

# Conceptual Mapping of Digital Transformation of Government Agencies: A Systematic Literature Review

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**Abstract**—Digital transformation in government agencies has become a major public sector reform agenda. However, existing academic studies remain conceptually fragmented across technological, organizational, and institutional perspectives. This study systematically maps the main concepts, interdimensional relationships, and dominant conceptual frameworks used to explain government digital transformation. It conducts a systematic literature review based on Kitchenham's protocol. It analyzes 30 reputable journal articles published between 2021 and 2025, sourced from Scopus, IEEE Xplore, SAGE Journals, Emerald Insight, and Taylor & Francis Online. The selection process was conducted in three stages and complemented by quality assessment to ensure methodological rigor. The findings show that government digital transformation is understood as multidimensional change in public organizations, involving the integration of digital technologies, changes in organizational structures and processes, institutional and governance influences, and orientation toward public value creation. However, relationships among these dimensions are generally treated implicitly and descriptively, without structured conceptual mapping. The literature is dominated by digital government evolution frameworks, co-evolutionary models, and public value frameworks, but these perspectives remain weakly integrated. This study contributes by developing an integrated conceptual mapping that clarifies the structure of knowledge and the interdimensional relationships in government digital transformation, serving as a basis for theoretical development and future research.

**Index Terms**—Digital transformation, government agencies, digital government, public value, systematic literature review.

## I. INTRODUCTION

Digital transformation has become a central issue in public administration reform across countries [1]. The development of digital technologies, such as big data, artificial intelligence, cloud computing, and digital platforms, has driven fundamental changes in how government agencies

design policies, manage organizations, and deliver public services [2]. In the public sector, digital transformation is understood as a comprehensive change process that includes structural, cultural, institutional, and governance dimensions, rather than the mere adoption of information technology [3]. Government digital transformation is closely related to the agenda of improving public value, transparency, accountability, and the quality of public services [4].

Although academic interest in the digital transformation of government agencies has increased significantly, this field still shows diversity in concepts, definitions, and analytical approaches. Terms such as digital government, e-government, smart government, and digital governance are often used interchangeably, with conceptual boundaries that are not always clear [4]–[6]. This condition leads to knowledge fragmentation, making findings difficult to compare and synthesize systematically [6]. Such conceptual inconsistency may hinder the accumulation of scientific knowledge and weaken the theoretical contribution of digital transformation studies in the public sector [4].

Most previous studies tend to focus on case studies, specific national contexts, or separate technical-administrative aspects [7]–[10]. These approaches produce rich contextual insights, but they have not provided a comprehensive picture of the conceptual structure of government digital transformation across contexts and disciplines [11]–[13]. Prior studies have often framed digital transformation as an instrumental phenomenon. However, it is theoretically related to changes in the logic of public organizations, actor relationships, and public value creation mechanisms [14], [15]. Some studies focus on the definition and evolution of government digital transformation [16], [17]. Others examine the co-evolution of technology, organizations, and institutions [18] and the dimensions of public value and transparency [1], [5], [19]. Operational studies and success frameworks have also been developed, in part, in the context of e-government and digital government [21]. Information systems research provides a general framework for cross-sectoral digital transformation without a specific focus on government agencies [22]–[24].

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Received: 22 May 2026; Revised: 11 July 2026; Accepted: 9 August 2026.

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These conditions indicate an urgent need for comprehensive conceptual mapping of the literature on government digital transformation. A systematic literature review is important for organizing dispersed findings, identifying key conceptual patterns, and mapping directions for development and remaining research gaps [4], [25], [26]. Through this approach, digital transformation can be understood as an integrated conceptual construct encompassing technology, organizations, institutions, and public value within a coherent analytical framework.

This study contributes by presenting a conceptual mapping of government digital transformation through a systematic literature review. Its main contribution lies in synthesizing themes and conceptual frameworks that clarify the fragmented structure of knowledge and provide a theoretical basis for future research and digital governance policy development.

## II. LITERATURE REVIEW

### A. Evolution of the Concept of Government Digital Transformation

Early studies of government digital transformation were rooted in the concept of e-government, which emphasizes the digitization of administrative services and processes [27]. Further developments indicate a shift toward digital and smart government, which view technology as a catalyst for broader organizational and public governance change [28]. Recent literature defines public sector digital transformation as a multidimensional change process that includes technology, organizational structures, and public value [29], [30].

### B. Main Conceptual Themes in Government Digital Transformation

The literature identifies several key conceptual themes. First, the technological dimension includes digital platforms, data interoperability, and service automation [29], [31], [32]. Second, the organizational dimension highlights changes in work processes, public employee competencies, and managerial capacity [33]–[35]. Third, the institutional dimension covers regulations, norms, and inter-institutional networks that shape the transformation context [36]–[38]. Fourth, the public value dimension emphasizes the contribution of digital transformation to service quality, transparency, and public trust [39]–[41].

### C. Interdimensional Relationships in Digital Transformation

The relationship among the conceptual dimensions of digital transformation is commonly explained through socio-technical and co-evolutionary perspectives, which view technology, organizations, and institutions as mutually influencing elements [42]–[44]. Technological change without organizational and institutional adjustment tends to have limited effects on public value [45], [46]. The public value perspective emphasizes that the interconnection among these dimensions determines the direction and meaning of government digital transformation [47].

