 07	07.03.2024
Evidence 03	Government document: eGov evaluation report	04.10.2021
Evidence 04	Meeting document: Askur chatbot presentation	22.09.2021
Evidence 05	Government document: National digital strategy	01.07.2021
Evidence 06	Government document: Digital transformation in government report	01.09.2020
Evidence 07	Government document: Action plan for eGov Memorandum	31.05.2019

B. Interview questions

1. How long have you been employed at Digital Iceland / FJR?
2. What is your background?
 - (a) Have you worked in the public sector before?
 - i. (if yes) doing what?
 - ii. (if no) how would you describe the difference between working for a public vs private company?
 - iii. (if no) how have you had to adapt to working for the public sector?
 - iv. What has surprised you the most in your job at DigIS?
3. What is your role at DigIS and how would you describe your job?
4. Which methods (methodology) does DigIS apply to fulfill its purpose and achieve its goals?
5. Is there a motivational system in place at DigIS (formal/informal)?
6. How does DigIS' projects come to be?
 - (a) Who initializes it?
 - (b) How are projects prioritized and who decides its prioritization?
 - (c) What effect can you have on the initiative and prioritization?
7. Can you tell me about the past or current projects you have done at Digital Iceland?
 - (a) What did the project entail?
 - (b) Who were involved?
 - (c) How did the collaboration work?
 - (d) Can you describe the challenges that came up during the collaboration?
 - (e) How were these challenges solved?
 - (f) What could have been done differently?
 - (g) What do you think you have learned from your work on this project?
8. Where do you think the Icelandic public sector stands in the adoption of artificial intelligence?
9. Do you see opportunities for artificial intelligence in the public sector?
 - (a) (if yes) which opportunities and where?
10. What about challenges (for artificial intelligence in the public sector)?
 - (a) (if yes) which challenges and where?

C. Coding frame development, inter-coder reliability, triangulation and multi-level theorization

Details on the coding frame development, inter-coder reliability procedures, and multi-level theorization about DigIS' results are presented below.

Coding frame development

The coding frame used for the analysis, based on the contexts-mechanisms-outcomes configurations, is presented in Table C1.

It outlines the dimensions, main categories, and sub-categories derived from the program theory.

Table C1: Coding frame for evaluating DigIS

Dimension	Main Category	Sub-category
DigIS' context	Administrative challenges	Accessing data seen as a challenge Changing culture of civil servants Clarifying legal issues is a problem Different digital maturity of institutions Reorganizing DT initiatives Rigid governance structures
	Partner management	Competitive partners from the IT sector co-creating solutions Partner strategy
	Program design	Innovative procurement policies Defining ownership in e-government initiatives Provision and development of e-government services
	Program development	Agile approaches applied to IT development IT development tools for effective communication Open-source IT development approach Value creation is enhanced through shared solutions
	Program implementation	Agile teams handling the implementation Readiness of organizations to start on their digital transformation journeys System for secure data sharing between public organizations (Straumurinn) The scope of the program greater than expected
	Program management	Agile governance perhaps not always feasible One-size-fits all approaches are ineffective Establish and nurture good relations with clients Financing of initiatives Getting program approval Having a voice IT governance of e-government initiatives Rules of DigIS concerning participation in the program Processing and evaluating proposed initiatives Responsible management of resources
	Agility and adaptation	Collaboration with businesses Human-centric design Modular architecture and reuse User engagement Flexible policymaking Procurement mechanisms Collaborative work processes MVP development and iteration Learning-by-doing practices Policy experimentation and pilots
Program mechanisms		

Continued on next page

Table C1: Coding frame for evaluating (continued)

Dimension	Main Category	Sub-category
Public value	Social response	Knowledge sharing and transfer
		Iterative feedback integration
	Dimension	Reactions to DigIS
		Reasoning
		Administrative value outcomes
		Citizen value outcomes
		Economic value outcomes
		Societal value outcomes

Inter-coder reliability and triangulation of evidence

Steps were taken to ensure validity and reliability in the qualitative CA. Firstly, all researchers were involved in the coding process, familiarizing themselves with the coding frame (see Table C1). This is to ensure consistency in its application. This step included detailed discussions of each category and subcategory, as well as practice coding sessions. Furthermore, to ensure the reliability of the coding process, double-coding was performed on parts of the material. Double-coding involves a sample of the data subjected to coding by two or more researchers (blind coding) and then comparing the coding to assess consistency (Schreier, 2012). The whole research team did this for one of the interview transcripts. This exercise yielded satisfactory results (above 90 percent coding comparison). Discrepancies were discussed and resolved through consensus. The coding frame was iteratively refined based on the insights gained during the main coding phase. This iterative process ensured that the coding frame remained relevant and inclusive enough to capture the most important aspects of the material.

In addition to inter-coder reliability, triangulation of evidence was employed to strengthen the validity of the findings. Following (Yin, 2009), triangulation involves the use of multiple sources of evidence to corroborate and cross-check findings, reducing the risk that conclusions reflect the limitations or biases of any single data source. In this study, interview data were triangulated against documentary evidence — including government strategic documents, action plans, meeting records, and observational materials — as detailed in Table A2 (Overview of Supplemental Case Evidence, Appendix A). Where interview accounts and documentary sources converged, this was taken as stronger evidence for the identified contexts, mechanisms, and outcomes. Divergences between sources were noted and explored analytically, providing further nuance to the CMO configurations.

Multi-level theorization

The analysis of DigIS's results was conducted through a multi-level theorization process grounded in context–mechanism–outcome (CMO) logic, as described in the Methods of Analysis section of the main article. Following the approach outlined in the manuscript, mechanisms were disaggregated into two constituent parts: the *resources* introduced by the program—the structures, frameworks, and processes made available to participants—and the *reasoning* those resources triggered in the participants who encountered them (e.g., felt ownership, cognitive relief, or relational trust). Mechanism activation was treated as operating on a *continuum* rather than as a binary on/off switch (this continuum logic is depicted in Figure 1 in the main article), meaning that the same resources could trigger enabling, partial, or blocking reasoning responses depending on contextual conditions.

This process involved examining the data at three analytically distinct but interrelated governance levels. The *project level* captures the specific digital service initiatives studied (the digital driver's license, the parental leave application, and the Askur chatbot), including their development, coordination, and adaptation. The *organizational level* refers to the governance structures, resources, authority arrangements, and roles within the CIO Office and participating public organizations. The *inter-organizational level* refers to cross-agency coordination, shared infrastructure, and governance networks spanning multiple public organizations. These levels are not independent—project-level conditions are embedded in organizational circumstances, which in turn operate within inter-organizational arrangements—but they provide analytically distinct governance contexts for examining CMO configurations.

The identified contexts, mechanisms, and outcomes were first categorized according to the coding frame (Table C1) and then synthesized to identify overarching patterns. Specifically, the analysis identified three agile governance mechanisms—flexible policy, accountability, and collaboration—and examined how their activation contributed to public value outcomes (enhanced service delivery, transparency, and responsiveness) across the three governance levels. This synthesis was guided by the principles of realistic evaluation, which emphasizes understanding the causal mechanisms that link contexts to outcomes. The final step was to develop a coherent narrative that integrates the identified mechanisms, outcomes, and

contextual conditions into the DT evaluation framework presented in the main article (see Figure 3 in the main article). This framework was then used to generate insights about the program’s effectiveness and to identify areas for improvement.

References for Paper IV

- Albrecht, V. (2024). Collaborative competences for agile public servants: A case study on public sector innovation fellowships. *Information Polity*, 29(2), 217–234. <https://doi.org/10.3233/ip-230056>
- Alford, J., & Hughes, O. (2008). Public value pragmatism as the next phase of public management. *The American Review of Public Administration*, 38(2), 130–148. <https://doi.org/10.1177/0275074008314203>
- Breaugh, J., Rackwitz, M., & Hammerschmid, G. (2023). Leadership and institutional design in collaborative government digitalisation: Evidence from Belgium, Denmark, Estonia, Germany, and the UK. *Government Information Quarterly*, 40(2), 101788. <https://doi.org/10.1016/J.GIQ.2022.101788>
- Busetti, S., & Scanni, F. M. (2025). Evaluating incident reporting in cybersecurity. From threat detection to policy learning. *Government Information Quarterly*, 42(1). <https://doi.org/10.1016/j.giq.2024.102000>
- Christensen, T., & Lægreid, P. (1998). Administrative reform policy: The case of Norway. *International Review of Administrative Sciences*, 64(3), 457–475. <https://doi.org/10.1177/002085239806400308>
- Dalkin, S. M., Greenhalgh, J., Jones, D., Cunningham, B., & Lhussier, M. (2015). What’s in a mechanism? Development of a key concept in realist evaluation. *Implementation Science*, 10(1), 1–7. <https://doi.org/10.1186/s13012-015-0237-x>
- Enang, I., Asenova, D., & Bailey, S. J. (2022). Identifying influencing factors of sustainable public service transformation: A systematic literature review. *International Review of Administrative Sciences*, 88(1), 258–280. <https://doi.org/10.1177/0020852319896399>
- Fontana, R. M., & Marczak, S. (2020). Characteristics and challenges of agile software development adoption in Brazilian government. *Journal of technology management and innovation*, 15(2), 3–10. <https://doi.org/10.4067/S0718-27242020000200003>
- Gao, Y., Janssen, M., & Zhang, C. (2023). Understanding the evolution of open government data research: Towards open data sustainability and smartness. *International Review of Administrative Sciences*, 89(1), 59–75. <https://doi.org/10.1177/00208523211009955>
- Gasco-Hernandez, M., Nasi, G., Cucciniello, M., & Hiedemann, A. M. (2022). The role of organizational capacity to foster digital transformation in local governments: The case of three European smart cities. *Urban Governance*, 2(2), 236–246. <https://doi.org/10.1016/j.ugj.2022.09.005>
- Giulio, M. D., & Vecchi, G. (2023). How “institutionalization” can work. Structuring governance for digital transformation in Italy. *Review of Policy Research*, 40(3), 406–432. <https://doi.org/10.1111/ropr.12488>
- Iannacci, F., Simeonova, B., & Kawalek, P. (2022). Investigating the determinants of inter-organizational information sharing within criminal justice: A context-mechanism-outcome approach. *Journal of Information Technology*, 37(2), 188–208. <https://doi.org/10.1016/j.jit.2022.09.005>

