

HOW DIGITAL LEADERSHIP BECOMES ORGANIZATIONAL CAPABILITY: A SYSTEMATIC REVIEW OF TRANSFORMATION MECHANISMS AND PERFORMANCE OUTCOMES

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Abstract

This systematic literature review explains how digital leadership is converted from leader-level inputs into organizational capabilities and outcomes. A Scopus search conducted on 12 September 2026 identified 442 records; PRISMA 2020 screening yielded 34 empirical journal articles for qualitative thematic synthesis. Across the corpus, digital leadership is expressed mainly through strategic vision and orientation, digital mindset and technology sensemaking, change orchestration, empowerment and collaboration, and innovation orientation. These inputs are translated through five recurrent mechanisms: strategic alignment and digital orientation; learning and knowledge sharing; digital culture and HR practices; employee activation; and technology integration and innovation. The resulting organizational capabilities cluster around dynamic capabilities, agility, digitalization/technological capabilities, innovation/service-innovation capabilities, organizational learning, and transformation capability. Outcomes concentrate on digital transformation, innovation, organizational and financial performance, sustainability, and proximal employee or organizational responses. The review proposes an A-T-C-O framework while recognizing selected feedback and reverse pathways. Practically, organizations should pair digital-leadership development with learning, HR, and technology systems that institutionalize leader-level inputs into repeatable organizational capabilities.

Keywords: Digital Leadership, Organizational Capability, Digital Transformation, Dynamic Capabilities, Capability Conversion, Organizational Performance.

Abstrak

Tinjauan literatur sistematis ini menjelaskan bagaimana kepemimpinan digital dikonversi dari input pada tingkat pemimpin menjadi kapabilitas dan keluaran organisasi. Pencarian Scopus pada 12 September 2026 mengidentifikasi 442 rekaman; penyaringan PRISMA 2020 menghasilkan 34 artikel jurnal empiris untuk sintesis tematik kualitatif. Hasil menunjukkan bahwa kepemimpinan digital terutama tercermin dalam visi dan orientasi strategis, digital mindset dan technology sensemaking, orkestrasi perubahan, pemberdayaan dan kolaborasi, serta orientasi inovasi. Input tersebut diterjemahkan melalui lima mekanisme berulang: penyelarasan strategis dan orientasi digital; pembelajaran dan berbagi pengetahuan; budaya digital dan praktik SDM; aktivasi karyawan; serta integrasi teknologi dan inovasi. Kapabilitas organisasi yang dihasilkan mencakup kapabilitas dinamis, agility, kapabilitas digitalisasi/teknologi, kapabilitas inovasi, pembelajaran organisasi, dan kapabilitas transformasi. Keluaran utamanya meliputi transformasi digital, inovasi, kinerja organisasi dan keuangan, keberlanjutan, serta respons proksimal pada tingkat karyawan atau organisasi. Review ini mengusulkan kerangka A-T-C-O dengan tetap mengakui adanya jalur umpan balik dan hubungan terbalik pada sebagian studi. Secara praktis, pengembangan pemimpin digital perlu dipadukan dengan sistem pembelajaran, SDM, dan teknologi agar input kepemimpinan menjadi kapabilitas organisasi yang berulang.

Kata Kunci: Kepemimpinan Digital, Kapabilitas Organisasi, Transformasi Digital, Kapabilitas Dinamis, Konversi Kapabilitas, Kinerja Organisasi.

1. INTRODUCTION

Digital transformation has evolved from a technology-adoption agenda into an organization-wide process that can reshape strategy, structures, routines, value creation, and ways of working (Verhoef et al., 2021; Vial, 2019; Wessel et al., 2021). In digitally intensive environments, organizations must continuously sense emerging opportunities, mobilize resources, and reconfigure existing competences to respond to technological and market change (Teece, 2018; Warner & Wäger, 2019). Digital business strategy therefore requires integration between technological and business priorities rather than treating digitalization as a separate functional initiative (Bharadwaj et al., 2013). Within this context, leadership becomes critical because the organizational value of digital technologies depends not only on technological investment but also on how leaders interpret digital opportunities, establish strategic direction, mobilize organizational resources, and facilitate adaptive change.