### D. Dominant Conceptual Frameworks in the Literature

Several dominant conceptual frameworks are used to explain the digital transformation of government agencies. The digital government evolution framework explains the gradual increase in the complexity of digital government concepts and practices [48], [49]. The technology-organization-institution co-evolution framework emphasizes the dynamics of cross-dimensional interaction. The public value framework is used to assess the contribution of digital transformation to public goals [50], [51]. The digital government success framework integrates internal organizational perspectives and service-user experiences [52].

### E. Synthesis and Direction of Conceptual Development

Although various themes and frameworks have emerged, the literature indicates a need for more integrated conceptual mapping to connect themes, dimensions, and frameworks systematically. A systematic literature review provides an opportunity to synthesize fragmented knowledge structures and clarify the direction of theoretical development in government digital transformation [8], [34].

### F. Research Gap

Studies on government digital transformation remain fragmented, with many focusing on case studies, national contexts, or technical-administrative aspects. As a result, the field has not yet formed a complete conceptual picture across contexts and disciplines. Digital transformation is also often understood instrumentally, despite its close relationship with changes in public organizations and public value creation. The novelty of this study lies in its integrated conceptual mapping of government digital transformation through a systematic literature review that synthesizes multiple perspectives into a coherent framework specific to the government context.

## III. METHODOLOGY

The following review protocol was established to ensure consistency and reduce researcher bias. The research questions were structured using the population, intervention, comparison, outcome, and context components shown in Table 1.

Table 1.  
Structure of the Research Questions

| Component        | Description                                                                                                                                             |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Population (P)   | Government agencies and public sector organizations examined in digital transformation studies.                                                         |
| Intervention (I) | Digital transformation in government, including digital technology-based changes affecting processes, organizational structures, and public governance. |
| Comparison (C)   | Not explicitly applied because this study is conceptual and does not compare specific interventions or groups.                                          |
| Outcome (O)      | Concepts, dimensions, themes, and conceptual frameworks used to explain government digital transformation in academic literature.                       |
| Context (C)      | Government and public administration across countries and disciplines, without restriction to specific regions or government systems.                   |

The main research questions (RQs) are as follows:

RQ1. What are the main conceptual themes that shape studies of government digital transformation in the reviewed literature?

RQ2. How are the relationships among the conceptual dimensions of government digital transformation represented in the literature?

RQ3. What conceptual frameworks are dominantly used to explain government digital transformation?

This study uses a systematic literature review (SLR) approach based on Kitchenham's guidelines to ensure consistency and replicability. Literature searches were conducted in Scopus, SAGE Journals, IEEE Xplore, Emerald Insight, and Taylor & Francis Online. The search strategy used a Boolean string combining the keywords "digital transformation" AND "e-government" AND "digital government" AND "public sector" AND "information systems". The selected literature was screened using inclusion and exclusion criteria and then analyzed through conceptual synthesis to map themes, dimensions, and conceptual frameworks of government digital transformation.

Table 2.  
Boolean Search Strings

| Database                | Boolean String                                                                                                     |
|-------------------------|--------------------------------------------------------------------------------------------------------------------|
| Scopus                  | "digital transformation" AND "e-government" AND "digital government" AND "public sector" AND "information systems" |
| SAGE Journals           | "digital transformation" AND "e-government" AND "digital government" AND "public sector" AND "information systems" |
| IEEE Xplore             | "digital transformation" AND "e-government" AND "digital government" AND "public sector" AND "information systems" |
| Emerald Insight         | "digital transformation" AND "e-government" AND "digital government" AND "public sector" AND "information systems" |
| Taylor & Francis Online | "digital transformation" AND "e-government" AND "digital government" AND "public sector" AND "information systems" |

Inclusion criteria: reputable journal articles published between 2021 and 2025, focused on government agencies or the public sector, and containing a conceptual discussion of digital transformation.

Exclusion criteria: publications focused on the private sector, books or book chapters, non-academic sources, articles without full text, and studies that did not provide a relevant conceptual contribution to the mapping of government digital transformation.

Based on the inclusion and exclusion criteria, three stages of screening were applied: initial identification based on keywords, title and abstract screening, and full-text selection.

Table 3.  
Research Selection by Database

| Source                  | Initiation Phase | Stage 1 (based on title and abstract) | Stage 2 (Full-text selection) |
|-------------------------|------------------|---------------------------------------|-------------------------------|
| Scopus                  | 612              | 81                                    | 13                            |
| SAGE Journals           | 195              | 57                                    | 6                             |
| Emerald Insight         | 68               | 18                                    | 4                             |
| IEEE Xplore             | 174              | 22                                    | 3                             |
| Taylor & Francis Online | 249              | 49                                    | 4                             |
| Total                   | 1298             | 227                                   | 30                            |

Table 3 shows the study selection process by database. At the initiation stage, 1,298 articles were identified from five databases. After the first screening stage based on titles and abstracts, the number of studies was reduced to 227. Full-text selection then produced 30 articles that met all inclusion criteria and were used in the conceptual synthesis.

Each article was scored 0, 0.5, or 1, where 0 indicates that the criterion was not met, 0.5 indicates partial fulfillment, and 1 indicates full fulfillment. The final scoring system consisted of eight checklist items, with an eligibility threshold of 7.