- [//doi.org/10.1177/02683962211013826/ASSET/IMAGES/LARGE/10.1177/{_}02683962211013826-FIG6.JPEG](https://doi.org/10.1177/02683962211013826/ASSET/IMAGES/LARGE/10.1177/{_}02683962211013826-FIG6.JPEG)
- Järvensivu, T., & Törnroos, J.-Å. (2010). Case study research with moderate constructionism: Conceptualization and practical illustration. *Industrial Marketing Management*, 39(1), 100–108. <https://doi.org/10.1016/j.indmarman.2008.05.005>
- Lappi, T., & Aaltonen, K. (2017). Project governance in public sector agile software projects. *International Journal of Managing Projects in Business*, 10(2), 263–294. <https://doi.org/10.1108/IJMPB-04-2016-0031>
- Lember, V., Kattel, R., & Tõnurist, P. (2018). Technological capacity in the public sector: The case of Estonia. *International Review of Administrative Sciences*, 84(2), 214–230. <https://doi.org/10.1177/0020852317735164>
- Lewis, J. M., Ricard, L. M., Klijn, E. H., & Ysa, T. (2018). How innovation drivers, networking and leadership shape public sector innovation capacity. *International Review of Administrative Sciences*, 84(2), 288–307. <https://doi.org/10.1177/0020852317694085>
- Luna, A. J. O., Kruchten, P., & de Moura, H. P. (2015). Agile governance theory: Conceptual development.
- Luna, A. J. O., Kruchten, P., do E. Pedrosa, M. L., Neto, H. R. A., & Moura, H. P. M. (2014). State of the art of agile governance: A systematic review. *International Journal of Computer Science and Information Technology*, 6(5), 121–141. <https://doi.org/10.5121/ijcsit.2014.6510>
- Mei, H., & Yang, X. (2025). Unpacking the mechanisms linking public–private innovation partnership and public value creation: A configurational approach. *International Review of Administrative Sciences*. <https://doi.org/10.1177/00208523251374442>
- Mergel, I., Gong, Y., & Bertot, J. (2018). Agile government: Systematic literature review and future research. *Government Information Quarterly*, 35(2), 291–298. <https://doi.org/10.1016/J.GIQ.2018.04.003>
- Moore, M. H. (1995). *Creating public value: Strategic management in government*. Harvard University Press.
- Morgunblaðið. (2024, October). *Ísland í fimmta sæti aðildarríkja SP*. mbl.is. https://www.mbl.is/frettir/innlent/2024/10/08/island_i_fimmta_saeti_adildarrikja_sth/
- Mozaffar, H., & Candi, M. (2025). Extending the process frontier of digital transformation: A flow-oriented perspective. *Information Systems Journal*, 35(2), 720–760.
- Neumann, O., Kirklies, P.-C., & Hadorn, S. (2024). Does agile improve value creation in government? *Information Polity*, 29(2), 235–252. <https://doi.org/10.3233/IP-230060>
- Pauletto, C. (2024). Public management, agility and innovation: The Swiss experience with the COVID-19 loan scheme. *International Review of Administrative Sciences*, 90(1), 116–131. <https://doi.org/10.1177/00208523221143280>
- Pawson, R. (2013). *The science of evaluation: A realist manifesto*. SAGE Publications.
- Pawson, R., & Tilley, N. (1997). *Realistic evaluation*. sage.
- Pollitt, C., & Dan, S. (2013). Searching for impacts in performance-oriented management reform: A review of the European literature. *Public Performance & Management Review*, 37(1), 7–32. <https://doi.org/10.2753/PMR1530-9576370101>
- Ruvalcaba-Gomez, E. A., & Cifuentes-Faura, J. (2023). Analysis of the perception of digital government and artificial intelligence in the public sector in Jalisco, Mex-

- ico. *International Review of Administrative Sciences*. <https://doi.org/10.1177/00208523231164587>
- Schreier, M. (2012). *Qualitative content analysis in practice*. SAGE Publications Ltd. www.sagepub.co.uk/schreier
- Scupola, A., & Mergel, I. (2022). Co-production in digital transformation of public administration and public value creation: The case of Denmark. *Government Information Quarterly*, 39(1), 1–11. <https://doi.org/10.1016/J.GIQ.2021.101650>
- Simonofski, A., Ayed, H., Vanderose, B., & Snoeck, M. (2018). From traditional to agile e-government service development: Starting from practitioners' challenges. *24th Americas Conference on Information Systems (AMCIS 2018)*, 1–10. <https://aisel.aisnet.org/amcis2018/eGovernment/Presentations/6>
- Soe, R.-M., & Drechsler, W. (2018). Agile local governments: Experimentation before implementation. *Government Information Quarterly*, 35(2), 323–335. <https://doi.org/10.1016/j.giq.2017.11.010>
- United Nations. (2025). Iceland - EGOVKB. <https://publicadministration.un.org/egovkb/en-us/Data/Country-Information/id/76-Iceland>
- Van Acker, W., & Bouckaert, G. (2018). What makes public sector innovations survive? An exploratory study of the influence of feedback, accountability and learning. *International Review of Administrative Sciences*, 84(2), 249–268. <https://doi.org/10.1177/0020852317700761>
- Wessel, L. K., Baiyere, A., Ologeanu-Taddei, R., Cha, J., & Jensen, T. B. (2021). Unpacking the difference between digital transformation and IT-enabled organizational transformation. *Journal of the Association for information systems*, 22(1), 102–129.
- Yin, R. K. (2009). Case study research: Design and methods. In *SAGE publications* (4th ed.). SAGE Publications.
- Zyzak, B., Sienkiewicz-Małyjurek, K., & Jensen, M. R. (2024). Public value management in digital transformation: A scoping review. *International Journal of Public Sector Management*. <https://doi.org/10.1108/IJPSM-02-2024-0055>

Chapter 7

Concluding discussion

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In this concluding chapter, I synthesize the findings of the four papers in relation to the RQ: *How do governance strategies and mechanisms shape the implementation of digital transformation in the public sector, and how does emergent technology influence the framing and distribution of public value?* The thesis pursued a twofold aim: first, to understand how governance strategies and mechanisms shape the implementation of digital transformation initiatives in the public sector (Aim 1); and second, to examine how emergent technology influences the framing and distribution of public value in these initiatives (Aim 2). Collectively, the four papers make contributions at three interrelated levels: at the theoretical level, by extending PVM to account for the enactment of emergent technology in digital governance through the PVM in Digital Transformation framework; at the methodological level, by demonstrating how realistic evaluation with CMO configurations can evaluate public value outcomes in digital transformation programs; and at the practical level, by providing transferable insights into the governance mechanisms and strategies that enable public value creation, drawing on both cross-national AI strategy analysis and the in-depth DigIS case study.

7.1 Summary of the findings

Section 1.6 presented the research objectives that each paper aimed to solve (see Table 1.5), while this section summarizes the extent to which these goals were achieved.

This research has focused on governance mechanisms and the capacities that enable or constrain their activation, as well as the framing of emergent technology’s public value potential in policy discourse concerning public services reform programs. Across all four papers, the findings confirm the thesis’s overall argument: digital transformation outcomes are not determined by technology alone, but by how emergent technology is enacted within specific institutional arrangements and governance mechanisms — and these enactments shape whether public value is created and delivered in practice.

7.1.1 Emergent technology’s influence on policy goals and creating public value

This research has uncovered the underlying mechanisms, processes, and organizational capacities that enable or constrain enactment, as well as the dominant discourses shaping digital governance policies and outcomes at both national and international levels. While, on the one hand, international AI policy discourses concerning public sector AI applications were subjected to CDA (Papers I–II), an explanatory case study was performed to investigate a distinctive digital shared-services program in central government—i.e., DigIS—(Papers III–IV), on the other hand.

The results suggest that, when exploring the ‘Global North’ or, at least, in the Nordic-Baltic region, digital governance strategies are strikingly similar¹. Countries in the region, such as Denmark, Estonia and Iceland, principally have the same agenda, i.e., creating value through public service digitization and the delivery of e-government applications. This public

¹Several studies have been conducted on digital governance drawing on case studies about governments in the region, e.g., Estonia (Breaugh et al., 2023; Lember et al., 2017, 2018), Scandinavia, particularly Sweden and Denmark (Medaglia et al., 2022; Melin & Axelsson, 2009; Scupola & Mergel, 2022), and Finland (Lappi & Aaltonen, 2017) (and even cross-borders as seen in Soe and Drechsler, 2018)

value framing firmly places technology use as able to contribute to public value outcomes through improved public service delivery that is more effective and efficient. This reflects a predominantly managerial framing of public value — one in which technology’s enactment is evaluated primarily against efficiency and service delivery rather than the full spectrum of normative dimensions emphasized in the PVM in Digital Transformation framework. Nevertheless, many national AI strategies have emphasized more inclusive public services, offering a more balanced picture of digital governance (see Paper I).

