

The Determinants of Information Technology Capabilities: A Systematic Review

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Abstract: *Information technology (IT) capabilities have become central to organizational competitiveness, innovation, agility, and digital transformation. However, the factors that contribute to the development of these capabilities remain dispersed across different theoretical perspectives, organizational contexts, and research streams. This systematic review aims to identify, classify, and synthesize the determinants of IT capabilities and to clarify their strategic significance for organizations operating in dynamic and technology-intensive environments. A systematic literature review was conducted using a structured search, screening, eligibility assessment, and study-selection process guided by PRISMA 2020 principles. Thirty studies meeting the inclusion criteria were retained for analysis. A literature review matrix was used to code the studies according to IT capabilities, technological factors, organizational factors, leadership and management, human capital and IT competencies, knowledge and learning, IT governance and strategic alignment, environmental and contextual factors, innovation and digital transformation, and organizational performance. The review shows that IT capabilities are shaped by multiple interrelated determinants rather than by technological investment alone. The principal determinants include technological infrastructure and architecture, organizational conditions, leadership and managerial support, human capital, knowledge and learning processes, governance and strategic alignment, and environmental context. The findings also demonstrate that strong IT capabilities contribute to organizational performance, innovation, agility, resilience, and digital transformation. IT capability development should be understood as a multidimensional and dynamic organizational process involving the coordinated interaction of technological, managerial, human, knowledge-based, governance, and contextual factors. The review provides an integrated framework for understanding these determinants and highlights the need for future longitudinal, multilevel, and context-sensitive research.*

Keywords: Information Technology Capabilities; IT Capabilities; Determinants; Digital Transformation; Systematic Review.

1. Introduction

Information technology (IT) capabilities have become increasingly important for organizations seeking to sustain competitiveness, innovation, and adaptability in digitally intensive environments.

IT capabilities extend beyond the possession of technological assets and reflect an organization's ability to mobilize, integrate, deploy, and reconfigure IT-related resources to support strategic and operational objectives. Recent research has emphasized that IT capabilities are multidimensional and may include infrastructure, operational competencies, managerial capabilities, relational capabilities, and dynamic capabilities that enable firms to respond to changing business conditions (Chen et al., 2025). At the same time, conceptual ambiguity persists between IT capabilities, IT-enabled capabilities, and broader digital capabilities, creating challenges for consistent theory development and cumulative knowledge across business and information systems research (Grego et al., 2025). This issue has become more significant as organizations increasingly depend on IT capabilities to support digital transformation, organizational agility, innovation, and performance.

Existing studies indicate that the development and effectiveness of IT capabilities are influenced by a wide range of technological, organizational, managerial, human, knowledge-related, and contextual factors. IT architecture flexibility and decentralized IT governance can contribute to the formation of IT-enabled dynamic capabilities, particularly under uncertain environmental conditions (Mikalef et al., 2021). IT governance process capability also supports effective IT planning, infrastructure modernization, service delivery, decision-making, and monitoring, thereby contributing to improved business performance (Joshi et al., 2022). Human capital represents another important determinant, as technical expertise, interpersonal competencies, and employee engagement with technology can strengthen organizational IT capabilities (Magno Marchiori et al., 2023). Leadership and managerial support are likewise important because digital leadership can enhance IT capabilities and organizational learning, while top management involvement can strengthen the strategic value derived from IT infrastructure and digital transformation initiatives (Mollah et al., 2023). Knowledge-related mechanisms are also influential, with absorptive capacity and organizational learning helping organizations translate IT competencies into agility and innovation capabilities (Mao et al., 2021).

The influence of these determinants is further shaped by organizational and environmental conditions. Organizational culture can affect how IT capabilities and knowledge processes are converted into firm performance (Wu et al., 2024), while environmental dynamism can strengthen or weaken the performance effects associated with technology-enabled capabilities (Lin et al., 2025). Competitive intensity may also increase the strategic value of IT capability by encouraging knowledge sharing and innovation, particularly in technology-intensive industries (Koo & Le, 2024). These findings indicate that IT capability development cannot be explained by technological investment alone; rather, it emerges from the interaction of technological resources, governance structures, leadership practices, human competencies, organizational learning, strategic alignment, and external environmental conditions. However, the existing literature remains fragmented, with many studies concentrating on individual determinants or examining IT capabilities primarily as predictors of performance, innovation, and digital transformation.