Digital leadership has consequently emerged as an important construct in organizational transformation research. Rather than referring merely to technological literacy, digital leadership encompasses strategic vision, digital orientation, technology sensemaking, change orchestration, collaboration, empowerment, and innovation-oriented behavior (Karippur & Balaramachandran, 2022; Türk, 2023; T. Wang et al., 2022; Y. Wang et al., 2025). However, accumulating empirical evidence suggests that its organizational effects are rarely straightforward. Digital leadership has been associated with innovation performance through platform digitization capability (Benitez et al., 2022), organizational learning capability through knowledge sharing (Rahman et al., 2025), employee digital performance through high-involvement human resource management and employee dynamic capability (G. Wang et al., 2024), and digital transformation through organizational agility (Khattak et al., 2025). Digital transformation itself also mediates the relationship between digital leadership and firm performance (Senadjki et al., 2024), while digital culture and employee digital capabilities can transmit leadership effects to organizational performance (Shin et al., 2023). These findings indicate that the central issue is no longer simply whether digital leadership influences organizational outcomes, but how leader-level capacities become embedded in collective organizational capabilities.

The state of the art further reveals considerable diversity in both mechanisms and outcomes. Within the final empirical corpus, digital leadership is linked with sustainable digital innovation through digital capabilities and digital orientation (El Ozon & AkhlaghiMofrad, 2026), organizational and financial performance through transformation and innovation pathways (Mollah et al., 2024; Senadjki et al., 2024; Truong & Nguyen, 2026), firm sustainability through green innovation (Zada et al., 2025), innovation performance through digital capability and innovation culture (Sawaeen & Aburumman, 2025), and organizational sustainability through digital capability and digital organizational culture (Cheng et al., 2025). Although this evidence demonstrates the relevance of digital leadership, it also creates conceptual ambiguity because transformation, agility, innovation, sustainability, and organizational performance are positioned at different stages of the causal process.

This ambiguity is particularly important from a capability perspective. Dynamic-capability theory defines organizational adaptation in terms of collective and repeatable processes through which firms sense opportunities, seize them, and reconfigure resources and competences (Teece, 2007; Teece et al., 1997). Digital-leadership research, however, sometimes uses the language of 'capability' for leader competencies, employee abilities, and organization-level routines simultaneously. This creates a level-of-analysis problem: an individual leader's digital competence should not automatically be equated with an organizational capability. Empirical studies involving technological capability (Takvi et al., 2025), organizational agility (Khattak et al., 2025), platform digitization capability (Benitez et al., 2022), and dynamic capabilities in SMEs (Held et al., 2026) support a more differentiated interpretation. Digital leadership can operate as a microfoundation that becomes organizationally consequential when leadership-related cognition and behavior are institutionalized through shared routines, learning processes, culture, technology integration, knowledge exchange, and coordinated resource deployment.

Previous reviews have substantially advanced understanding of digital transformation and digital leadership, but they address different questions from the present review. Broad digital-transformation syntheses map strategic, technological, structural, and organizational change (Hanelt et al., 2021; Kraus et al., 2022; Nadkarni & Prügl, 2021). Digital-leadership reviews have focused on leadership elements and sustainable performance (Khaw et al., 2022), the bibliometric evolution and intellectual structure of the field (Tigre et al., 2023), the characteristics, dimensions, and application domains of digital leadership (Lin, 2025), and broader thematic development and science mapping (López-Figueroa et al., 2025). These reviews clarify what digital leadership is and where it has been studied, but they do not systematically separate leader-level inputs from conversion mechanisms, organization-level capabilities, and distal outcomes across empirical studies, nor do they reconcile the fact that digital leadership appears as an antecedent, mediator, moderator, microfoundation, or enabled construct. This unresolved causal and level-of-analysis problem constitutes the specific gap addressed here.

