

# Dynamic Capabilities and Technological Reconfiguration in the Public Sector: A Strategic Approach to Technology as a Critical Institutional Resource

Irrlas Evelline de Carvalho Santos<sup>1</sup>; Ana de Medeiros Fernandes dos Santos<sup>2</sup>;  
Beatriz Bahia Gomes da Silva<sup>3</sup>; Fábio André De Farias Vilhena<sup>4</sup>;  
Felipe Gramonski dos Santos<sup>5</sup>; José Wellgton do Nascimento<sup>6</sup>;  
Paulo Roberto de Araujo<sup>7</sup>; Priscila Freitas Araujo<sup>8</sup>;  
Rafael Soares Cardoso<sup>9</sup>; Tiago Luz De Oliveira<sup>10</sup>

<sup>1</sup> Universidade Federal do Sergipe

<sup>2</sup> Universidade Federal Fluminense

<sup>3</sup> Universidade Federal Fluminense

<sup>4</sup> Faculdade Interamericana de Ciências Sociais

<sup>5</sup> MUST University

<sup>6</sup> MUST University

<sup>7</sup> Universidade Federal Fluminense

<sup>8</sup> Universidade Federal Fluminense

<sup>9</sup> Faculdade Cesgranrio

<sup>10</sup> Universidade Federal do Amazonas

Publication Date: 2026/02/27

**Abstract:** Digital transformation has assumed a structuring role in the reorganization of the public sector, redefining administrative processes, governance models, and modes of service delivery. The incorporation of digital technologies has moved beyond mere instrumental modernization and now directly influences decision-making structures, operational flows, and patterns of institutional coordination. In this context, digitalization cannot be understood solely as technical adoption but rather as an organizational phenomenon shaped by institutional pressures, normative expectations, and regulatory arrangements inherent to public administration. Although the literature acknowledges the relevance of digital transformation in public management, the articulation between dynamic capabilities and the understanding of technology as a critical institutional resource remains underexplored, particularly when considering the structural specificities of the State. The existing gap lies in the absence of analytical integration between institutional tradition and strategic perspectives, as much of the literature treats digitalization either as a technical variable or as an isolated normative response, without examining the internal mechanisms that enable its organizational stabilization. Understanding technology as a critical institutional resource requires recognizing that its effectiveness depends on the organization's capacity to mobilize, integrate, and reconfigure assets in response to complex environmental pressures. Against this backdrop, this article aims to analyze dynamic capabilities and technological reconfiguration in the public sector, considering technology as a critical institutional resource. To achieve this objective, a qualitative approach based on an integrative literature review was adopted, allowing for the systematization and interpretation of theoretical and empirical contributions that connect institutional arrangements, organizational resources, and digital transformation within public administration. The analysis led to the identification of four analytical categories—internal technological capability, administrative automation and operational reconfiguration, dynamic capabilities and institutional learning, and institutionalization of digital transformation and organizational legitimacy—which structure the phenomenon into interrelated dimensions. The findings indicate that technological transformation in the public sector emerges from the interaction between institutional pressures and internal strategic mechanisms, mediated by dynamic capabilities that enable structural reorganization and the consolidation of organizational legitimacy. It is concluded that technology acquires a structuring character when integrated into

**administrative routines and specific institutional arrangements, thereby constituting a critical institutional resource whose effectiveness depends on the articulation between governance, organizational structure, and regulatory context.**

**Keywords:** *Digital Transformation; Dynamic Capabilities; Institutional Pressures; Public Administration; Organizational Reconfiguration.*

**How to Cite:** Irlas Evelline de Carvalho Santos; Ana de Medeiros Fernandes dos Santos; Beatriz Bahia Gomes da Silva; Fábio André De Farias Vilhena; Felipe Gramonski dos Santos; José Wellgton do Nascimento; Paulo Roberto de Araujo; Priscila Freitas Araujo; Rafael Soares Cardoso; Tiago Luz De Oliveira (2026) Dynamic Capabilities and Technological Reconfiguration in the Public Sector: A Strategic Approach to Technology as a Critical Institutional Resource. *International Journal of Innovative Science and Research Technology*, 11(2), 1873-1878. <https://doi.org/10.38124/ijisrt/26feb831>

## I. INTRODUCTION

Digital transformation has assumed a structuring role in the reorganization of the public sector, redefining administrative processes, governance models, and modes of service delivery. Haug, Edlmann, and Haug (2023) demonstrate that digitalization entails continuous organizational reconfiguration, affecting routines, structures, and decision-making mechanisms. Wirtz and Müller (2022) argue that the incorporation of digital technologies requires strategic alignment and institutional capacity to integrate systems, data, and formal structures. Bannister and Connolly (2020) contend that technological adoption in public administration does not result solely from instrumental choices but is also shaped by institutional pressures that frame expectations of modernization and conformity.