Table 4.  
Quality Assessment Checklist

| Checklist | Question                                                                                                                                     |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------|
| C1        | Does the article clearly define or explain the concept of digital transformation of government agencies?                                     |
| C2        | Does the article identify key themes or conceptual dimensions related to the digital transformation of government agencies?                  |
| C3        | Is the conceptual framework or theoretical foundation relevant to the public sector context?                                                 |
| C4        | Does the article discuss the relationship or linkage between the conceptual dimensions of the digital transformation of government agencies? |
| C5        | Are the interactions between the technological, organizational, and institutional aspects explicitly or implicitly explained?                |
| C6        | Does the article develop a specific conceptual framework to explain the digital transformation of government agencies?                       |
| C7        | Is the conceptual framework described systematically and consistent with the objectives of the study?                                        |
| C8        | Does the article make a relevant conceptual contribution?                                                                                    |

#### A. Data Extraction

Based on the 30 selected primary articles, this study identified the main concepts, themes, and dimensions used to explain government digital transformation. Several findings used similar or overlapping terms, such as human resource capacity development, leadership roles, public trust, governance, and resource limitations. To maintain analytical consistency, overlapping concepts were synthesized and grouped into more structured conceptual categories aligned with the study objectives. The complete list of primary articles is presented in Table 5, using identification codes such as P1 and P2 for traceability throughout the discussion.

#### B. Data Synthesis

A data-driven approach was used to synthesize the concepts, themes, and conceptual dimensions of government digital transformation identified from the 30 primary articles. The synthesis process grouped elements with similar terms or meanings into more representative conceptual categories. For example, concepts related to human resource capacity building, digital competencies, and organizational learning were consolidated into a consistent conceptual theme. This approach maintains terminological consistency and facilitates cross-study analysis. The complete list of primary articles is presented in Table 5.

Table 5.  
Full List of Primary Articles

| ID  | Study                       | ID  | Study                              |
|-----|-----------------------------|-----|------------------------------------|
| P1  | Trip et al. [1]             | P16 | Volodina & Grossi [55]             |
| P2  | Novianto [2]                | P17 | Marienfeldt et al. [47]            |
| P3  | Mountasser & Abdellatif [4] | P18 | Mao & Zhu (2025)                   |
| P4  | Escobar et al. [8]          | P19 | Kitsios et al. (2023)              |
| P5  | Haug, Dan & Mergel [11]     | P20 | Marienfeldt et al. [47]            |
| P6  | Danielsen, Flak & Sæbø [17] | P21 | Schiama et al. [34]                |
| P7  | Ciancarini et al. [27]      | P22 | Müller et al. [35]                 |
| P8  | Vigoda-Gadot & Mizrahi [48] | P23 | Marjanovic & Kovacevic-Opacic [52] |
| P9  | Criado et al. [46]          | P24 | Tinjan [9]                         |
| P10 | Jafari et al. [51]          | P25 | Ly [3]                             |
| P11 | Scupola & Mergel [12]       | P26 | AbdulKareem & Oladimeji [49]       |
| P12 | Yukhno [13]                 | P27 | Djatkiko et al. [56]               |
| P13 | Das [29]                    | P28 | Aminah & Saksono [25]              |
| P14 | Virmandes et al. [39]       | P29 | Ciancarini et al. [27]             |
| P15 | Ahmed et al. [41]           | P30 | Vigoda-Gadot & Mizrahi [48]        |

#### IV. RESULTS

In line with Kitchenham's guidelines, this study employs a systematic literature review to develop a comprehensive understanding of government digital transformation. The literature selection process consisted of three main stages: initial identification using structured keywords, title and abstract screening, and full-text eligibility assessment. These stages produced 30 articles that met all inclusion criteria and were analyzed in depth for conceptual synthesis.

The literature search was conducted in five reputable academic databases: Scopus, IEEE Xplore, Taylor & Francis Online, Emerald Insight, and SAGE Journals. The initial search identified 1,298 relevant publications. After systematic screening, the retained articles were peer-reviewed journal publications from 2021 to 2025 that provided clear methodological reporting and a specific discussion of digital transformation in government agencies or the public sector.

##### A. Research Trend

Studies on government digital transformation during 2021–2025 show a shift from service digitization toward understanding transformation as multidimensional organizational change. The literature increasingly emphasizes the integration of technological, organizational, institutional, and public value dimensions, and it highlights interdimensional relationships through socio-technical and co-evolutionary perspectives.

Figure 1 shows a clear increase in the number of publications on government digital transformation during 2021–2025. Only one article was identified in 2021, increasing to two articles in 2022. A significant increase began in 2023, with 6 articles, followed by 10 in 2024 and a peak of 11 in 2025. This pattern shows accelerating academic attention to government digital transformation in the last three years, reflecting a shift from initial exploration toward more mature conceptual framework development and relational analysis.

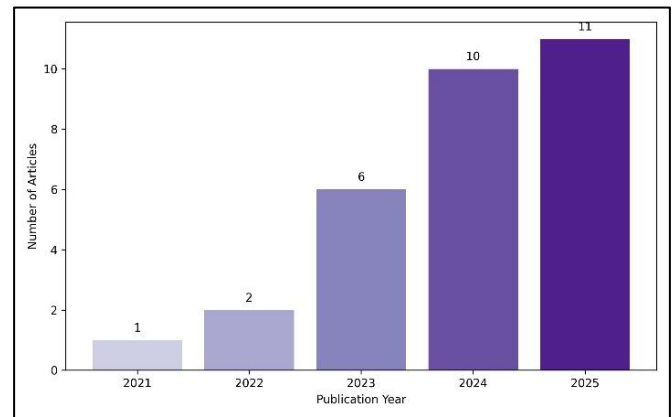


Fig. 1. Distribution of publications by year.