Empirical studies from Estonia and Denmark provide insights into how these countries implement new e-government initiatives and their impact on public value. On the other hand, our understanding of AI’s impact on administrative practices is lacking. Partially, this can be explained by its limited uptake in the public sector. Moreover, administrators’ have experienced setbacks due to faulty AI applications or their improper usage. Nevertheless, as previously mentioned, the DigIS initiative demonstrates how AI-enhanced digital services can generate value co-creation via automated systems, such as chatbots (Paper IV). Technological advancement is supported by the adoption of mobile apps like the digital driver’s license, which contributed to increased democratic participation for tech-savvy citizens across governance administrative levels (e.g., regional or local level).

In the thesis, I focused on emergent technology, particularly AI and its potential for contributing to public value creation. By considering the type of technology applications and the context of their use, the study identified certain nuances in terms of the particular effects produced by AI systems vis-à-vis standard e-government applications. These discrepancies or nuances can be seen when comparing the current research’s findings to Bannister and Connolly (2014). Whereas they considered IT’s impact on transparency to be positive (see also Harrison et al., 2011), they found the opposite to be true for inclusion. In contrast, this study’s analysis of AI’s anticipated role in creating public value reports that opaque AI algorithms, particularly ANNs (discussed in Section 1.3), lack explainability and their use could adversely affect transparency. Additionally, AI presumably supports the development of more accessible public services (Paper I), including disabled people (e.g., deaf and visually impaired individuals), thereby positively affecting inclusion.

Realizing value from public sector digital transformation was analyzed from the perspective of national strategies and modernization programs. With regard to national AI strategies, technology is positioned as potentially assisting administrators in creating public value by, e.g., automating tasks and enabling greater efficiency in public administration (Papers I-II). Although the anticipated value realized from AI is considerable, the strategic plans concerning the use of AI in the public sector lack precision regarding how to achieve these objectives (Paper I). To realize value from AI investments, on the other hand, public organizations must possess not only strong administrative capacity, e.g., adequate contract management skills, leadership skills, and strategic planning skills (Paper III), but also adequate IT capacity (Pang et al., 2014). Indeed, Pang et al. (2014) identified IT capacity, e.g., robust digital infrastructure and strong IT skills, as a predictor of IT-enabled public value creation. This study’s findings support this, highlighting that government can attain greater IT capacity through the development of robust digital infrastructure and digital services, ultimately supporting conditions for public value creation, contingent on how governance mechanisms activate those capabilities. The Icelandic digital shared-services program is an excellent example of this, acquiring adequate capacities to facilitate the government’s digital transition (cf. Paper III).

Concerning modernization programs, the Icelandic digital shared-services program (SÍ/DigIS) is seen as a ‘success’,

at least according to the administrators and policymakers I interviewed (I have also observed this opinion in public discourse, including the media). Its goals concern creating enhanced public value through public service digitization and the delivery of e-government applications. This study evaluated the program (Papers III-IV) and found that indeed DigIS enhanced public value creation across several dimensions, particularly in service delivery, administrative transparency, and responsiveness, while acknowledging that democratic and citizen-centered values remained underdeveloped (see Section 7.3). More specifically the study uncovered certain governance strategies and mechanisms as central to the achievement of program goals, such as adopting digital shared-services. This drastically improved the government's administrative capacity and digital infrastructure, which, in turn, facilitated the co-creation of public value in networked practices (cf. Paper III). For instance, the infrastructure can be conceived as a platform to create 'business' value or to access and share data among public organizations to create 'social' value. Importantly, this infrastructure is not merely a technical backdrop but an enacted governance arrangement: its layered, modular architecture (cf. Tilson et al., 2010) enabled reuse and interoperability across organizations, demonstrating how digital infrastructure can itself function as a governance mechanism when standardized under appropriate institutional arrangements. This strategy, that is, to enable complementarities through open standards and non-proprietary contracts, may not only increase DigIS's business value (or economic value) via new business solutions but also improve efficient public assets utilization, particularly the use of IT resources, via the reusability of digital applications. In addition, the innovation outcomes reported in Paper III (i.e., the establishment of SÍ) created adequate technological capacity (or backbone) to achieve program goals (see also Chapter 2). Goal achievement meant that DigIS could more readily deliver desired program outcomes, thus supporting enhanced public value creation through the digital shared-services portal's (Ísland.is) user-centric, integrated digital services supported by robust digital infrastructure (data exchange and cloud-based systems). By providing a centralized and standardized digital infrastructure and expertise, this approach to digital governance equips DigIS clients/public organizations with adequate collaborative competence and innovation capacity to successfully embark on their digital transformation journeys, ultimately leading to the creation and delivery of public value to service-users/citizens and companies.

Importantly, these findings should be interpreted in light of the longer Icelandic trajectory outlined in Chapter 2. Earlier research on e-government in Iceland had already shown that citizens enjoyed high levels of access to and use of digital technologies (i.e., the internet), and that significant *organizational outcomes* were being achieved in the public sector—such as increased integration across administrative levels, job enlargement, and decentralization—even as central computing structures and integrated portals remained underdeveloped in comparison to other Nordic countries.² The DigIS case, described in detail in Chapter 2, therefore represents not a starting point but a continuation of this trajectory, in which the state deliberately sought to overcome previously identified structural constraints by establishing a digital shared-services centre, consolidating portal development around *Ísland.is*, and experimenting with new governance mechanisms such as agile procurement and co-creative partnerships. The realistic evaluation in this thesis explains how these choices translated into specific mechanism activations and *public value outcomes*, thereby moving beyond earlier descriptive accounts towards a causal, mechanism-based understanding of Icelandic digital transformation.

²See, for example, Arnthorsson (2008).

7.1.2 The framing of AI-enabled public value in digital transformation contexts

This thesis addresses the need to better understand how governments frame public values in technology-driven government transformation programs. For instance, addressing the extent to which AI strategies position AI use, specifically within the public sector, addresses a significant knowledge gap identified in AI policy research (Paper I). I argue that this is critical for our understanding of the ways in which public values are framed, as it is important to fathom the imaginaries that are shaping AI policy programs and influence the distribution of public value. This argument links to the debate of balancing competing public values, which lies at the heart of this thesis's contribution to the academic literature.

As argued previously (Chapter 1.2.2), we must consider the dual understanding of public value, distinguishing between the expected and real benefits of adopting emergent technologies in public governance. The PVM in Digital Transformation framework developed in this thesis includes both economic rationality and normative aspects (cf. the regulative and normative pillars, respectively, Scott, 1995, see Figure 1.1). The framework is therefore explicitly pluralistic: governance arrangements that reduce public value to economic or technical optimization risk overlooking the normative dimensions — equity, transparency, inclusion, and democratic legitimacy — that are equally constitutive of public value in digital governance (cf. Cordella & Bonina, 2012). Attending to both dimensions is essential to avoid public value failures in digital transformation initiatives (see also Paper II).

According to the AI strategies, AI's potential to create public value is substantial. These strategic documents convey AI positively and are generally optimistic about its potential to deliver various benefits for public sector practices. However, the predominant focus on economic and managerial benefits—such as increased cost efficiency and improved service quality—risks overlooking the normative dimensions of public value that the PVM in Digital Transformation framework foregrounds. However, this optimism must be tempered by evidence that emergent technology can also be deployed for surveillance, control, and exclusion: whether public value is created or destroyed depends not on the technology itself but on how it is enacted within governance arrangements (cf. Lindgren et al., 2019; Schiff et al., 2022).

Social and democratic benefits such as equity and fairness, although less prominent, represent essential public values that must be integrated into AI governance frameworks. This balance between economic rationality and shared cultural values is not merely desirable but essential to ensuring congruence in framing and creating public value, thereby avoiding potential misalignment between AI policy development and implementation.

However, the strategic plans often lack precision concerning how AI will be implemented. This is a concern given the significant impact that new e-government applications and other digital transformation initiatives have on administrative practices, as this study reports. Indeed, digital transformation is concerned with the extensive uptake of digital applications that require changes to administrative processes and practices for effective digital transition in public organizations (Papers III-IV; see also Chapter 2). The findings from the program evaluation in Paper IV emphasize that such changes must be managed effectively to achieve effective outcomes in the process. More specifically, the evaluation demonstrated that developing digital solutions incrementally and rapidly in cross-functional teams, reflecting agile principles, facilitated effective implementation and organizational transformations (see below).

In addition, achieving government transformation goals through emergent technology applications, such as AI-enhanced

decision-making, changes to current public sector practices are unavoidable (Barth, 1999; Gualdi & Cordella, 2021). Changes that enact new forms of power and control in public governance (Paper II). These changes necessitate reevaluating existing governance mechanisms and structures to ensure that the implementation of AI initiatives aligns with the broader goals of achieving and protecting public values. While AI-enhanced work practices might lead to greater productivity in the short term, the effects on public values, such as fairness and transparency, could be adverse in the long run (Paper II). Furthermore, administrators and other public sector employees might resist using such applications, highlighting a need for effective change management in public sector AI programs (cf. the points of resistance and the fear of digitalization discussed in Papers II and IV, respectively). In CMO terms, such resistance exemplifies blocking reasoning responses—professional hesitation and risk aversion—that constrain mechanism activation and can redirect enactment away from intended public value outcomes. Where enactment frictions remain unaddressed, they can, in extreme cases, produce destructive outcomes in which the adoption of emergent technology erodes transparency, accountability, or equity rather than advancing them (see, e.g., Kuziński and Misuraca, 2020; Schiff et al., 2022; see also James and Whelan, 2021).