Accordingly, there is a need for a systematic synthesis that consolidates the dispersed evidence concerning the determinants of IT capabilities. Previous reviews have highlighted conceptual inconsistencies in the IT capability literature and the need for clearer distinctions among related capability constructs (Grego et al., 2025). Bibliometric research has also shown that IT capability research has developed across diverse theoretical and intellectual streams, including organizational performance, strategic management, and resource-based perspectives (Marchiori et al., 2025). In addition, reviews of dynamic capabilities in information systems research have identified continuing uncertainty regarding the role of IT in capability development and adaptation (Steininger et al., 2022). Therefore, this systematic review aims to identify, classify, and synthesize the determinants of information technology capabilities reported in the existing literature. By organizing the evidence into coherent determinant categories and examining the theoretical and contextual patterns underlying

prior studies, the review seeks to provide a more integrated understanding of how IT capabilities are developed and to identify gaps that can guide future research.

2. Methodology

This study adopted a systematic literature review approach to identify, evaluate, and synthesize existing research concerning the determinants of information technology (IT) capabilities. A systematic approach was considered appropriate because research on IT capabilities is distributed across information systems, strategic management, innovation, digital transformation, and organizational studies, with considerable variation in the conceptualization and application of the IT capability construct. Previous reviews have similarly demonstrated the value of systematically consolidating this fragmented body of knowledge to clarify distinctions among IT capabilities, IT-enabled capabilities, and digital capabilities and to establish more coherent directions for future research (Grego et al., 2025). The review process was therefore structured to ensure a transparent progression from literature identification and screening to eligibility assessment, final inclusion, data extraction, and thematic synthesis. This approach also complements previous critical and bibliometric reviews that have emphasized the diverse theoretical and conceptual foundations underlying IT capability research (Steininger et al., 2022; Marchiori et al., 2025).

Relevant studies were identified using combinations of search terms associated with the central construct and its potential antecedents, including “information technology capabilities,” “IT capabilities,” “IT capability determinants,” “IT capability antecedents,” “IT competencies,” “IT governance,” “IT infrastructure,” “IT human capital,” “organizational learning,” “IT leadership,” “strategic alignment,” and “digital capabilities.” Studies were considered for inclusion when they explicitly examined IT capabilities or closely related IT-enabled capabilities and provided evidence relevant to their technological, organizational, managerial, human, knowledge-related, governance, strategic, or environmental foundations. Studies whose primary focus was unrelated to organizational IT capability development were excluded. Particular attention was given to maintaining conceptual clarity because previous scholarship has demonstrated that IT capabilities, IT-enabled capabilities, and digital capabilities are related but analytically distinct constructs (Grego et al., 2025). The screening and eligibility procedures resulted in a final sample of 30 studies included in the systematic synthesis.

For each included study, relevant information was extracted and organized in the Literature Review Matrix presented in Table 1. The coding framework covered IT capabilities, technological factors, organizational factors, leadership and management, human capital and IT competencies, knowledge and learning, IT governance and strategic alignment, environmental and contextual factors, innovation and digital transformation, and organizational performance. A conservative coding procedure was applied whereby a category was marked only when the corresponding concept was explicitly addressed in the study, thereby reducing the risk of assigning relationships on the basis of inference alone. The selected categories reflect the multidimensional character of IT capability research, in which technological assets and infrastructure operate alongside managerial, human, organizational, and dynamic competencies (Chen et al., 2025). This classification also reflects evidence showing that IT capability development is associated with governance arrangements, IT architecture, human resources, organizational learning, strategic alignment, and environmental conditions (Mikalef et al., 2021).

The final stage involved a qualitative thematic synthesis of the included studies. Rather than merely counting the occurrence of individual factors, the analysis compared recurring determinants across

studies and grouped them into broader conceptual categories to identify common patterns and areas of divergence. Particular consideration was given to the theoretical perspectives used to explain IT capability development, including the resource-based view, dynamic capability theory, knowledge-based perspectives, and related organizational and contextual approaches. This synthesis enabled the review to examine how technological resources interact with managerial support, human competencies, knowledge processes, governance mechanisms, and environmental conditions in shaping organizational IT capabilities. The procedure also facilitated identification of underexplored relationships and research gaps that provide the basis for the subsequent discussion and future research recommendations. The study identification, screening, eligibility assessment, and final inclusion procedures are summarized in the PRISMA 2020 flow diagram presented in Figure 1.