Figure 2 shows that studies of government digital transformation are dominated by cross-country studies that focus on conceptual mapping and theoretical synthesis. Among studies with specific national contexts, Indonesia and European Union countries, including Denmark and the Nordic countries, are the largest contributors, followed by China. Other national contexts, such as Cambodia, Bangladesh, Kenya, Thailand, and Mexico, appear only in limited numbers. This distribution indicates that the literature remains concentrated in certain regions, while the representation of developing countries outside East and Southeast Asia remains relatively low. This finding confirms a geographical gap in government digital transformation research and indicates opportunities for empirical studies in underrepresented contexts.

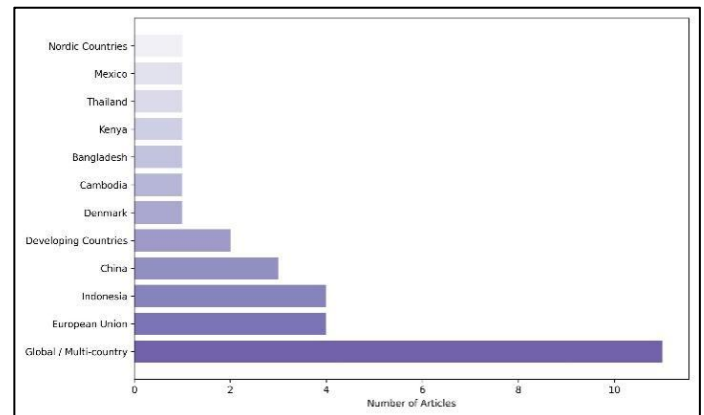


Fig. 2. Distribution of articles by country.

##### B. Main Conceptual Themes of Government Digital Transformation

The literature mapping shows that government digital transformation is understood as a multidimensional change in public organizations that goes beyond the application of information technology. The literature confirms that digital transformation includes simultaneous changes in organizational structures, work processes, bureaucratic culture, and decision-making mechanisms in government. This perspective positions digital transformation as a long-term organizational change process that affects how government agencies operate and interact with stakeholders.

Table 6.  
Main Conceptual Themes of Government Digital Transformation

| No. | Key Conceptual Themes                                                    | Description                                                                                                                                                                                    | Frequency<br>( <i>n</i> = 30) | Primary Article (ID)                                                        |
|-----|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------------------------------------------------------------------------|
| 1   | Digital transformation as a multidimensional organizational change       | Digital transformation is a comprehensive change to the structure, processes, culture, and working mechanisms of public organizations, going beyond the adoption of technology alone.          | 22                            | P1, P2, P3, P4, P5, P6, P8, P9, P11, P12, P13, P16, P17, P19, P24, P28, P30 |
| 2   | Integration of digital technology in governance processes and structures | Digital technology serves as an enabler integrated into the redesign of work processes, organizational coordination, and the management of government data and information.                    | 18                            | P1, P4, P5, P7, P9, P10, P11, P14, P15, P18, P19, P21, P22, P25, P27        |
| 3   | The role of governance and institutions                                  | Regulations, institutional norms, leadership, and coordination mechanisms between institutions shape the direction, scope, and character of the digital transformation of government agencies. | 20                            | P5, P6, P8, P9, P11, P12, P13, P16, P17, P18, P20, P24, P26, P27, P30       |
| 4   | Digital transformation orientation towards public value creation         | Digital transformation aims to improve the quality of public services, transparency, accountability, and participation, and to strengthen public trust in the government.                      | 16                            | P1, P8, P11, P13, P14, P15, P18, P24, P26, P27, P28, P30                    |
| 5   | Digital Transformation as a Socio-Technical and Co-evolutionary Process  | Transformation is understood as the result of dynamic interactions between technology, people, organizations, and institutional contexts that develop simultaneously                           | 14                            | P5, P6, P8, P9, P11, P16, P17, P20, P23, P24, P30                           |

The next conceptual theme emphasizes the integration of digital technology into government processes and structures. Technology is positioned as an enabler of change, supporting the restructuring of public service processes, improving coordination across units, and strengthening data and information management capacity. However, the literature shows that technology does not stand alone; rather, it is integrated with broader organizational and institutional change.

The literature consistently highlights the role of governance and institutions in shaping the direction and character of government digital transformation. Regulations, institutional norms, and inter-agency coordination mechanisms are important factors influencing how digital transformation is designed and implemented. This theme indicates that government digital transformation cannot be separated from the institutional context and public governance system in which it occurs.

Another key conceptual theme concerns the orientation of digital transformation toward public value creation. Digital transformation is understood as an effort to improve the quality of public services, transparency, accountability, and public trust in government. This public-value orientation broadens the meaning of digital transformation beyond internal efficiency to encompass broader social and governance impacts.

The conceptual mapping in Table 6 shows that most of the literature interprets government digital transformation as multidimensional change in public organizations. This theme appears predominantly in articles such as P1, P2, P4, P5, P6, P8, P9, P16, and P17, which affirm that digital transformation cannot be reduced to technology adoption alone. However, critical analysis shows that although multidimensionality is often mentioned, not all studies consistently explain the relationships and relative weight among the dimensions; therefore, the resulting understanding remains largely declarative.