7.1.3 Digital transformation as a contingent mechanism-driven process

Building on realist evaluation analyses of coordination and outcome evaluation in digital governance (e.g., Williams, 2007), this thesis adopts a mechanism-oriented approach to understanding digital transformation as a contingent, context-dependent process, as previously described (see Section 1.4). While Williams’ foundational work examined coordination mechanisms within large-scale federated IT governance structures in the U.S. federal context, this research explicates specific agile governance mechanisms operating within a small, centralized Nordic state undergoing digital transformation. Overall, the thesis demonstrates that digital transformation emerges as the contingent activation of specific governance mechanisms. The realist evaluation of DigIS uncovered three mechanisms supporting effective agile governance outcomes, i.e., flexible policy, accountability, and collaboration, especially critical during program implementation (Paper IV). The findings suggest that, under favorable conditions, these mechanisms generate public value outcomes such as improved service delivery, transparency, and responsiveness. The realist evaluation clarifies that these outcomes are not inherent properties of agile methods or IT systems, but depend on how mechanisms are configured within particular institutional contexts. Put differently, the relationship between agile governance and public value is contingent on mechanism-context configurations, linking to the idea of causal empirical explanations for how and why IT generates differential benefits (cf. Gregor et al., 2006).

The non-linear, iterative nature of digital transformation requires continuous evaluation of how governance mechanisms operate over time. From a realist evaluation perspective (cf. Dalkin et al., 2015), mechanisms do not fire deterministically; rather, they interact with changing contextual conditions to generate emergent, sometimes unanticipated consequences. This study emphasizes the tensions between stability and flexibility that arise when introducing agile governance mechanisms. This tension corresponds to what McBride et al. (2022) describe as the “dual necessities of structure and agility”: public organizations must maintain sufficient structural stability in their digital infrastructure while simultaneously cultivating agility in service iteration. The DigIS program navigated these necessities through its shared digital infrastructure,

which provided a stable backbone (cf. Tilson et al., 2010), while the mechanisms, such as accountability mechanisms and co-creation in inter-organizational collaborative arrangements, supporting and enabling agile governance and iterative adaptation at the service level, respectively. In the context of AI-intensive initiatives, such as the Askur chatbot case (Paper IV), feedback mechanisms play a particularly vital role in re-aligning envisioned and realized public value. These feedback mechanisms are essential for continuous evaluation of the effects of particular mechanisms activated in the process. Where such capacity is absent, enactment frictions—value trade-offs, stakeholder resistance, and contested role definitions—can accumulate unchecked, constraining mechanism activation and, in the worst case, producing destructive, as opposed to value-enhancing, outcomes (cf. Nyman et al., 2023, see also Paper II). Thus, an array of mechanisms such as feedback loops, ongoing evaluation, and adaptive governance arrangements come into play that are crucial indicators of progress toward achieving public values and, more importantly, to re-align the perspectives and interests of different stakeholders. This seems particularly critical in AI implementations. Rather than treating AI as an innovation that automatically generates value, the thesis shows how administrators must continually test and recalibrate mechanisms in response to emerging effects.

This thesis also advances a mechanisms-focused understanding of PVM in digital transformation by integrating policy and administrative perspectives across levels. By examining national AI strategies, program-level governance of DigIS, and service-level implementations, the analysis demonstrates how innovative administrative practices — such as flexible policy interpretation, cross-functional collaboration, and accountability routines — enact contested public value framing as substantive outcomes. Framing public value is so contested, as we have previously discussed (Chapter 1), because policymakers and administrators occupy different roles in public programs (see also Moore, 1995) with the former articulating value aspirations and the latter operationalizing them through specific governance arrangements. Moreover, this multi-level, mechanism-oriented view explains why such aspirations or policy intentions, which at first sight appear similar, can yield so divergent results across contexts. This research reveals how mechanisms operate across three interdependent levels — national AI/digital strategies, program governance structures, and service-level implementation practices — to bridge the policy-administration divide. At the national level, strategy documents envision program goals; at the program level, agile governance mechanisms (flexible policy, accountability, collaboration) create the conditions for value realization; and at the service-implementation level, a digital SSC coordinates or facilitates agile teams in inter-organizational networks, triggering these mechanisms in achieving program goals. By demonstrating how such multi-level mechanisms function, interact, and influence one another, this research offers a nuanced and comprehensive understanding of the transformational impact of emergent technology use on public sector services, while addressing the need for deeper qualitative research on digital governance (Heidlund & Sundberg, 2022; Reis et al., 2019).

7.2 Administrative implications

The proposed PVM in Digital Transformation framework (see Section 1.3.4), informs the envisioned and realized public value created through digital transformation and emergent technology applications. Its purpose is to guide policy design and inform (realist) program evaluation. The proposed framework, based on the current and prior research in digital

governance, offers a useful instrument to comprehensively evaluate digital transformation. Moreover, by integrating both normative public values (e.g., fairness and equity) and managerial values (e.g., efficiency and service quality), it assesses public value creation in digital governance initiatives, complementing existing performance frameworks (e.g., the balanced scorecard) that remain focused on business value. For instance, the framework serves as a holistic approach for the evaluator who must focus on specific goals that are defined in a particular program and evaluate its effectiveness in achieving such ends by considering broader public values across four dimensions.

Ultimately, effectiveness depends on the administrator's ability to manage public values trade-offs, notably among efficiency, accountability and equity (Stoker, 2006), and build trust while ensuring openness and legitimacy of her organization's official duties.

On the other hand, market-driven modernization programs have the potential to undermine democratic access and accountability. In the context of emergent technology applications or new e-government initiatives, proper safeguards must be in place to achieve public values, including democratic and managerial values (Paper I). To mitigate potential negative effects, public administrators and policymakers must ensure that their modernization programs are anchored in democratic principles, e.g., through accountability mechanisms and increased civic participation. This can support greater transparency and accountability, holding decision-makers accountable vis-a-vis their clients (i.e., the public), as well as ensuring that such programs reflect public needs and priorities.

Interpreted through the Bernsteinian lens established in Section 1.4, the findings suggest that AI policy discourse is characterized by relatively strong classification and framing (Bernstein, 1993, 1996), which consolidate boundaries between expert, political, and lay domains and centralize control over how digital transformation is problematized and resolved. Strong classification maintains clear separations between technical, administrative, and civic roles, while strong framing governs the conditions of participation—who may speak, on what terms, and with what authority—in debates about AI in the public sector. Yet the discourse also exhibits moments of weakened framing, where citizens and stakeholders are invoked as collaborators or co-producers, indicating potential shifts toward more distributed control over public value creation. These tensions between strong and weak classification and framing have important implications: they shape whose interests are insulated or exposed, how contestation can be voiced, and to what extent AI-enabled public value is negotiated within closed policy arenas or more permeable, participatory spaces of digital governance.

As previously noted (see Section 1.3), administrators must possess adequate technical skills to successfully use advanced digital technologies within their organizations. I suggest that administrators engage in co-creative partnerships to achieve this goal. In the present case, SÍ successfully established such partnerships with IT companies, demonstrating the potential for co-creation in public sector contexts. As argued in this study (see Paper III), SÍ serves as a model that other governments—whether local or national—could adopt in pursuit of their digital transformation goals, particularly in contexts sharing comparable administrative capacity, institutional trust, and digital infrastructure maturity (cf. the contextual conditions discussed in Breaugh et al., 2023, see also Paper IV). This research, particularly the material concerning DigIS (Papers III-IV; see also Chapter 2), may therefore be useful to administrators who believe in the power of co-creative partnership models. For instance, some may adopt and adapt the Icelandic model when designing digitalization programs or developing governance policies in the future.

Among the governance mechanisms that facilitate co-creative partnerships, flexible policy and, in particular, agile

procurement (see Paper IV) stand out. Here, agile procurement is considered not only as an administrative tool but as a governance mechanism that supports agile IT development. This point is especially relevant for administrators who may need external support at the outset. The innovative procurement mechanisms employed in DigIS, for example, demonstrate how governance mechanisms can help public organizations build the administrative capacity required for effective digital transformation initiatives.

Traditional public procurement typically relies on competitive bidding, which may not always foster innovation. Such capacity is critical for co-creative partnerships. By contrast, agile procurement as a governance mechanism enables innovation by departing from stringent system requirement specifications, deterministic design principles, and intolerance toward MVPs (cf. the “zero-error culture” noted in Paper III). This flexibility, which is in full agreement with PVM theories (Moore, 1995; Moore & Khagram, 2004), enables administrators to iterate and adapt throughout the digitalization process, thereby enhancing effective IT development.

A further contribution of this thesis lies in providing a longitudinal account of Icelandic digital governance that explicitly connects early e-government developments to the DigIS program. Whereas prior work had documented how Iceland had largely closed the digital divide and achieved significant organizational outcomes—such as increased integration, job enlargement, and decentralization—but lagged behind other Nordic countries in terms of centralized infrastructure and mature e-government services (Arnthorsson, 2008), this thesis shows how a subsequent wave of modernization efforts—centred on SÍ and DigIS—mobilized new governance strategies and mechanisms to address those earlier structural limitations. By combining the case history in Chapter 2 with a realistic evaluation focusing on governance mechanisms and strategies in this longitudinal case study (Papers III-IV), the thesis offers a coherent explanation of how the Icelandic state moved from fragmented, agency-led e-government development towards a shared-services, agile governance model that realizes enhanced public value outcomes aligned with PVM principles. This approach reveals not only what changed over time, but crucially, how specific mechanisms activated within supportive contexts produce and enable more effective organizational outcomes and public value creation, respectively. I argue that applying this mechanisms-focused view strengthens the explanatory power and practical relevance of the PVM in Digital Transformation framework.