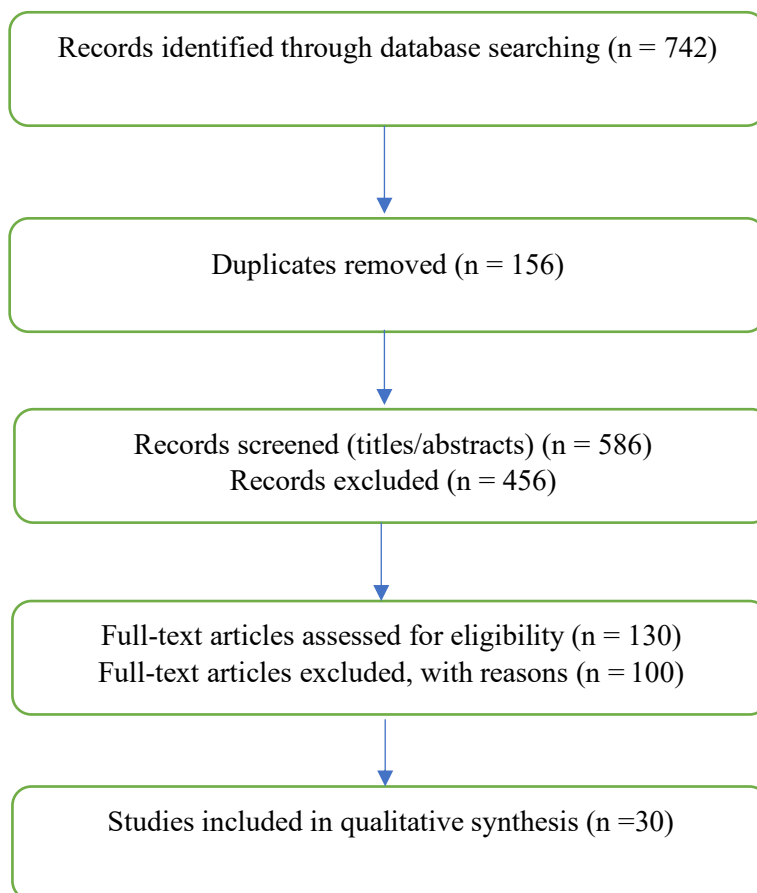


Figure 1. PRISMA 2020 Flow Diagram

3. Results

3.1 Study Selection and Characteristics

The systematic review resulted in a final sample of 30 studies that met the inclusion criteria and were retained for qualitative synthesis. The selected studies demonstrate that research on information technology capabilities has developed across a broad range of organizational, technological, and strategic contexts, including high-technology firms, manufacturing organizations, financial institutions, hospitals, software-as-a-service providers, public-sector organizations, hospitality firms, and digitally intensive business environments. The reviewed literature also reflects considerable

methodological diversity, incorporating surveys, structural equation modeling, panel-data analysis, qualitative interviews, case studies, critical reviews, meta-analysis, and bibliometric techniques. This diversity illustrates the multidisciplinary development of the IT capability literature and supports previous observations that the construct has been investigated across information systems, strategic management, innovation, and digital transformation research streams (Grego et al., 2025). The growing conceptual and intellectual breadth of the field is also consistent with bibliometric evidence showing that IT capability research has expanded around themes such as organizational performance, strategic management, resource-based perspectives, and business value creation (Marchiori et al., 2025).

Table 1 presents the Literature Review Matrix used to systematically compare the 30 included studies according to the main concepts explicitly addressed in each publication. The matrix indicates that organizational factors were the most frequently represented category, appearing in 23 studies, while IT capabilities, environmental and contextual factors, innovation and digital transformation, and organizational performance were each represented in 20 studies. Technological factors and leadership or management considerations appeared in 17 studies, whereas human capital and IT competencies and IT governance or strategic alignment appeared in 10 studies each, and knowledge or learning was explicitly represented in nine studies. These patterns indicate that contemporary IT capability research increasingly treats capability development as an organizational and contextual phenomenon rather than as a purely technological issue. This multidimensional view corresponds with research emphasizing that IT capabilities encompass combinations of technological assets, operational competencies, human resources, and higher-order capabilities that collectively enable organizations to generate value from IT resources (Chen et al., 2025).