The theme of integrating digital technology into government processes and structures appears in articles P1, P4, P7, P9, P10, P11, and P19, which position technology as the primary enabler of change. However, some studies in this group maintain a technology-centric logic by treating organizational and institutional change as passive responses to technological innovation. This pattern limits the literature's ability to explain digital transformation as a process guided by strategic choices and public governance.

The role of governance and institutions emerges strongly in articles P5, P6, P8, P11, P12, P16, P17, and P24, which emphasize regulation, inter-agency coordination, and institutional capacity. However, many studies still treat institutions as relatively static contexts and insufficiently discuss how digital transformation reshapes rules, norms, and power relations within government.

The theme of public value creation is reflected in articles P1, P8, P11, P13, P14, P24, P27, and P30, especially through discussions of transparency, trust, and service quality. Critical analysis shows that public value is often framed as a normative goal. However, it is rarely operationalized as an analytical construct directly linked to configurations of technological, organizational, and institutional dimensions.

Finally, the meaning of digital transformation as a socio-technical and co-evolutionary process appears in articles P5, P6, P8, P9, P11, P16, P17, and P24. Although this perspective offers a more dynamic framework, its application remains limited and has not become mainstream. This analysis confirms that, although the literature has moved toward a more holistic understanding, a conceptual gap remains in integrating the main themes into a coherent, operational framework. The novelty of this study lies in its address of this gap.

### C. Interdimensional Relationships in Government Digital Transformation

The literature synthesis shows that government digital transformation is understood as a process shaped by dynamic relationships among conceptual dimensions, particularly technology, organizations, institutions, and public value. The literature consistently asserts that change in one dimension does not occur in isolation but triggers adjustments and responses in other dimensions. Digital transformation is therefore positioned as an interconnected change process in public organizations.

The most dominant relationship is between digital technology and organizational change. Digital technology is understood as a catalyst for change, while successful transformation depends heavily on public organizations' ability to adjust their structures, work processes, and bureaucratic culture. The literature shows that technology adoption without organizational change tends to produce limited and unsustainable impacts. Institutional and governance contexts serve as frameworks that shape and constrain interactions between technology and organizations.

Regulations, institutional norms, and inter-agency coordination mechanisms affect how technology is integrated into government processes and how organizational change can be implemented. This relationship emphasizes that government digital transformation is highly contextual and depends on the surrounding public governance system. The dimension of public value arises from the synergy among technology, organizations, and institutions. The literature positions public value, including service quality, transparency, accountability, and public trust, as a consequence of aligned interactions among these dimensions. Public value is not a direct output of digital technology; rather, it results from the configuration of relationships among the conceptual dimensions of digital transformation.

Based on Table 7, the relationship between digital technology and organizational change is the most dominant relational pattern in the literature. Articles such as P1, P4, P5, P6, P8, P9, P11, P16, and P17 affirm that the adoption of digital technology drives the restructuring of work processes and bureaucratic practices.

Most studies still describe this relationship linearly, with technology positioned as the primary driver and organizations as reactive actors; therefore, reciprocal dynamics among dimensions have not been fully elaborated. The role of governance and institutions in guiding digital transformation is evident in articles P5, P6, P8, P11, P12, P16, and P17, which highlight the importance of policies, regulations, and inter-agency coordination.

However, institutions are often treated as relatively stable frameworks rather than as entities that also change as a result of digital transformation. Only a small number of studies, such as P16 and P17, explicitly discuss institutional transformation as an outcome of interactions between digitalization and organizational practices. The relationship between digital transformation and public value creation is widely discussed in articles P1, P8, P11, P13, P14, P24, and P30, particularly with respect to transparency, public trust, and service quality.

In addition, public value is generally positioned as a normative output without a detailed explanation of how specific configurations of technology-organization-institution relationships produce different forms of public value. Thus, this relational dimension remains insufficiently operationalized. The co-evolution of technology, organizations, and institutions, reflected in articles P5, P6, P8, P9, P11, P16, and P17, offers a more dynamic perspective. However, this approach has not yet become mainstream and is often used as a general conceptual framework without clear elaboration of empirical mechanisms. A similar pattern is found in discussions of actors and leadership in articles P8, P9, P10, P21, and P22, which recognize actors as interdimensional bridges but do not systematically connect them to institutional change and public value creation.

Table 7  
Relationships among Conceptual Dimensions of Government Digital Transformation

| No. | Key Conceptual Themes                                         | Description                                                                                                                                                 | Frequency (n = 30) | Primary Article (ID)                                                          |
|-----|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------|
| 1   | The relationship between technology and organizational change | Digital technology is positioned as a trigger for change that encourages adjustments to the structure, work processes, and culture of public organizations. | 21                 | P1, P4, P5, P6, P8, P9, P10, P11, P16, P17, P19, P20, P21, P22, P23, P24, P25 |
| 2   | The role of institutional context and governance              | Regulations, institutional norms, and coordination mechanisms shape the direction and boundaries of interaction between technology and organizations.       | 19                 | P5, P6, P8, P11, P12, P13, P16, P17, P18, P20, P24, P26, P27, P30             |
| 3   | Technology-organization-institutional synergy                 | Digital transformation is understood as the result of co-evolution between technology, organizational structures, and public institutions.                  | 17                 | P1, P8, P11, P13, P14, P15, P18, P24, P26, P27, P28, P30                      |
| 4   | Public value as a result of interdimensional interaction      | Public value arises from the configuration of relationships among technology, organizations, and institutions.                                              | 15                 | P5, P6, P8, P9, P11, P16, P17, P20, P23, P24, P30                             |
| 5   | The Role of Actors and Leadership in Bridging Dimensions      | The leadership and capacity of public actors serve as a link between technology, organizations, and institutions in the transformation process              | 14                 | P8, P9, P10, P14, P16, P17, P21, P22, P24, P25, P26                           |