7.3 Limitations

This thesis has some limitations. The proposed PVM in Digital Transformation framework (see Section 1.3.4) is designed specifically for evaluators of e-government programs, detailing the function, position, and role of the administrator. As such, it does not highlight the citizens’ function, position, and role, which can be seen as a limitation. Researchers who focus on the citizens’ perspective should keep that in mind when they apply this framework and adapt it to their particular unit of analysis or analytical perspective.

While the study addressed important public values such as efficiency and service delivery outcomes, democratic and citizen-centered values are less developed. These values are essential for creating public value and warrant more scholarly focus (see the next section).

In addition, the empirical research draws on interviews with a relatively few respondents. This limitation stems from

the case selected (Iceland), which operates a small e-government unit (10 people), compared to its neighboring countries (the Danish e-gov unit employs approximately 200 people). Nevertheless, I acknowledge that the size of the team does not really reflect the unit's scope of operation, which is massive (the national government as a whole). As such, additional sources of data were collected and analyzed to ensure the quality and reliability of the case study's findings.

Additionally, DigIS operates on a cloud-based digital infrastructure whose structural vulnerabilities—including dependency on third-party SaaS providers and exposure to systemic outages—represent a contextual condition not addressed in this evaluation. Future studies applying the PVM in Digital Transformation framework should consider infrastructure resilience as a contextual condition in CMO analysis.

While a realistic evaluation combined with an in-depth, multimethod case study design offers substantial depth and contextual understanding, there are some limitations inherent to this research approach. For one, such methods are often highly resource-intensive, demanding significant time, effort, and coordination for data collection, analysis, and stakeholder engagement, which can constrain the diversity of cases or perspectives included. In addition, the complex interplay of qualitative and quantitative data within this framework can present challenges in synthesizing findings, especially when different data sources diverge or reflect contradictory narratives, and it poses a risk that interpretations may be influenced by researcher bias (hence, inter-observer reliability was checked in Paper IV).

A more fundamental design limitation concerns the relationship between the two analytical strands. The discourse analysis of national AI strategies (Papers I–II) and the realistic evaluation of the DigIS program (Papers III–IV) are discursively rather than causally linked. This reflects a research design contingency: Iceland had not implemented a national AI strategy during the study period, requiring a pivot in the research question to focus on a shared-services program as the primary enactment case. Consequently, the discursive framings of public value identified in the AI strategies and the governance mechanisms evaluated in DigIS are connected through theoretical inference rather than direct empirical tracing. The realistic evaluation framework was well-suited to accommodate this contingency — by focusing on how and under what conditions mechanisms produce outcomes, rather than requiring a single unified policy object, it preserved the explanatory logic of the design. Nonetheless, future research could examine cases where a national AI strategy and its programmatic implementation are co-located, enabling a tighter empirical chain between discursive framing and enacted outcomes. Additionally, the interpretation of power dynamics through policy texts is inherently inferential; the triangulation of findings across Papers I–II provides a partial check on this, but independent verification through, for example, elite interviews with policymakers would strengthen the analysis.

Finally, the nuanced and context-dependent nature of the insights generated means that policy recommendations and theoretical contributions require careful qualification, as their broader applicability depends on similarities between the research setting and other contexts in the digital transformation domain — particularly with respect to the contextual conditions of institutional trust, digital literacy, and infrastructure maturity that characterize the Icelandic case. Nonetheless, this research offers plausible explanations for the effectiveness of the DigIS program that could be useful for academics and practitioners in digital governance, particularly within the Nordic-Baltic region.

7.4 Conclusion and future research

While my PhD research has explored the envisioned public value impact of AI, our understanding of the realized public value impact of AI remains rather limited. Future research investigating this impact could benefit from a multi-methods approach, such as surveying how AI is applied in public organizations, followed by in-depth interviews to evaluate how AI applications impact organizational performance and public value. The indicators of public value identified and validated in this study can be used for that purpose. The aforementioned democratic and citizen-centered values are underrepresented in the literature (not only in this research). As such, these values present opportunities for further research.

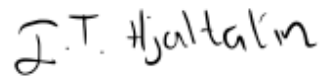
Based on an ongoing review study about the public value impacts of AI (Hjaltalin et al., forthcoming), the field shows steady growth in the number of publications. However, the field remains fragmented, and relatively few studies adopt PVM as a perspective exclusive to public management/e-government. As such, there is an urgent need for more interdisciplinary research to advance knowledge in the growing field of PVM in AI-driven digital transformation. Building on the PVM in Digital Transformation framework, the thesis demonstrates how mechanisms shape public value outcomes (referred to as indicators in Section 1.3.4), such as responsiveness and inclusion in AI-enabled services across sectors. These outcome-level indicators, along with others not addressed here, merit verification in future research as critical metrics for effective digital transformation initiatives.

The field of public sector innovation and IT is beginning to adopt PVM as a lens to explore the outcomes of IT-enabled innovation initiatives, which represents another promising avenue for future research. Innovative administrators are increasingly relying on open innovation and agile governance approaches to achieve enhanced organizational adaptation and learning. Regulators also have an important role to play in supporting such efforts. They must ensure that they understand what they are regulating by "reinventing themselves" (Schwab, 2017) and continuously adapting to a fast-changing environment. As Schwab (2017) has noted, we as educators have an important role to play as well. We must be part of the conversations concerning the development of ethical and moral standards that should apply to emergent technology of the fourth industrial revolution, as well as guidelines for the fair, just, and effective integration of such technology in society.

In conclusion, this thesis supports the hypothesized causal relationship between agile governance mechanisms—such as the proposed agile procurement—and more successful digital transformation outcomes. The evaluation of DigIS demonstrates that when procurement policies are designed to be agile and supportive of co-creative efforts, they can foster the organizational flexibility and innovation necessary for transformative projects to succeed. Thus, flexible policy—specifically, agile procurement as a governance mechanism—can be instrumental in creating an environment where innovation and co-creative partnerships can flourish, ultimately supporting effective digital transformation. Future research could test this relationship further, realizing the accumulative potential of program evaluation as envisioned by Pawson and Tilley (1997).

Appendix: Declaration of co-authorship

I declare that I have contributed at least 51% of work to each of the following elements of the Academic Papers included in this thesis: developing research concept and research design; performing research and data analysis; drafting, finalizing, and submitting the manuscript.

A handwritten signature in black ink, reading "J.T. Hjaltn". The signature is written in a cursive, slightly slanted style.

March 25, 2025

As the primary supervisor and the co-author of all but one Academic Paper included in this thesis, I confirm that the PhD candidate has, to the best of my best knowledge, contributed at least 51% of work to each of the following elements of the Academic Papers: developing research concept and research design; performing research and data analysis; drafting, finalizing, and submitting the manuscript.

References for Chapters 1 & 7

- Albrecht, V. (2024). Collaborative competences for agile public servants: A case study on public sector innovation fellowships. *Information Polity*, 29(2), 217–234. <https://doi.org/10.3233/ip-230056>
- Alford, J., & Hughes, O. (2008). Public value pragmatism as the next phase of public management. *The American Review of Public Administration*, 38(2), 130–148. <https://doi.org/10.1177/0275074008314203>
- Alford, J., & O’Flynn, J. (2009). Making sense of public value: Concepts, critiques and emergent meanings. *International Journal of Public Administration*, 32(3–4), 171–191. <https://doi.org/10.1080/01900690902732731>
- Arnthorsson, H. (2008). *Rafræn stjórnsýsla: Forsendur og áhrif* [Doktorsritgerð í stjórnsýslufræði]. Háskóli Íslands.
- Astbury, B., & Leeuw, F. L. (2010). Unpacking black boxes: Mechanisms and theory building in evaluation. *American Journal of Evaluation*, 31(3), 363–381. <https://doi.org/10.1177/1098214010371972>
- Bai, W. (2013). A public value based framework for evaluating the performance of e-Government in china. *iBusiness*, 05(03), 26–29. <https://doi.org/10.4236/ib.2013.53b006>
- Bannister, F., & Connolly, R. (2014). ICT, public values and transformative government: A framework and programme for research. *Government Information Quarterly*, 31, 119–128.
- Bannister, F., & Connolly, R. (2015). The great theory hunt: Does e-government really have a problem? *Government Information Quarterly*, 32(1), 1–11. <https://doi.org/10.1016/j.giq.2014.10.003>
- Bannister, F., & Connolly, R. (2020). Defining e-Governance. *e-Services Journal*, 8(2), 3–25.
- Barth, T. J. (1999). ARTIFICIAL INTELLIGENCE and ADMINISTRATIVE DISCRETION implications for public administration. *American Review of Public Administration*, 29(4), 332–351.
- Benington, J., & Moore, M. H. (2011). *Public value: Theory and practice*. Palgrave Macmillan. <https://books.google.is/books?id=XftGEAAQBAJ>
- Bernstein, B. (1993). Pedagogic codes and their modalities. *Hitotsubashi Journal of Social Studies*, 25(2), 115–134. <https://www.jstor.org/stable/43294345>
- Bernstein, B. (1996). *Pedagogy, symbolic control, and identity: Theory, research, critique*. Taylor and Francis.
- Bharadwaj, A. S. (2000). A resource-based perspective on information technology capability and firm performance: An empirical investigation. *MIS Quarterly*, 24(1), 169–196. <https://doi.org/10.2307/3250983>
- Bonina, C., & Cordella, A. (2009). Public sector reforms and the notion of ‘public value’: Implications for eGovernment deployment. *AMCIS 2009 Proceedings*.
- Bozeman, B. (2007). *Public values and public interest: Counterbalancing economic individualism*. Georgetown University Press. https://books.google.is/books?hl=en&lr=&id=-YU_jup6RcMC&oi=fnd&pg=PP10&dq=bozeman+2007&ots=GHOAUlhxGe&sig=jrgZNp3fCWqmb5skzh1NyGMbMwk&redir_esc=y#v=onepage&q=bozeman%202007&f=false
- Breaugh, J., Rackwitz, M., & Hammerschmid, G. (2023). Leadership and institutional design in collaborative government digitalisation: Evidence from belgium, denmark,