Table 1. Literature Review Matrix

No.	Author(s) & Year	IT Capabilities	Technological Factors	Organizational Factors	Leadership / Management	Human Capital / IT Competencies	Knowledge / Learning	IT Governance / Strategic Alignment	Environmental / Contextual Factors	Innovation / Digital Transformation	Organizational Performance
1	Chen et al. (2025)	✓	✓			✓					
2	Grego et al. (2025)	✓	✓							✓	
3	Al-Shami et al. (2022)		✓		✓	✓		✓		✓	
4	Hammouri et al. (2026)	✓	✓	✓	✓	✓		✓	✓		✓
5	Akter et al. (2023)		✓	✓	✓		✓		✓	✓	
6	Mao et al. (2021)			✓		✓	✓		✓		
7	Lee & Matanda (2026)		✓	✓			✓		✓	✓	✓
8	Frost et al. (2023)	✓			✓	✓					✓
9	Zhang et al. (2023)		✓	✓	✓			✓		✓	✓
10	Mollah et al. (2023)	✓	✓	✓	✓	✓	✓		✓	✓	✓
11	Joshi et al. (2022)	✓	✓	✓	✓			✓			✓
12	Fuentes-Quijada et al. (2025)		✓	✓				✓	✓	✓	✓

No.	Author(s) & Year	IT Capabilities	Technological Factors	Organizational Factors	Leadership / Management	Human Capital / IT Competencies	Knowledge / Learning	IT Governance / Strategic Alignment	Environmental / Contextual Factors	Innovation / Digital Transformation	Organizational Performance
13	Wu et al. (2024)	✓		✓	✓		✓			✓	✓
14	Jorfi & Winkler (2025)	✓	✓	✓		✓		✓	✓	✓	
15	Otioma (2023)	✓			✓		✓		✓	✓	✓
16	Koo & Le (2024)	✓					✓		✓	✓	✓
17	Sherani et al. (2025)	✓		✓			✓			✓	✓
18	Takele Koyra et al. (2026)	✓		✓	✓				✓	✓	
19	Magno Marchiori et al. (2023)	✓		✓		✓			✓		✓
20	AbuAkel & Ibrahim (2023)		✓	✓	✓				✓	✓	
21	Mikalef et al. (2021)	✓	✓	✓				✓	✓		✓
22	Baiyere et al. (2025)		✓	✓	✓					✓	
23	Aldhi et al. (2025)	✓	✓	✓	✓	✓		✓	✓	✓	✓
24	Ilmudeen (2022)	✓		✓				✓	✓	✓	✓
25	Liu & Chen (2026)		✓	✓	✓	✓	✓		✓	✓	✓
26	Lin et al. (2025)	✓	✓	✓	✓				✓		✓
27	Mehmood et al. (2023)	✓		✓	✓				✓	✓	✓
28	Ananda & Astuti (2023)	✓		✓						✓	✓
29	Marchiori et al. (2025)	✓		✓	✓			✓	✓		✓
30	Steininger et al. (2022)								✓		

3.2 Classification and Determinants of Information Technology Capabilities

The synthesis reveals that the determinants of IT capabilities can be organized into several interrelated categories, particularly technological, organizational, managerial, human-capital, knowledge-related, governance, and environmental factors. Technological determinants include IT infrastructure, architecture flexibility, systems integration, cybersecurity investment, and related digital resources that provide the technical foundation for capability development. IT architecture flexibility, for example, facilitates the development of IT-enabled dynamic capabilities by enabling organizations to adapt technological resources to changing requirements (Mikalef et al., 2021). Similarly, enabling IT infrastructure can strengthen IT human, relational, and architecture capabilities that support digital transformation efforts (Jorfi & Winkler, 2025). The evidence further shows that technological resources alone are insufficient because their value depends on complementary organizational and managerial mechanisms. IT governance processes support the effective deployment, planning, modernization, and monitoring of IT resources (Joshi et al., 2022), while top management involvement can strengthen the relationship between IT infrastructure and strategic digital transformation outcomes (Zhang et al., 2023).