#### D. Dominant Conceptual Frameworks in Studies of Government Digital Transformation

The literature synthesis shows that studies of government digital transformation employ various conceptual frameworks to explain the dynamics and meaning of transformation, though no single framework is dominant. The literature tends to adopt and adapt several complementary frameworks depending on the focus of analysis and the discipline used.

The most commonly used framework is the digital government evolution framework, which views digital transformation as a gradual process from service digitization to integrated digital governance. This framework is widely used to explain the development of functions, capabilities, and roles of digital technology in government agencies, while also highlighting the shifting role of public organizations in service provision and governance.

The literature also widely uses the technology-organization-institution co-evolution framework, which emphasizes that digital transformation results from simultaneous interaction and adjustment among these three dimensions. This framework explains why the adoption of digital technologies has different impacts across government contexts, depending on organizational structures and the surrounding institutional environment. This approach reinforces the view that government digital transformation is contextual and non-linear.

Another prominent conceptual framework is the public value framework, which positions digital transformation as a means of creating public value, such as transparency, accountability, participation, and public trust. This framework expands the analytical focus from internal organizational efficiency to the impact of digital transformation on governance and the relationship between government and citizens.

In addition to these main frameworks, some studies combine cross-disciplinary approaches, particularly from information systems and public administration, to build a more comprehensive understanding of government digital transformation. However, the synthesis shows that the integration of conceptual frameworks remains partial and has not yet been formulated into a fully integrated conceptual model.

The results in Table 8 show that the digital government evolution framework is the most dominant approach in the literature on government digital transformation. This framework is used in articles P1, P2, P3, P4, P5, P6, P11, P16, P17, and P19, which describe digital transformation as a gradual process from e-government to digital and smart government. Although this framework is useful for explaining the direction of policy and technological development, it tends to be descriptive and linear; thus, it is less able to capture complex organizational and institutional change.

The technology-organization-institution co-evolution framework used in articles P5, P6, P8, P9, P11, P16, and P17 offers a more dynamic perspective by emphasizing reciprocal interdimensional relationships. However, this framework is still used only to a limited extent and is often abstract, lacking clear operational elaboration. As a result, despite its strong theoretical potential, the co-evolution framework has not yet become a mainstream approach in government digital transformation studies.

The public value and digital governance framework, reflected in articles P1, P8, P11, P13, P14, P24, P26, and P30, positions transparency, accountability, and public trust as the main goals of digital transformation. However, this framework is often used normatively and remains limited in its ability to explain how public value is generated through specific configurations of technological, organizational, and institutional relationships. Therefore, integration between the public value framework and structural frameworks remains relatively weak.

Table 8.  
Dominant Conceptual Frameworks in Studies of Government Digital Transformation

| No. | Key Conceptual Themes                                            | Description                                                                                                                                       | Frequency<br>( <i>n</i> = 30) | Primary Article (ID)                                                   |
|-----|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|------------------------------------------------------------------------|
| 1   | Digital Government Evolution Framework                           | A framework that explains digital transformation as a stage of development from e-government to digital and smart government                      | 18                            | P1, P2, P3, P4, P5, P6, P7, P9, P11, P12, P16, P17, P19, P24, P28, P30 |
| 2   | Framework for Technology–Organization–Institutional Co-evolution | A framework that views digital transformation as a dynamic and simultaneous process between technologies, organizations, actors, and institutions | 14                            | P5, P6, P8, P9, P11, P16, P17, P20, P23, P24, P30                      |
| 3   | Public Value Framework and Digital Governance                    | A framework that puts public value creation, transparency, and accountability at the heart of government's digital transformation                 | 13                            | P1, P8, P11, P13, P14, P15, P18, P24, P26, P27, P30                    |
| 4   | Digital Organizational and Leadership Capability Framework       | A framework that emphasizes the role of leadership, dynamic capabilities, and human resource capacity in driving digital transformation           | 12                            | P9, P10, P16, P17, P21, P22, P23, P25                                  |
| 5   | Socio-Technical Framework                                        | A framework that emphasizes the interconnectedness between technological systems and social systems in public organizations                       | 11                            | P5, P6, P8, P9, P11, P16, P17, P24                                     |

The organizational capability and digital leadership framework in articles P9, P10, P16, P17, P21, and P22 highlights the importance of leadership and internal capacity in public organizations. However, the focus of this framework is often isolated at the organizational level and insufficiently linked to broader institutional dynamics. A similar pattern can be seen in the socio-technical framework used in articles P5, P6, P8, and P11, which acknowledges the interconnection between social and technological systems but does not explicitly integrate the public value dimension.