- estonia, germany, and the UK. *Government Information Quarterly*, 40(2), 101788. <https://doi.org/10.1016/J.GIQ.2022.101788>
- Bringsjord, S., & Govindarajulu, N. S. (2020). Artificial intelligence (stanford encyclopedia of philosophy) (E. N. Zalta, Ed.). <https://plato.stanford.edu/entries/artificial-intelligence/#ExplGrowAI>
- Brown, P. R. (2021). Public value measurement vs. public value creating imagination—the constraining influence of old and new public management paradigms. *International Journal of Public Administration*, 44(10), 808–817. <https://doi.org/10.1080/01900692.2021.1903498>
- Bryson, J., Sancino, A., Benington, J., & Sørensen, E. (2017). Towards a multi-actor theory of public value co-creation. *Public Management Review*, 19(5), 640–654. <https://doi.org/10.1080/14719037.2016.1192164>
- Busch, P. A., & Henriksen, H. Z. (2018). Digital discretion: A systematic literature review of ICT and street-level discretion. *Information Polity: The International Journal of Government & Democracy in the Information Age*, 23(1), 3–28. <https://doi.org/10.3233/IP-170050>
- Chazdon, S., & Paine, N. (2014). Evaluating for public value: Clarifying the relationship between public value and program evaluation. *Journal of Human Sciences and Extension*, 2(2). <https://doi.org/10.54718/yawg5225>
- Chen, Y.-C. ; Ahn, M. J. ; Wang, Y., Chen, Y.-C., Ahn, M. J., & Wang, Y.-F. (2023). Artificial intelligence and public values: Value impacts and governance in the public sector. *Sustainability*, 15(6), 4796. <https://doi.org/10.3390/SU15064796>
- Cordella, A., & Bonina, C. M. (2012). A public value perspective for ICT enabled public sector reforms: A theoretical reflection. *Government Information Quarterly*, 29, 512–520. <https://doi.org/10.1016/j.giq.2012.03.004>
- Cordella, A., & Iannacci, F. (2010). Information systems in the public sector: The e-Government enactment framework. *Journal of Strategic Information Systems*, 19(1), 52–66. <https://doi.org/10.1016/j.jsis.2010.01.001>
- Criado, J. I., & Gil-Garcia, J. R. (2019). Creating public value through smart technologies and strategies. *International Journal of Public Sector Management*, 32(5), 438–450. <https://doi.org/10.1108/IJPSM-07-2019-0178>
- Criado, J. I., & Zarate-Alcarazo, L. O. (2022). Technological frames, CIOs, and Artificial Intelligence in public administration: A socio-cognitive exploratory study in Spanish local governments. *Government Information Quarterly*, 39(3), 1–13. <https://doi.org/10.1016/j.giq.2022.101688>
- CrowdStrike. (n.d.). CrowdStrike. <https://www.crowdstrike.com/en-us/>
- Dąbrowska, J., Almpantopoulou, A., Brem, A., Chesbrough, H., Cucino, V., Di Minin, A., Giones, F., Hakala, H., Marullo, C., Mention, A.-L., Mortara, L., Nørskov, S., Nylund, P. A., Oddo, C. M., Radziwon, A., & Ritala, P. (2022). Digital transformation, for better or worse: A critical multi-level research agenda. *R&D Management*, 52(5), 930–954. <https://doi.org/10.1111/radm.12531>
- Dalkin, S. M., Greenhalgh, J., Jones, D., Cunningham, B., & Lhussier, M. (2015). What’s in a mechanism? Development of a key concept in realist evaluation. *Implementation Science*, 10(1), 1–7. <https://doi.org/10.1186/s13012-015-0237-x>
- de Sousa, W. G., Melo, E. R. P. de, Bermejo, P. H. D. S., Farias, R. A. S., & Gomes, A. O. (2019). How and where is artificial intelligence in the public sector going? A literature review and research agenda. *Government Information Quarterly*, 36(4). <https://doi.org/10.1016/j.giq.2019.07.004>

- Deng, H., Karunasena, K., & Xu, W. (2018). Evaluating the performance of e-government in developing countries. *Internet Research*, 28(1), 169–190. <https://doi.org/10.1108/IntR-10-2016-0296>
- Dickinson, H. (2016). From new public management to new public governance: The implications for a ‘new public service’. In D. Gilchrist & J. Butcher (Eds.), *The three sector solution : Delivering public policy in collaboration with not-for-profits and business*. ANU Press.
- DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147. <https://doi.org/10.2307/2095101>
- Distel, B., & Lindgren, I. (2023). A matter of perspective: Conceptualizing the role of citizens in E-government based on value positions. *Government Information Quarterly*, 40(4), 101837. <https://doi.org/10.1016/j.giq.2023.101837>
- Fairclough, N. (1992). Discourse and text: Linguistic and intertextual analysis within discourse analysis. *Discourse and Society*, 3(2), 193–217.
- Fairclough, N. (2000). Discourse, social theory, and social research: The discourse of welfare reform. *Journal of Sociolinguistics*, 4(2), 163–195. <https://doi.org/10.1111/1467-9481.00110>
- Fairclough, N. (2012). Critical discourse analysis: The critical study of language. In J. P. Gee & M. Handford (Eds.), *The routledge handbook of discourse analysis* (pp. 9–20). Routledge.
- Fontana, R. M., & Marczak, S. (2020). Characteristics and challenges of agile software development adoption in brazilian government. *Journal of technology management and innovation*, 15(2), 3–10. <https://doi.org/10.4067/S0718-27242020000200003>
- Fountain, J. E. (2001). *Building the virtual state: Information technology and institutional change*. Brookings Institution Press.
- Fountain, J. E. (2004). *Prospects for the virtual state*. Brookings Insitutional Press.
- Gasco-Hernandez, M., Nasi, G., Cucciniello, M., & Hiedemann, A. M. (2022). The role of organizational capacity to foster digital transformation in local governments: The case of three European smart cities. *Urban Governance*, 2(2), 236–246. <https://doi.org/10.1016/j.ugj.2022.09.005>
- Gil-Garcia, J. R., & Flores-Zúñiga, M. (2020). Towards a comprehensive understanding of digital government success: Integrating implementation and adoption factors. *Government Information Quarterly*, 37(4), 101518. <https://doi.org/10.1016/J.GIQ.2020.101518>
- Grant, G., & Ulbrich, F. (2010). Governance of IT-shared services: Moving between hierarchical and networked service provision. *International Conference on Information Resources Management*.
- Gregor, S., Martin, M., Fernandez, W., Stern, S., & Vitale, M. (2006). The transformational dimension in the realization of business value from information technology. *Journal of Strategic Information Systems*, 15(3), 249–270. <https://doi.org/10.1016/j.jsis.2006.04.001>
- Gualdi, F., & Cordella, A. (2021). Artificial intelligence and decision-making: The question of accountability. *Proceedings of the 54th Hawaii International Conference on System Sciences*, 2297–2306.
- Harrison, T. M., Guerrero, S., Burke, G. B., Cook, M., Cresswell, A., Helbig, N., Hrdinová, J., & Pardo, T. (2011). Open government and e-government: Democratic