Although these contributions highlight the centrality of digitalization in public organizational dynamics, the articulation between dynamic capabilities and the understanding of technology as a critical institutional resource remains insufficiently explored. Teece (2018) conceptualizes dynamic capabilities as mechanisms of strategic adaptation aimed at the renewal and reconfiguration of resources in changing environments; however, the application of this lens to the public sector—particularly from the perspective of institutional pressures that condition technological adoption—still lacks systematic analytical integration.

In light of this gap, this article aims to analyze dynamic capabilities and technological reconfiguration in the public sector, considering technology as a critical institutional resource, as indicated in the title of this study. To this end, an integrative literature review was adopted as the methodological procedure, with the objective of systematizing and interpreting theoretical and empirical contributions that articulate dynamic capabilities, technological transformation, and the institutional environment within the context of public administration.

## II. METHODS

This study adopts a qualitative, theoretical-analytical approach grounded in an integrative literature review. The choice of an integrative review is justified by the need to systematize and interpret theoretical and empirical contributions derived from different analytical traditions—Institutional Theory, the Resource-Based View, and dynamic capabilities—in order to construct an articulated conceptual framework applicable to the public sector. Unlike systematic

reviews, which prioritize rigid criteria of exhaustiveness and statistical replicability, the integrative review allows for the combination of conceptual and empirical studies, thereby expanding the interpretative understanding of the phenomenon.

The selection of studies was guided by criteria of thematic relevance, theoretical significance, and alignment with the research object, encompassing publications that addressed: (i) digital transformation in the public sector; (ii) technology as an organizational resource; (iii) dynamic capabilities applied to public administration; and (iv) processes of organizational reconfiguration and institutional legitimation. Priority was given to articles published in indexed scientific journals, recognized academic books, and recent studies that engage with classical authors within the respective theoretical approaches.

The identification of sources involved searches in widely recognized international academic databases, including Google Scholar, Scopus, and Web of Science, using combinations of English descriptors such as “digital transformation in public sector,” “dynamic capabilities,” “institutional pressures,” “public administration innovation,” and “technology as organizational resource.” The analysis included foundational classical works essential to the theoretical framing, as well as contemporary studies that update and apply these perspectives to the context of public administration.

After selection, the studies were subjected to analytical reading and thematic categorization, enabling the identification of recurring patterns and central constructs. The systematization resulted in the organization of four analytical categories: internal technological capability; administrative automation and operational reconfiguration; dynamic capabilities and institutional learning; and institutionalization of digital transformation and organizational legitimation. These categories served as structuring axes for integrating the findings and constructing the proposed interpretative model.

The analysis was conducted interpretatively, seeking to identify conceptual mechanisms that articulate institutional pressures, technological resources, and organizational capabilities. The objective was not to quantify occurrences or test statistical hypotheses, but to understand how different theoretical traditions converge in explaining technological transformation in the public sector. In this way, the adopted methodology enabled the construction of an integrative

framework capable of supporting the discussion of results within a coherent theoretical structure.

### III. LITERATURE REVIEW

DiMaggio and Powell (1983) demonstrate that structured organizational fields produce progressive homogenization of practices through coercive, normative, and mimetic mechanisms that reduce uncertainty and stabilize institutional expectations. According to Suddaby, Bitektine, and Haack (2017), legitimacy organizes collective perceptions of appropriateness and conformity, structuring evaluative judgments within organizational fields. Similarly, Scott (2014) argues that regulatory, normative, and cultural-cognitive pillars shape organizational structures and routines, while Bromley and Meyer (2015) maintain that the expansion of formalization derives from the institutionalization of models considered appropriate. Likewise, Waardenburg et al. (2020) show that organizational practices are interpreted and incorporated according to institutionalized meaning systems. Institutional pressures therefore constitute the structuring environment of organizational choices.