These results show that the literature on government digital transformation remains fragmented in its conceptual frameworks. None of the dominant frameworks fully integrates stages of evolution, interdimensional relationships, actor capabilities, and public value orientation. This gap confirms a research gap in theoretical integration. It reinforces the novelty of this study in developing an integrated conceptual mapping that connects dominant frameworks into a coherent structure of understanding specific to the government context.

### E. Integrated Conceptual Mapping

Based on the synthesis of RQ1–RQ3 and the patterns summarized in Tables 6–8, Fig. 3 integrates the fragmented themes and frameworks into a relational structure. Institutional and governance conditions establish the rules, norms, policy direction, and coordination environment of transformation.

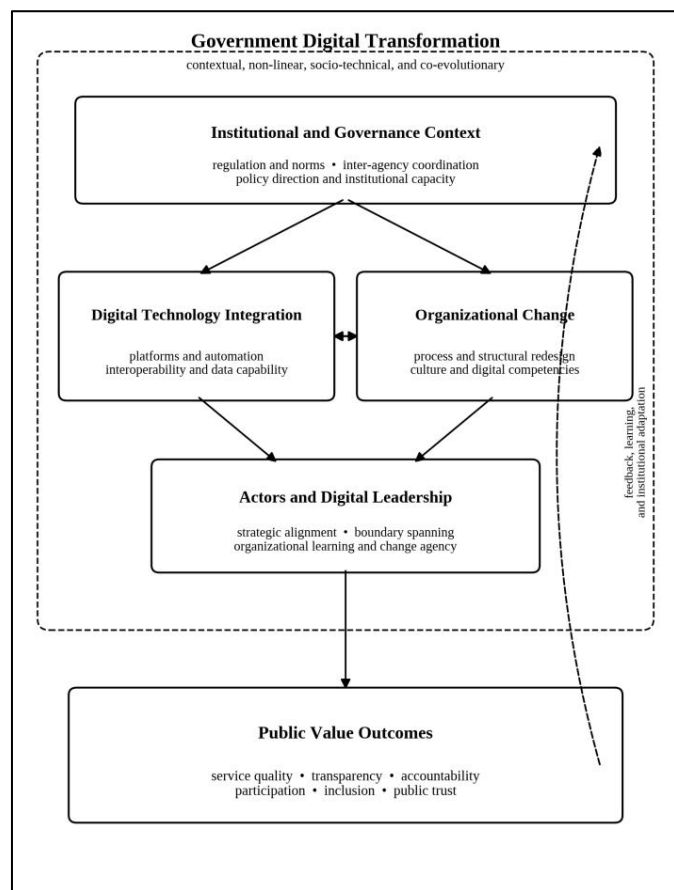


Fig. 3. Integrated conceptual mapping of government digital transformation.

Within this context, digital technology integration and organizational change co-evolve rather than follow a strictly linear sequence. Actors and digital leadership bridge these dimensions by aligning technological choices with organizational capabilities and institutional requirements. Public value is positioned as the principal outcome of aligned interdimensional interaction. In contrast, feedback from service results, transparency, accountability, participation, inclusion, and public trust may reshape subsequent institutional arrangements, organizational learning, and technology choices.

Unlike maturity models that assume a universal progression, the proposed mapping treats transformation trajectories as contextual and recursive. It also provides an operational basis for future empirical studies: technology can be examined through interoperability, platform integration, data capability, and automation; organizational change through process redesign, structure, culture, and digital competencies; institutional context through regulation and inter-agency coordination; actors through leadership and boundary-spanning capacity; and public value through service and governance outcomes. These dimensions can be tested as direct, mediating, moderating, or feedback relationships across agencies and national settings. Thus, the mapping addresses the integrative gap identified in the review without claiming a single deterministic sequence for all government organizations.

## V. DISCUSSION AND CONCLUSION

### A. Discussion

#### 1) Concepts and themes of government digital transformation

The literature broadly agrees that government digital transformation is a multidimensional change in public organizations, encompassing technological, organizational, institutional, and public-value aspects [2], [4], [8]. Nevertheless, critical analysis suggests that this consensus remains largely normative and has not been fully supported by consistent conceptual deepening, as many studies use the term "multidimensional" without explicitly defining, bounding, or operationalizing each dimension in the government context [11], [17].

The integration of digital technology into government processes and structures is normatively understood as a means of supporting organizational change, not as the sole determinant of transformation. However, in analytical practice, several studies still implicitly maintain a technology-centric logic by treating digital innovation as the primary starting point of transformation, while positioning organizational and institutional change as a subsequent consequence [10], [27], [46]. This pattern may reduce digital transformation to a set of administratively framed technology initiatives without substantively challenging established bureaucratic logic.

The role of governance and institutions is recognized as an important factor shaping the direction and sustainability of government digital transformation, especially through policies, regulations, and inter-agency coordination mechanisms [12], [53], [54]. However, much of the literature still treats institutions as relatively static structural contexts and therefore fails to capture the conflicts, interest negotiations, and power relations that accompany digital transformation processes [55].

The orientation toward public value creation also presents conceptual ambiguity. Public value is often invoked as a normative justification for digital transformation, particularly regarding transparency, accountability, and service quality improvement, without sufficient critical discussion of potential trade-offs and unintended impacts [48], [56]. Several studies show that the realization of public value is strongly influenced by social context and organizational capacity; therefore, digital transformation does not always produce equitable benefits for all citizen groups [9], [25].