- challenges from a public value perspective. *The Proceedings of the 12th Annual International Conference on Digital Government Research*, 245–253.
- Haug, N., Dan, S., & Mergel, I. (2023). Digitally-induced change in the public sector: A systematic review and research agenda. *Public Management Review*, 1–25. <https://doi.org/10.1080/14719037.2023.2234917>
- Heidlund, M., & Sundberg, L. (2022). Evaluating e-Government: Themes, trends, and directions for future research. *First Monday*, 27(12), 1–25. <https://doi.org/10.5210/fm.v27i12.12526>
- Henderson, J. C., & Venkatraman, N. (1993). Strategic alignment: Levering information technology for transforming organizations. *IBM Systems Journal*, 32(1), 472–484.
- Hong, K. P., & Kim, P. S. (2020). Building an agile government: Its possibilities, challenges, and new tasks. *Halduskultuur: The Estonian Journal of Administrative Culture and Digital Governance*, 21(1).
- Hood, C. (2001). Public management, new.
- Hood, C. (1991). A public management for all seasons. *Public Administration*, 69(1), 3–19. <https://doi.org/10.1111/J.1467-9299.1991.TB00779.X>
- Hood, C. (1998). *The art of the state : Culture, rhetoric, and public management*. Oxford University Press. <https://doi.org/10.1093/0198297653.003.0001>
- Horlach, B., Böhmman, T., Schirmer, I., & Drews, P. (2018). IT governance in scaling agile frameworks. In P. Drews, B. Funk, P. Niemeyer, & L. Xie (Eds.), *Multikonferenz wirtschaftsinformatik 2018*. MKWI.
- Hujran, O., Alarabiat, A., Al-Adwan, A. S., & Al-Debei, M. (2023). Digitally transforming electronic governments into smart governments: SMARTGOV, an extended maturity model. *Information Development*, 39(4), 811–834. <https://doi.org/10.1177/02666669211054188>
- James, A., & Whelan, A. (2021). 'Ethical' artificial intelligence in the welfare state: Discourse and discrepancy in Australian social services. *Critical Social Policy*, 42(1), 22–42. <https://doi.org/10.1177/0261018320985463>
- Janowski, T. (2015). Digital government evolution: From transformation to contextualization. *Government Information Quarterly*, 32(3), 221–236. <https://doi.org/10.1016/j.giq.2015.07.001>
- Janssen, M., & van der Voort, H. (2020). Agile and adaptive governance in crisis response: Lessons from the COVID-19 pandemic. *International Journal of Information Management*, 55, 102180. <https://doi.org/10.1016/J.IJINFOMGT.2020.102180>
- Kamwa, I., Samantaray, S. R., & Joós, G. (2012). On the accuracy versus transparency trade-off of data-mining models for fast-response PMU-based catastrophe predictors. *IEEE Transactions on Smart Grid*, 3(1), 152–161. <https://doi.org/10.1109/TSG.2011.2164948>
- Kankanhalli, A., Charalabidis, Y., & Mellouli, S. (2019). IoT and AI for smart government: A research agenda. *Government Information Quarterly*, 36(2), 304–309. <https://doi.org/10.1016/j.giq.2019.02.003>
- Karunasena, K., Deng, H., & Singh, M. (2011). Measuring the public value of e-government: A case study from Sri Lanka. *Transforming Government: People, Process and Policy*, 5(1), 81–99. <https://doi.org/10.1108/175061611111114671>
- Kolbjørnsrud, V. (2017). Agency problems and governance mechanisms in collaborative communities. *Strategic Organization*, 15(2), 141–173. <https://doi.org/10.1177/1476127016653727>

- Kristinsson, G. H., & Matthíasson, P. B. (2014). Public Administration reforms and results. *Veftímaritið Stjórnámál og stjórnsýsla*, 10(2), 299. <https://doi.org/10.13177/IRPA.A.2014.10.2.6>
- Kupi, M., & McBride, K. (2021). Agile development for digital government services: Challenges and success factors. *Lecture Notes in Computer Science (including sub-series Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 12849 LNCN, 139–150. https://doi.org/10.1007/978-3-030-82824-0_{_}11
- Kuziemski, M., & Misuraca, G. (2020). AI governance in the public sector: Three tales from the frontiers of automated decision-making in democratic settings. *Telecommunications Policy*, 44(6). <https://doi.org/10.1016/j.telpol.2020.101976>
- Lappi, T., & Aaltonen, K. (2017). Project governance in public sector agile software projects. *International Journal of Managing Projects in Business*, 10(2), 263–294. <https://doi.org/10.1108/IJMPB-04-2016-0031>
- Lember, V., Kattel, R., & Tõnurist, P. (2017). *Technological capacity in the public sector: The case of estonia* (Working Paper No. IIPP WP 2017-03). UCL Institute for Innovation and Public Purpose. <https://www.ucl.ac.uk/iipp>
- Lember, V., Kattel, R., & Tõnurist, P. (2018). Technological capacity in the public sector: The case of Estonia. *International Review of Administrative Sciences*, 84(2), 214–230. <https://doi.org/10.1177/0020852317735164>
- Lindgren, I., Madsen, C. O., Hofmann, S., & Melin, U. (2019). Close encounters of the digital kind: A research agenda for the digitalization of public services. *Government Information Quarterly*, 36(3), 427–436. <https://doi.org/10.1016/j.giq.2019.03.002>
- Lindquist, E. A. (2022). The digital era and public sector reforms: Transformation or new tools for competing values? *Canadian Public Administration*, 65(3), 547–568. <https://doi.org/10.1111/CAPA.12493>
- Locke, T. (2004). Analysing a print text. In *Critical discourse analysis* (pp. 54–73).
- Luna, A. J. O., Kruchten, P., & de Moura, H. P. (2015). Agile governance theory: Conceptual development.
- Luna, A. J. O., Kruchten, P., do E. Pedrosa, M. L., Neto, H. R. A., & Moura, H. P. M. (2014). State of the art of agile governance: A systematic review. *International Journal of Computer Science and Information Technology*, 6(5), 121–141. <https://doi.org/10.5121/ijcsit.2014.6510>
- MacLean, D., & Titah, R. (2022). A systematic literature review of empirical research on the impacts of e-government: A public value perspective. *Public Administration Review*, 82(1), 23–38. <https://doi.org/10.1111/puar.13413>
- Madan, R., & Ashok, M. (2023). AI adoption and diffusion in public administration: A systematic literature review and future research agenda. *Government Information Quarterly*, 40(1), 101774. <https://doi.org/10.1016/j.giq.2022.101774>
- McBride, K., Kupi, M., & Bryson, J. J. (2022). Untangling agile government: On the dual necessities of structure and agility. In M. Stephens, R. Awamleh, & F. Salem (Eds.), *Agile government: Emerging perspectives in public management* (pp. 21–34). World Scientific. https://doi.org/10.1142/9789811239700_0002
- Medaglia, R., Eaton, B., Hedman, J., & Whitley, E. A. (2022). Mechanisms of power inscription into IT governance: Lessons from two national digital identity systems. *Information Systems Journal*, 32(2). <https://doi.org/10.1111/isj.12325>
- Melin, U., & Axelsson, K. (2009). Managing e-service development - comparing two e-government case studies. *Transforming Government: People, Process and Policy*, 3(3), 248–270. <https://doi.org/10.1108/17506160910979351>

- Mergel, I. (2016). Agile innovation management in government: A research agenda. *Government Information Quarterly*, 33(3), 516–523. <https://doi.org/10.1016/j.giq.2016.07.004>
- Mergel, I. (2019). Digital service teams in government. *Government Information Quarterly*, 36(4), 101389. <https://doi.org/10.1016/j.giq.2019.07.001>
- Mergel, I., Gong, Y., & Bertot, J. (2018). Agile government: Systematic literature review and future research. *Government Information Quarterly*, 35(2), 291–298. <https://doi.org/10.1016/J.GIQ.2018.04.003>
- Mikhaylov, S. J., Esteve, M., & Champion, A. (2018). Artificial intelligence for the public sector: Opportunities and challenges of cross-sector collaboration. *Phil. Trans. R. Soc. A*, 376(20170357). <https://doi.org/10.1098/rsta.2017.0357>
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis : An expanded sourcebook*. Sage Publications.
- MIT. (1962). *Management and the computer of the future* (M. Greenberger, Ed.).
- Moore, M. H. (1995). *Creating public value: Strategic management in government*. Harvard University Press.
- Moore, M. H. (2013). *Recognizing public value*. Harvard University Press.
- Moore, M. H., & Khagram, S. (2004, March). *On creating public value: What business might learn from government about strategic management*.
- Mozaffar, H., & Candi, M. (2025). Extending the process frontier of digital transformation: A flow-oriented perspective. *Information Systems Journal*, 35(2), 720–760.
- Nabatchi, T. (2018). Public values frames in administration and governance. *Perspectives on Public Management and Governance*, 1(1), 59–72. <https://doi.org/10.1093/ppmgov/gvx009>
- Neumann, O., Kirklies, P.-C., & Hadorn, S. (2024). Does agile improve value creation in government? *Information Polity*, 29(2), 235–252. <https://doi.org/10.3233/IP-230060>
- Nilson, N. J. (1998). *Artificial intelligence: A new synthesis*. Morgan Kaufmann.
- Nyman, S., Bødker, M., & Blegind Jensen, T. (2023). Reforming work patterns or negotiating workloads? Exploring alternative pathways for digital productivity assistants through a problematization lens. *Journal of Information Technology*. <https://doi.org/10.1177/02683962231181602>
- OECD. (2014). Recommendation of the council on digital government strategies. *Public Governance and Territorial Development Directorate*, July, 12.
- OECD. (2019). *Public value in public service transformation: Working with change*. OECD Publishing. <https://doi.org/10.1787/47c17892-en>
- OECD. (2025). *OECD science, technology and innovation outlook 2025: Driving change in a shifting landscape*. OECD Publishing / OECD Publishing. Paris. <https://doi.org/10.1787/5fe57b90-en>
- O’Flynn, J. (2007). From new public management to public value: Paradigmatic change and managerial implications. *Australian Journal of Public Administration*, 66(3), 353–366. <https://doi.org/10.1111/j.1467-8500.2007.00545.x>
- Panagiotopoulos, P., Protogerou, A., & Caloghirou, Y. (2023). Dynamic capabilities and ICT utilization in public organizations: An Empirical testing in local government. *Long Range Planning*, 56(1). <https://doi.org/10.1016/J.LRP.2022.102251>
- Panagiotopoulos, P., Klievink, B., & Cordella, A. (2019). Public value creation in digital government. *JAI*. <https://doi.org/10.1016/j.giq.2019.101421>