Human, knowledge, and contextual determinants represent another important group within the reviewed literature. IT human capital, including technical expertise, interpersonal competencies, and employee engagement with technology, has been identified as an antecedent that contributes directly to the development of organizational IT capabilities (Magno Marchiori et al., 2023). Organizational learning and absorptive capacity also enable firms to acquire, assimilate, and exploit knowledge generated through IT resources, thereby translating IT competencies into agility and innovation capabilities (Mao et al., 2021). Knowledge creation and integration processes similarly strengthen IT-enabled capabilities and digital innovation within software-oriented firms (Sherani et al., 2025). In addition, environmental dynamism, competitive pressure, market uncertainty, and information intensity influence how effectively organizations develop and exploit IT-related capabilities. Competitive and dynamic environments can increase the strategic importance of these capabilities by intensifying the need for adaptation, resilience, and rapid information processing (Lin et al., 2025). Taken together, the results demonstrate that IT capabilities emerge from complementary technological resources and organizational conditions rather than from isolated IT investments.

3.3 Consequences and Strategic Importance of IT Capabilities

The reviewed studies consistently demonstrate that IT capabilities have important consequences for organizational performance, innovation, agility, and digital transformation. IT governance process capability contributes to business performance by improving IT performance and strengthening the organizational ability to generate value from IT investments (Joshi et al., 2022). IT capabilities have also been positively associated with organizational performance through mechanisms such as sustainability practices, service innovation, and service improvement, with top management support strengthening these relationships (Mehmood et al., 2023). Evidence from meta-analytic research similarly indicates that IT capability positively influences both innovation and organizational performance, while innovation itself contributes further to organizational performance (Ananda & Astuti, 2023). These results support the broader resource-based interpretation that IT capabilities become strategically valuable when technological resources are effectively combined with complementary organizational resources and deployed in ways that competitors cannot easily replicate.

Beyond direct performance effects, IT capabilities also provide organizations with adaptive and transformational benefits. IT competency can enhance organizational agility through absorptive capacity, enabling firms to respond more effectively to market opportunities and operational changes (Mao et al., 2021). IT capabilities also facilitate innovation by strengthening knowledge-intensive assets and information-sharing networks, particularly under conditions of intense competition (Koo & Le, 2024). In digitally transforming organizations, IT infrastructure and translating IT capabilities provide an important foundation for organizational readiness and sustained digital transformation efforts (Jorfi & Winkler, 2025). Furthermore, IT-enabled dynamic capabilities can strengthen competitive performance in turbulent environments by enabling firms to continually reconfigure resources and adapt to external changes (Mikalef et al., 2021). Overall, the findings demonstrate that IT capabilities are strategically important not only because they improve current organizational outcomes, but also because they enable learning, innovation, resilience, agility, and transformation, thereby supporting organizations in maintaining competitiveness under conditions of technological and environmental change.

4. Discussion

4.1 Integrative Framework of IT Capability Determinants

The findings of this review indicate that information technology capabilities are not produced by technological investment alone but emerge from the interaction of multiple organizational resources, managerial mechanisms, human competencies, knowledge processes, governance arrangements, and environmental conditions. This integrative interpretation is consistent with the resource-based perspective, which views IT-related assets as strategically valuable only when they are effectively organized, combined, and deployed through complementary capabilities (Chen et al., 2025). The reviewed studies show that technological foundations such as IT infrastructure, architecture flexibility, and system integration provide the basic platform for capability development, but their contribution depends on how organizations manage and coordinate these resources. IT architecture flexibility, for example, supports the formation of IT-enabled dynamic capabilities, particularly when combined with appropriate governance structures and adaptation to uncertain environments (Mikalef et al., 2021). Similarly, enabling IT infrastructure strengthens higher-order capabilities when organizations are able to translate technical resources into human, relational, and architectural competencies that support broader digital transformation efforts (Jorfi & Winkler, 2025).