Although the literature has moved toward a more holistic understanding of government digital transformation, a conceptual gap remains between recognition of multidimensionality and depth of theoretical analysis. The literature has not fully integrated technological, organizational, institutional, and public value dimensions into a single reflective and critical conceptual framework. Consequently, government digital transformation is still often positioned as a normative agenda rather than as a complex process of public organizational change shaped by power dynamics [48], [57].

## 2) *Interdimensional relationships in government digital transformation*

At the level of interdimensional relationships, the literature increasingly recognizes that government digital transformation is shaped by interactions among digital technology, organizational change, institutional context, and public value orientation [8], [11], [17]. However, critical analysis reveals that these relationships are often treated implicitly and descriptively, without clear conceptual mapping of interaction mechanisms, sequences of change, or reciprocal dynamics among dimensions [12], [46], [53].

Many studies tend to place technology as the main driver of transformation, while organizational and institutional dimensions are positioned as reactive supporting factors. This pattern indirectly maintains technology-centric logic, even though the literature normatively rejects technological determinism and emphasizes organizational change and public governance [10], [34]. Such an approach limits understanding of digital transformation as a co-evolutionary process because interdimensional interactions are rarely analyzed as relationships that mutually shape and develop simultaneously [52], [58].

Public value is often treated as the final result of digital transformation without in-depth discussion of how configurations of relationships among technology, organizations, and institutions produce different forms of public value. As a result, public value is more often used as normative justification than as an analytical construct that can be compared across government contexts [39], [41], [48]. This approach makes it difficult to identify trade-offs, unequal access, and unintended impacts of digital transformation [9], [25].

The findings for RQ2 confirm a conceptual gap in the literature related to mapping relationships among the dimensions of government digital transformation. Although interdimensional linkages are widely acknowledged, the literature has not provided a structured, integrated relational framework to systematically explain the dynamics of change [54]–[56]. This gap reinforces the novelty of this study in developing a conceptual synthesis that clarifies interdimensional relationships and positions government digital transformation as a complex, dynamic, and contextual process of public organizational change.

## 3) *Conceptual Frameworks for Government Digital Transformation*

At the conceptual framework level, the literature on government digital transformation shows a diversity of theoretical approaches, ranging from digital government evolution and technology-organization-institution co-evolution to public value frameworks [2], [4], [8]. This diversity enriches analytical perspectives, but it also reflects the absence of an integrated and widely agreed conceptual framework [11], [17].

Most studies selectively adopt existing frameworks, emphasizing certain dimensions aligned with the research focus while treating others as peripheral. This approach produces contextually rich understandings, but it also contributes to conceptual fragmentation because the frameworks used are rarely linked explicitly to one another [12], [27], [59]. This condition makes it difficult to compare findings across studies and hinders the coherent accumulation of knowledge [60], [61].

The digital government evolution framework is often used to describe stages of technological development and public services, but it is relatively limited in explaining complex organizational and institutional change [46], [48]. In contrast, the co-evolution framework offers a more dynamic understanding of interdimensional interactions, but it is often applied abstractly without clear operational elaboration [52], [58]. Public value frameworks are frequently used as normative foundations, but they have not been systematically integrated with structural and processual frameworks of digital transformation [55].

The literature still faces an integrative gap among descriptive, relational, and normative frameworks in explaining government digital transformation. The absence of a conceptual model that explicitly links stages of transformation, interdimensional relationships, and public value orientation limits the literature's ability to explain government digital transformation comprehensively [27], [34], [48]. The novelty of this study lies in developing an integrated conceptual mapping that connects dominant frameworks into a coherent, context-specific structure of understanding.

## B. Conclusion

This study presents a systematic literature review that maps the concepts, interdimensional relationships, and conceptual frameworks of government digital transformation. The findings show that digital transformation is understood as a multidimensional change in public organizations, involving the integration of digital technology, organizational adjustment, the institutional context, and a public value orientation. This understanding marks an important shift from technical digitization toward a more holistic transformational perspective.

At the level of interdimensional relationships, government digital transformation is understood as a socio-technical, co-evolutionary process in which technology, organizations, and institutions interact and evolve simultaneously. Public value emerges from the configuration of these interdimensional relationships, rather than as a direct consequence of adopting digital technology. This finding confirms the importance of a relational approach in explaining the dynamics of government digital transformation.

This study identifies several dominant conceptual frameworks in the literature, although their use remains fragmented and not fully integrated. The absence of a comprehensive conceptual framework limits the literature's ability to explain government digital transformation across contexts and disciplines. By developing the integrated conceptual mapping shown in Fig. 3, this study connects institutional context, technology integration, organizational change, actors and digital leadership, and public value outcomes within a coherent relational structure. This contribution strengthens the theoretical foundation of government digital transformation research and provides a clearer conceptual direction for future studies.

This systematic literature review is limited to journal articles published within a specific time span and sourced from major academic databases, which may exclude relevant studies outside this scope or in other publication formats. Because the study focuses on conceptual synthesis, it does not empirically evaluate the dynamics of digital transformation implementation in specific government contexts. Future studies are recommended to test the proposed conceptual mapping through cross-country empirical studies, comparative approaches, or mixed methods, and to integrate actor analysis, power dynamics, and institutional variation to deepen understanding of government digital transformation processes.

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