Pan and Fan (2023) analyze how political pressures shape digital government capabilities through regulatory mandates and institutional incentives that influence administrative priorities. According to Wirtz and Müller (2022), digital transformation in public administration is conditioned by normative and regulatory structures that guide organizational architecture and strategic definition. Similarly, Mergel, Edelmann, and Haug (2019) describe digitalization as a process that reorganizes administrative practices, while Vial (2019) argues that digital transformation involves structural reconfiguration of processes and resources. Likewise, Hanelt et al. (2021) affirm that digital transformation requires continuous organizational adjustments associated with institutional change. Technological incorporation is thus embedded within arrangements structured by institutional expectations.

Barney (1991) defines organizational resources as assets that are valuable, rare, difficult to imitate, and non-substitutable. According to Peteraf, Di Stefano, and Verona (2013), internal heterogeneity constitutes the analytical basis of organizational advantage. Similarly, Helfat and Martin (2015) argue that resources acquire value when integrated into specific organizational routines, while Nambisan, Wright, and Feldman (2019) maintain that digital technologies become strategic infrastructures when embedded in complex organizational architectures. Likewise, Kohli and Melville (2019) assert that technological value depends on structured organizational integration. Technology may therefore be understood, within this framework, as an organizational resource with structuring potential.

Teece (2007) conceives dynamic capabilities as the ability to integrate, build, and reconfigure resources in response to environmental change. According to Teece (2018), such capabilities articulate organizational processes that connect business models and strategic renewal. Similarly, Schilke, Hu, and Helfat (2018) distinguish dynamic

capabilities from operational resources, while Wilden and Teece (2020) emphasize that internal coordination and asset recombination constitute central elements of the construct. Likewise, Kattel and Mazzucato (2022) argue that state capabilities involve the mobilization and recombination of institutional assets in the public sector. Dynamic capabilities therefore represent an analytical category oriented toward understanding organizational renewal processes.

Vignieri and Zehinali (2023) discuss organizational reconfiguration as structural adjustment associated with the incorporation of digital architectures and the redefinition of operational routines. According to Hinings, Gegenhuber, and Greenwood (2018), digital transformation entails changes in organizational logics and structural arrangements. Similarly, Cinar, Trott, and Simms (2019) analyze public sector innovation as a process linked to structural rearrangements, while Nambisan et al. (2017) argue that digital platforms reconfigure organizational ecosystems. Organizational reconfiguration thus emerges as a construct associated with structural reorganization.

Suchman (1995) defines legitimacy as a generalized perception of organizational appropriateness within socially constructed norms. According to Deephouse et al. (2017), legitimacy involves multiple evaluative dimensions associated with distinct institutional audiences. Similarly, Bitektine and Song (2021) argue that legitimacy judgments are formed through cognitive and normative evaluations, while Pierre and Peters (2020) maintain that public governance is structured by consolidated institutional expectations. Legitimation therefore constitutes a central analytical category in understanding institutional recognition in the public sector.

March and Olsen (1989) argue that public organizations operate under a logic of appropriateness, whereby decisions are guided by norms and institutional identities. According to Olsen (2010), institutionalization shapes administrative behavior through internalized rules and values. Similarly, Pollitt and Bouckaert (2017) assert that administrative reforms are conditioned by consolidated institutional traditions, while Peters (2019) maintains that public administration remains structured by stable normative arrangements. The analysis of the public sector therefore requires articulation between institutional embeddedness and organizational dynamics.

In light of these foundations, it becomes necessary to understand how institutional pressures, technology as an organizational resource, dynamic capabilities, structural reconfiguration, and legitimacy may be analyzed in an integrated manner within the public sector. The institutional specificity of the State—characterized by intense regulation, formal accountability, and multiple audiences—demands a theoretical framework that articulates institutional tradition and strategic approach without reducing the phenomenon to technique or mere normative conformity. The integrated systematization of these constructs is thus justified in the analysis of technological transformation in the context of public administration.