The framework emerging from the review also highlights the central role of managerial, human, and knowledge-based determinants. Leadership and top management influence how IT resources are prioritized, aligned, and transformed into strategic outcomes, particularly in contexts where organizations are pursuing digital transformation or sustainable performance (Zhang et al., 2023). Digital leadership further contributes to IT capability development by fostering organizational learning and creating conditions in which technology can be integrated with business processes and strategic priorities (Mollah et al., 2023). At the employee level, IT human capital constitutes an important antecedent because technical expertise, interpersonal competencies, and engagement with technology provide the skills required to operationalize technological resources (Magno Marchiori et al., 2023). Organizational learning and absorptive capacity reinforce this process by enabling firms to acquire, assimilate, and exploit knowledge, thereby transforming IT competencies into agility and innovation-related outcomes (Mao et al., 2021). These findings suggest that the development of IT capabilities depends on continuous interaction between technological resources and the organizational capacity to learn from, govern, and strategically deploy them.

Environmental and contextual conditions further shape this integrated system of determinants by influencing both the need for IT capabilities and the value generated from them. Competitive pressure, environmental dynamism, market uncertainty, and information intensity can increase the importance of flexible and adaptive IT capabilities because organizations operating in turbulent environments must process information rapidly and reconfigure resources more frequently (Lin et al., 2025). Competitive intensity can also strengthen the relationship between IT capability and innovation because firms facing stronger market pressures depend more heavily on knowledge sharing and technological responsiveness to maintain competitive advantage (Koo & Le, 2024). At the interorganizational level, IT capability alignment between buyers and suppliers can influence collaborative outcomes, while market uncertainty can intensify the consequences of misalignment (Takele Koyra et al., 2026). Accordingly, the review supports an integrative framework in which technological, organizational, managerial, human, knowledge-based, governance, and environmental determinants jointly contribute to the formation and effectiveness of IT capabilities rather than operating as isolated antecedents.

4.2 Theoretical and Managerial Implications

Theoretically, the findings reinforce the value of combining multiple perspectives to explain IT capability development. The resource-based view provides a strong foundation for understanding why IT-related assets and competencies can become sources of organizational value when they are valuable, difficult to imitate, and effectively coordinated (Chen et al., 2025). However, the review also shows that a static resource-based explanation is insufficient in highly dynamic contexts because firms must continuously renew and reconfigure IT-related resources in response to technological and environmental change. Dynamic capability theory therefore complements the resource-based view by explaining how organizations sense opportunities, seize them through appropriate resource deployment, and transform existing technological and organizational routines (Steininger et al., 2022). This combined perspective is particularly useful because several reviewed studies demonstrate that IT architecture, governance, leadership, and learning processes function as mechanisms through which lower-level technological resources are converted into higher-order adaptive capabilities.

The findings also highlight the importance of knowledge-based and organizational learning perspectives in explaining the mechanisms through which IT capabilities are formed and utilized. Absorptive capacity repeatedly appears as a mechanism that connects IT competencies with innovation and agility, showing that the strategic value of IT depends partly on the ability of organizations to recognize, assimilate, and apply knowledge (Al-Shami et al., 2022). Organizational learning similarly strengthens the translation of IT capability into innovation and performance outcomes by enabling firms to exploit existing knowledge while exploring new opportunities (Otioma, 2023). Knowledge creation, knowledge integration, and IT-enabled capabilities are also closely connected in digitally intensive firms, particularly where innovation depends on continuous exchange and recombination of knowledge resources (Sherani et al., 2025). These results indicate that future theoretical models of IT capability development would benefit from integrating resource-based, dynamic capability, and knowledge-based perspectives rather than relying exclusively on a single theoretical lens.

From a managerial perspective, the findings suggest that organizations should avoid treating IT capability development as a purely technical investment decision. Managers should instead adopt a coordinated approach that combines investment in infrastructure with leadership development, IT governance, strategic alignment, human capital, organizational learning, and knowledge management. Effective IT governance is particularly important because it provides structures for decision-making, planning, monitoring, and resource allocation that help organizations convert technology investments into business value (Joshi et al., 2022). Top management support is also essential for ensuring that technological initiatives are aligned with broader strategic priorities and digital transformation objectives (Zhang et al., 2023). At the same time, organizations should invest in employee IT skills, interdisciplinary knowledge, and learning systems because these factors determine whether technological resources can be effectively integrated into daily operations and strategic processes (Magno Marchiori et al., 2023). The review therefore suggests that building IT capabilities requires a portfolio of coordinated managerial actions rather than isolated investments in hardware, software, or digital platforms.