- Pang, M. S., Lee, G., & Delone, W. H. (2014). IT resources, organizational capabilities, and value creation in public-sector organizations: A public-value management perspective. *Journal of Information Technology*, 29(3), 187–205. <https://doi.org/10.1057/jit.2014.2>
- Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). SAGE Publications.
- Pauletto, C. (2024). Public management, agility and innovation: The Swiss experience with the COVID-19 loan scheme. *International Review of Administrative Sciences*, 90(1), 116–131. <https://doi.org/10.1177/00208523221143280>
- Paulus, T., Woods, M., Atkins, D. P., & Macklin, R. (2017). The discourse of QDAS: Reporting practices of ATLAS.ti and NVivo users with implications for best practices. *International Journal of Social Research Methodology*, 20(1), 35–47. <https://doi.org/10.1080/13645579.2015.1102454>
- Pawson, R. (2013). *The science of evaluation: A realist manifesto*. SAGE Publications.
- Pawson, R., & Tilley, N. (1997). *Realistic evaluation*. sage.
- Pereira, G. V., Luna-Reyes, L. F., & Gil-Garcia, J. R. (2020). Governance innovations, digital transformation and the generation of public value in Smart City initiatives. *ACM International Conference Proceeding Series*, 602–608. <https://doi.org/10.1145/3428502.3428592>
- Pérez-Cruz, F., Prenio, J., Restoy, F., & Yong, J. (2025). *Managing explanations: How regulators can address AI explainability* (FSI Occasional Papers No. 24). Financial Stability Institute. <https://www.bis.org/fsi/fsipapers24.htm>
- Pollitt, C., & Dan, S. (2011). *The impacts of the new public management in europe - a meta-analysis*. Katholieke Universiteit Leuven. Leuven. https://www.researchgate.net/publication/321027230_The_Impacts_of_the_New_Public_Management_in_Europe_-_A_Meta-Analysis
- Pollitt, C., & Dan, S. (2013). Searching for impacts in performance-oriented management reform: A review of the european literature. *Public Performance & Management Review*, 37(1), 7–32. <https://doi.org/10.2753/PMR1530-9576370101>
- Reis, J., Santo, P. E., & Melão, N. (2019). Artificial intelligence in government services: A systematic literature review. https://doi.org/10.1007/978-3-030-16181-1_{_}23
- Rhodes, R. A., & Wanna, J. (2007). The limits to public value, or rescuing responsible government from the platonic guardians. *Australian Journal of Public Administration*, 66(4), 406–421. <https://doi.org/10.1111/J.1467-8500.2007.00553.X>;JOURNAL: JOURNAL:14678500;WGROU:STRING:PUBLICATION
- Robinson, S. C. (2020). Trust, transparency, and openness: How inclusion of cultural values shapes Nordic national public policy strategies for artificial intelligence (AI). *Technology in Society*, 63. <https://doi.org/10.1016/j.techsoc.2020.101421>
- Rodriguez Müller, A. P., Flores, C. C., Albrecht, V., Steen, T., & Cromptoets, J. (2021, December). A scoping review of empirical evidence on (Digital) public services co-creation. *MDPI*. <https://doi.org/10.3390/admsci11040130>
- Rose, J., Persson, J. S., & Heeager, L. T. (2015). How e-Government managers prioritise rival value positions: The efficiency imperative. *Information Polity*, 20(1), 35–59. <https://doi.org/10.3233/IP-150349>
- Russell, S., & Norvig, P. (2009). *Artificial intelligence: A modern approach* (S. Russell & P. Norvig, Eds.; 3rd ed.). Pearson Education Limited. <https://www.amazon.com/Artificial-Intelligence-Modern-Approach-3rd/dp/0136042597>

- Saunders, M., Lewis, P., & Thornhill, A. (2006). *Research methods for business students* (4th ed.). United Kingdom: Pearson Education M.U.A.
- Schiff, D. S., Schiff, K. J., & Pierson, P. (2022). Assessing public value failure in government adoption of *j*sc*p*_iartificial intelligence*j*/sc*p*_i. *Public Administration*, 100(3), 653–673. <https://doi.org/10.1111/padm.12742>
- Schreier, M. (2012). *Qualitative content analysis in practice*. SAGE Publications Ltd. www.sagepub.co.uk/schreier
- Schwab, K. (2017). *The fourth industrial revolution* (1st ed.). Penguin Random House.
- Scott, W. (1995). *Institutions and organizations*. SAGE Publications.
- Scupola, A., & Mergel, I. (2022). Co-production in digital transformation of public administration and public value creation: The case of Denmark. *Government Information Quarterly*, 39(1), 1–11. <https://doi.org/10.1016/J.GIQ.2021.101650>
- Sedlačko, M. (2020). The five tasks of public value management: Public value as a programme of administrative and societal democratisation. *NISPAcee Journal of Public Administration and Policy*, 13(2), 161–180. <https://doi.org/10.2478/NISPA-2020-0019>
- Selten, F., & Meijer, A. (2021). Managing algorithms for public value. *International Journal of Public Administration in the Digital Age*, 8(1), 1–16. <https://doi.org/10.4018/IJPADA.20210101.oa9>
- SIIA. (2001). *Software as a service: Strategic backgrounder*. SIIA (Software & Information Industry Association).
- Smith, R. F. I. (2004). Focusing on public value: Something new and something old. *Australian Journal of Public Administration*, 63(4), 68–79. <https://doi.org/10.1111/j.1467-8500.2004.00403.x>
- Soe, R.-M., & Drechsler, W. (2018). Agile local governments: Experimentation before implementation. *Government Information Quarterly*, 35(2), 323–335. <https://doi.org/10.1016/j.giq.2017.11.010>
- Stoker, G. (2006). Public value management: A new narrative for networked governance? *The American Review of Public Administration*, 36(1), 41–57. <https://doi.org/10.1177/0275074005282583>
- Talbot, C. (2010). *Theories of performance: Organizational and service improvement in the public domain*. Oxford University Press.
- Talib, S., Papastathopoulou, A., & Ahmad, S. Z. (2024). Sufficiency and necessity of big data capabilities for decision performance in the public sector. *Digital Policy, Regulation and Governance*, 26(1), 18–37. <https://doi.org/10.1108/DPRG-05-2023-0057>
- Tallon, P., Queiroz, M., Coltman, T., & Sharma, R. (2019). Information technology and the search for organizational agility: A systematic review with future research possibilities. *Journal of Strategic Information Systems*, 28(2), 218–237. <https://doi.org/10.1016/j.jsis.2018.12.002>
- Tangi, L., van Noordt, C., Combetto, M., Gattwinkel, D., & Pignatelli, F. (2022). *AI watch: European landscape on the use of artificial intelligence by the public sector*. Publications Office of the European Union. Luxembourg.
- Teece, D. J. (2003). *Essays in Technology Management and Policy: Selected Papers of David J Teece*. World Scientific Publishing Co. Pte. Ltd. <https://doi.org/10.1142/4545>

- Tetzlaff-Deas, B. (2024, July). CrowdStrike reveals cause of Microsoft global outage and exactly how long it will take to fix. <https://www.mirror.co.uk/news/world-news/breaking-crowdstrike-breaks-silence-after-33261319>
- Tilson, D., Lyytinen, K., & Sørensen, C. (2010). Digital infrastructures: The missing IS research agenda. *Information Systems Research*, 21(4), 748–759. <https://doi.org/10.1287/isre.1100.0318>
- Twizeyimana, J. D., & Andersson, A. (2019). The public value of E-Government – A literature review. *Government Information Quarterly*, 36(2), 167–178. <https://doi.org/10.1016/j.giq.2019.01.001>
- Ulbrich, F. (2010). Adopting shared services in a public-sector organization. *Transforming Government: People, Process and Policy*, 4(3), 249–265. <https://doi.org/10.1108/17506161011065226/FULL/PDF>
- van Noordt, C. (2023). *Public value creation with artificial intelligence technologies in public administration* [Doctoral dissertation, Tal Tech].
- van Noordt, C., & Misuraca, G. (2022). Artificial intelligence for the public sector: Results of landscaping the use of AI in government across the European Union. *Government Information Quarterly*, 39(3), 101714. <https://doi.org/10.1016/J.GIQ.2022.101714>
- van Noordt, C., Misuraca, G., & Mergel, I. (2024). Analysis of driving public values of AI initiatives in government in Europe. In Y. Charalabidis, R. Medaglia, & C. van Noordt (Eds.), *Research Handbook on Public Management and Artificial Intelligence*. Edward Elgar Publishing. <https://doi.org/10.4337/9781802207347>
- van Noordt, C., & Tangi, L. (2023). The dynamics of AI capability and its influence on public value creation of AI within public administration. *Government Information Quarterly*, 40(4), 101860. <https://doi.org/10.1016/j.giq.2023.101860>
- van Veenstra, A. F., & Timan, T. (2022). A public value impact assessment framework for digital governance. *Public Administration and Information Technology*, 38, 189–215. https://doi.org/10.1007/978-3-030-92945-9_{_}8
- Wessel, L. K., Baiyere, A., Ologeanu-Taddei, R., Cha, J., & Jensen, T. B. (2021). Unpacking the difference between digital transformation and IT-enabled organizational transformation. *Journal of the Association for information systems*, 22(1), 102–129.
- Williams, C. K. (2007, August). *Coordinating in federated information technology governance structures: A longitudinal process perspective* [Doctoral dissertation, University of Georgia].
- Wood, L. A., & Kroger, R. O. (2000). *Doing discourse analysis : Methods for studying action in talk and text* (1st ed.). Sage Publications.
- Yin, R. K. (2003). Case study research . Design and methods. <https://doi.org/10.1097/FCH.0b013e31822dda9e>
- Yin, R. K. (2009). Case study research: Design and methods. In *SAGE publications* (4th ed.). SAGE Publications.
- Zyzak, B., Sienkiewicz-Małjurek, K., & Jensen, M. R. (2024). Public value management in digital transformation: A scoping review. *International Journal of Public Sector Management*. <https://doi.org/10.1108/IJPSM-02-2024-0055>