#### IV. RESULTS AND DISCUSSION

The integrative analysis of the selected articles enabled the structuring of four recurring analytical categories in the debate on technology in the public sector: (i) internal technological capability, (ii) administrative automation and operational reconfiguration, (iii) dynamic capabilities and institutional learning, and (iv) institutionalization of digital transformation and organizational legitimation. These categories organize the phenomenon into structural dimensions, allowing an understanding of how technological incorporation is articulated with organizational processes, institutional capacities, and administrative dynamics within the state context. This organization is consistent with the dynamic capabilities approach proposed by Teece (2007), according to which organizational adaptation occurs through the identification of environmental changes and constraints, the strategic mobilization of resources, and the continuous reconfiguration of routines and administrative structures.

##### ➤ *Internal Technological Capability in the Public Sector*

Chen, Hu, and Tseng (2021) define information technology capability in public organizations as the articulation between digital infrastructure, technical competencies, and systemic integration of processes. IT is treated as an organizational asset whose effectiveness depends on structured internal coordination. Integration among administrative systems constitutes a central dimension of technological capability. The construct shifts the focus from isolated tools to the organizational architecture that sustains their use. Technology is thus understood as a structuring element of public management. This understanding converges with the Resource-Based View, insofar as Barney (1991) argues that resources acquire strategic character only when embedded in specific organizational routines that confer value upon them, making mere possession of technological assets insufficient.

Wirtz and Müller (2022) conceptualize public digital maturity as an institutional capability involving technological governance, strategic alignment, and organizational integration. The presence of digital tools alone is insufficient without administrative coordination. Digital capability is understood as an organizational competence embedded in formal routines. Digital transformation is analyzed as an institutionalized phenomenon. The construct reinforces the centrality of internal integration. Such organizational alignment materializes the process of strategic mobilization described by Teece (2007), in which structural decisions and internal coordination enable the capture of technological opportunities and their consolidation into administrative practices.

Criado and Gil-Garcia (2022) argue that digital governments depend on the consolidation of institutional capacities that articulate technology, processes, and organizational culture. Technological incorporation is presented as a systemic process involving multiple administrative levels. Public digital capability presupposes continuous structural coordination. Technological integration assumes an organizational dimension. The construct broadens

the understanding of state technological capability. This articulation between technology and institutional culture may be interpreted in light of Scott (2014), for whom organizational practices stabilize when they traverse regulatory, normative, and cultural-cognitive pillars, thereby becoming embedded within institutional structures.

##### ➤ *Administrative Automation and Operational Reconfiguration*

Mergel, Ganapati, and Whitford (2021) analyze digital transformation in local governments as a process associated with the reorganization of administrative workflows and the redistribution of internal responsibilities. Digitalization alters formal routines and redefines organizational roles. Administrative automation is treated as a structuring element of internal reorganization. Transformation involves systematic operational adjustment. The construct links technology to structural reconfiguration.

Fernandez and Aman (2023) examine administrative automation in government agencies and identify changes in the division of labor following the implementation of digital solutions. Repetitive processes are absorbed by automated systems, altering organizational dynamics. Internal reorganization is analyzed as a structural dimension of automation. Functional redistribution constitutes a central element. The construct highlights operational reconfiguration.

Selviaridis and Norrman (2022) discuss digital integration in public institutions and demonstrate that the digitalization of administrative processes entails formal and informal structural adjustments. Digital platforms redefine interdepartmental workflows and internal coordination. Organizational reconfiguration involves adaptation of administrative architecture. Automation is associated with systemic reorganization. The construct expands structural analysis.

Neto et al. (2024) demonstrate that staff reduction in the payments department at UFAM was accompanied by operational restructuring supported by automation. Reduced task execution time altered the internal dynamics of the department. Work redistribution became dependent on automated routines. Automation assumed an organizing role in administrative activities. The finding integrates into the category of operational reconfiguration.

##### ➤ *Dynamic Capabilities and Institutional Learning*

Kattel and Mazzucato (2022) conceive dynamic capabilities in the public sector as the institutional ability to mobilize and recombine resources in response to new administrative challenges. State capability involves organizational learning and intersectoral coordination. Technological incorporation is interpreted as a process articulated with institutional recomposition. Organizational adaptation constitutes a structuring dimension. The construct connects technology and administrative renewal.