4.3 Research Gaps, Limitations, and Future Research

Despite the breadth of the literature reviewed, several important research gaps remain. First, the conceptual boundaries between IT capabilities, IT-enabled capabilities, and digital capabilities continue to be inconsistently defined, which makes comparison across studies difficult and may

hinder cumulative theory development (Grego et al., 2025). Second, many studies continue to focus on the consequences of IT capabilities rather than directly examining the antecedent conditions through which these capabilities are formed. This imbalance is reflected in the broader intellectual structure of the field, where organizational performance and strategic management remain dominant research themes (Marchiori et al., 2025). Third, although the reviewed studies identify a wide range of determinants, relatively few examine how these factors interact simultaneously across technological, organizational, managerial, and environmental levels. This creates an opportunity for future research to develop more integrative, multilevel models that explain not only which determinants matter but also how their combined effects influence IT capability development over time.

Methodological limitations are also evident across the reviewed literature. A substantial proportion of empirical studies rely on cross-sectional survey designs, which restrict the ability to establish causal relationships and capture the dynamic nature of capability development. Because IT capabilities evolve through investment, learning, adaptation, and organizational change, longitudinal and time-lagged designs would provide stronger evidence regarding how antecedents contribute to capability formation and transformation. Qualitative and mixed-method approaches could also be used more extensively to explore how organizations actually build, coordinate, and reconfigure IT capabilities in different settings. In addition, greater attention should be given to sectoral and geographical diversity, as the effects of determinants such as governance, leadership, infrastructure, and environmental pressure may differ across industries, countries, public-sector organizations, and digitally mature versus digitally developing contexts. Research on highly dynamic domains such as artificial intelligence, big data analytics, cloud services, and platform-based ecosystems may also reveal new determinants that are not adequately captured by traditional IT capability frameworks.

This systematic review is itself subject to limitations that should be acknowledged. The synthesis is based on the selected studies that met the established inclusion criteria and therefore may not capture every relevant publication across all disciplines or databases. The classification of determinants into technological, organizational, managerial, human, knowledge-related, governance, and environmental categories also simplifies what are often overlapping and interdependent constructs. In addition, differences in terminology and measurement across the literature make direct comparison challenging, particularly where similar concepts are labelled differently across studies. Future reviews could address these limitations by expanding the database coverage, incorporating longitudinal bibliometric analysis, and applying meta-analytic techniques where comparable effect sizes are available. Future empirical research should also examine the temporal development of IT capabilities, the interaction among determinant categories, and the conditions under which specific combinations of technological, organizational, and human resources generate stronger capability outcomes.

5. Conclusion

This systematic review examined the determinants of information technology capabilities and synthesized the evidence into an integrated understanding of how such capabilities are developed within organizations. The findings show that IT capabilities are not created through technological investment alone but emerge from the combined influence of technological resources, organizational conditions, leadership and management, human capital, knowledge and learning processes, governance and strategic alignment, and environmental context. The review also demonstrates that these determinants are interdependent. Technological infrastructure provides the foundation for capability development, while managerial support, skilled employees, effective governance,

organizational learning, and appropriate strategic alignment determine how successfully those resources are mobilized and transformed into organizational value.

The review further confirms the strategic importance of IT capabilities for innovation, digital transformation, organizational agility, resilience, and performance. By integrating findings from 30 studies, the paper provides a structured classification of the principal determinants and highlights the need to understand IT capabilities as multidimensional and dynamically developed organizational capabilities. The synthesis also reveals continuing conceptual and methodological gaps, particularly regarding inconsistent definitions, limited longitudinal evidence, and insufficient examination of interactions among determinants. Future research should therefore focus on multilevel and longitudinal models, emerging digital technologies, and different organizational and national contexts. Overall, the study contributes by consolidating fragmented evidence into a coherent framework that can support both future research and managerial efforts to strengthen IT capabilities in increasingly dynamic and technology-intensive environments.

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