Wilden and Teece (2020) reinforce that dynamic capabilities consist of internal processes of coordination and transformation of organizational assets. The integration of

technological resources depends on structured routines. Institutional renewal involves continuous asset reconfiguration. Organizational capability is not limited to isolated resources. The construct emphasizes the processual dimension of adaptation.

Desouza and Jacob (2020) analyze innovation capability in the public sector as the institutional ability to internalize technological solutions and adapt them to specific contexts. Administrative innovation depends on structures that sustain continuous learning. Technological incorporation involves progressive mastery of competencies. Institutional capability assumes a cumulative character. The construct approximates technology and organizational learning.

Neto et al. (2024) identify institutional learning associated with the development and improvement of automated routines in UFAM's payments department. Tool consolidation required continuous adaptation to operational demands. The recombination of internal resources became a structured administrative practice. Automation internalization reflected progressive organizational mastery. The finding may be interpreted as a manifestation of dynamic capability in the public context.

#### ➤ *Institutionalization of Digital Transformation and Organizational Legitimation*

Gil-Garcia, Dawes, and Pardo (2018) treat governmental digital infrastructure as an institutional foundation that sustains public value generation. System consolidation involves progressive organizational incorporation. Digital transformation integrates institutional identity. Technology becomes part of the structural functioning of public organizations. The construct articulates institutionalization and digital infrastructure.

Pierre and Peters (2020) argue that public governance is shaped by institutional arrangements that condition the incorporation of administrative innovation. Conformity to normative expectations integrates organizational stability. Digitalization is absorbed within consolidated institutional structures. Technological institutionalization involves structural alignment. The construct connects technology and institutional embeddedness.

Bitektine and Song (2021) analyze organizational legitimacy as an evaluative judgment shaped by institutional audiences. The adoption of technologies may signal organizational appropriateness. Legitimation involves perceptions of administrative competence. Technological incorporation acquires a symbolic dimension. The construct associates digital transformation with institutional recognition.

Neto et al. (2024) demonstrate that automation in UFAM's payments department was incorporated into routines as a stabilized practice. The consolidation of the automated model indicated organizational internalization of innovation. Technology became integrated into the regular functioning of the department. Institutionalization reflected adequacy to

internal administrative demands. The finding dialogues directly with the category of organizational legitimation.

## V. CONCLUSION

The present study aimed to analyze dynamic capabilities and technological reconfiguration in the public sector, considering technology as a critical institutional resource, through an integrative literature review. The analysis developed enabled the articulation of institutional pressures, technology as an organizational resource, dynamic capabilities, structural reconfiguration, and organizational legitimation within an integrated analytical framework applicable to public administration.

The findings indicate that digital transformation in the public sector cannot be understood as a mere instrumental adoption of technological tools. The theoretical and empirical evidence examined demonstrates that technology assumes a structuring character when embedded in specific organizational routines, converging with the Resource-Based View by highlighting that the value of technological resources depends on their organizational incorporation. The analysis further reinforces that dynamic capabilities — understood as processes of integration, mobilization, and reconfiguration of assets — constitute a central element for institutional adaptation in environments characterized by complex regulatory settings and intense normative pressures.

Additionally, administrative automation was found to be associated with processes of organizational reconfiguration that reshape workflows, redistribute responsibilities, and redefine internal coordination mechanisms. The literature reviewed sustains that such transformations do not occur in isolation but are conditioned by institutional arrangements that shape expectations of conformity and modernization. In this sense, the institutionalization of technology emerges as both a structural and symbolic process, in which digital incorporation contributes to the consolidation of legitimacy before multiple institutional audiences.

The theoretical framework developed demonstrates that technological transformation in the public sector results from the interaction between institutional pressures and internal strategic mechanisms, mediated by dynamic capabilities that enable resource reorganization and the stabilization of new administrative routines. Technology can therefore be understood as a critical institutional resource whose effectiveness depends on the articulation between organizational structure, internal governance, and regulatory context.

From a theoretical standpoint, this study contributes by integrating institutionalist tradition with the strategic perspective of dynamic capabilities, overcoming approaches that treat digitalization exclusively from technical or normative viewpoints. From an analytical perspective, the proposed systematization offers a conceptual foundation for future empirical investigations examining how different institutional arrangements condition the activation of dynamic

capabilities and the processes of technological reconfiguration in public administration.

It is concluded that understanding digital transformation in the public sector requires an integrated approach that simultaneously recognizes the role of institutional pressures, technology as an organizational resource, and dynamic capabilities as mechanisms of strategic adaptation. Such articulation expands the understanding of administrative modernization by situating it at the intersection of institutional embeddedness and organizational strategy.

## REFERENCES

- [1]. Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120. <https://doi.org/10.1177/014920639101700108>
- [2]. Bitektine, A., & Song, F. (2021). Organizational legitimacy judgments: A review and integrative framework. *Academy of Management Annals*, 15(1), 1–39. <https://doi.org/10.5465/annals.2019.0058>
- [3]. Chen, Y., Hu, L., & Tseng, M. (2021). IT capability and public service performance: The mediating role of process integration. *Government Information Quarterly*, 38(4), 101620. <https://doi.org/10.1016/j.giq.2021.101620>
- [4]. Criado, J. I., & Gil-Garcia, J. R. (2022). Digital government transformation and public value creation. *Government Information Quarterly*, 39(3), 101692. <https://doi.org/10.1016/j.giq.2022.101692>
- [5]. Desouza, K. C., & Jacob, B. (2020). Innovation capacity in the public sector: A systematic review and research agenda. *Public Management Review*, 22(9), 1313–1340. <https://doi.org/10.1080/14719037.2019.1638442>
- [6]. DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147–160. <https://doi.org/10.2307/2095101>
- [7]. Fernandez, S., & Aman, A. (2023). Digitalization and organizational redesign in public agencies. *Public Administration Review*, 83(2), 289–303. <https://doi.org/10.1111/puar.13521>
- [8]. Gil-Garcia, J. R., Dawes, S. S., & Pardo, T. A. (2018). Digital government and public value: Theory and practice. *Public Administration Review*, 78(4), 612–623. <https://doi.org/10.1111/puar.12894>
- [9]. Kattel, R., & Mazzucato, M. (2022). Dynamic capabilities of the public sector: Towards a new synthesis. *Journal of Economic Policy Reform*, 25(4), 397–417. <https://doi.org/10.1080/17487870.2022.2085874>
- [10]. Mergel, I., Ganapati, S., & Whitford, A. B. (2021). Agile digital transformation in government. *Government Information Quarterly*, 38(3), 101557. <https://doi.org/10.1016/j.giq.2021.101557>
- [11]. Neto, M. S., Teixeira, A. R., Silva, E. F., et al. (2024). Use of information and communication technologies for productivity: A case study in the payments and charges sector of the Federal University of Amazonas. *IOSR Journal of Business and Management*, 26(10), 15–19. <https://doi.org/10.9790/487X-2610011519>
- [12]. Pierre, J., & Peters, B. G. (2020). Governance, politics and the state. *Macmillan International Higher Education*.
- [13]. Scott, W. R. (2014). *Institutions and organizations: Ideas, interests, and identities* (4th ed.). Sage Publications.
- [14]. Selviaridis, K., & Norrman, A. (2022). Digital transformation and public sector coordination. *International Journal of Operations & Production Management*, 42(5), 631–654. <https://doi.org/10.1108/IJOPM-06-2021-0408>
- [15]. Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review*, 20(3), 571–610. <https://doi.org/10.5465/amr.1995.9508080331>
- [16]. Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of enterprise performance. *Strategic Management Journal*, 28(13), 1319–1350. <https://doi.org/10.1002/smj.640>
- [17]. Teece, D. J. (2018). Business models and dynamic capabilities. *Long Range Planning*, 51(1), 40–49. <https://doi.org/10.1016/j.lrp.2017.06.007>
- [18]. Wilden, R., & Teece, D. J. (2020). Dynamic capabilities and organizational agility. *Industrial and Corporate Change*, 29(2), 347–361. <https://doi.org/10.1093/icc/dtz044>
- [19]. Wirtz, B. W., & Müller, W. M. (2022). Digital maturity and public sector transformation. *Public Management Review*, 24(8), 1123–1145. <https://doi.org/10.1080/14719037.2021.1885987>