This systematic literature review addresses this gap by developing a Digital Leadership–Capability Conversion perspective. Its principal advantage over previous syntheses lies in shifting attention from isolated leadership–outcome relationships toward the mechanisms through which digital leadership becomes embedded in collective organizational capability. Specifically, the review examines (RQ1) the capabilities, competencies, strategies, and behaviors that constitute digital leadership; (RQ2) the organizational mechanisms through which these leadership inputs are converted into organization-level capabilities; (RQ3) the dynamic organizational capabilities that mediate or embody this conversion; and (RQ4) the organizational outcomes associated with these pathways and the contextual conditions that shape them. Methodological limitations of the evidence base are evaluated within the synthesis rather than formulated as a separate research question.

The main scientific contribution is the development of a Digital Leadership–Capability Conversion Framework that distinguishes leadership microfoundations, conversion mechanisms, dynamic organizational capabilities, boundary conditions, and distal outcomes. This distinction provides greater conceptual precision regarding where digital leadership operates within the transformation process and helps reconcile apparently different empirical models. Practically, the review suggests that developing digitally capable leaders alone is insufficient; organizations must also establish the learning systems, knowledge-sharing routines, cultural conditions, governance arrangements, human-resource practices, and technological infrastructures through which leader-level capacities can become repeatable organizational capabilities.

2. LITERATURE REVIEW

The theoretical foundation of this review is primarily informed by Upper Echelons Theory (UET), Dynamic Capability Theory (DCT), and the Resource-Based View/Resource-Based Theory (RBV/RBT). These perspectives are complementary rather than competing because they explain different levels of the digital leadership–capability conversion process identified across the 34 empirical studies. UET provides a leader-level explanation of how managerial cognition and strategic orientation shape organizational responses; DCT explains how these leadership inputs can be translated into adaptive organizational capabilities; and RBV/RBT clarifies why organizational resources generate value only when they are effectively combined, deployed, and institutionalized. Together, these perspectives provide the theoretical basis for the proposed A-T-C-O framework presented in the review.

2.1. Upper Echelons Theory

Upper Echelons Theory (Hambrick & Mason, 1984) provides an appropriate foundation for explaining the leader-level antecedents of digital transformation. Its central premise is that organizational strategies and outcomes are partly shaped by senior executives' cognition, values, experiences, and interpretations of the environment. In digital contexts, this logic is particularly relevant because leaders must interpret technological disruption, recognize emerging

opportunities, establish strategic priorities, and influence organizational willingness to change. The reviewed literature reflects this perspective through constructs such as digital vision, digital mindset, strategic orientation, technology sensemaking, and change leadership.

Empirical studies support this leader-centered logic. Türk (2023) emphasizes the role of digital leadership in developing business strategies aligned with digital transformation, while Karippur & Balaramachandran (2022) identify leadership attributes, strategic priorities, organizational exploration, and digital governance as antecedents of effective digital leadership. T. Wang et al. (2022) further connect digital leadership with digital entrepreneurial orientation and organizational culture. These findings indicate that leaders' interpretations of digital opportunities can influence strategic choices and organizational responses. Within the A-T-C-O framework, UET therefore primarily explains the A domain, in which digital leadership operates as a microfoundation consisting of strategic cognition, vision, relational influence, and change-oriented behavior.

2.2. Dynamic Capability Theory

Dynamic Capability Theory provides the principal explanation for how digital leadership becomes organization-level capability. Dynamic capabilities refer to organizational capacities to sense opportunities and threats, seize opportunities, and transform or reconfigure resources in response to changing environments (Teece, 2007; Teece et al., 1997). This perspective is particularly suitable for digital transformation because technological environments are characterized by rapid change, uncertainty, and continuous organizational adaptation.

The reviewed evidence strongly supports this capability-conversion logic. Truong & Nguyen (2026) show that sensing, seizing, and transforming capabilities mediate the relationship between digital leadership and organizational performance. Khattak et al. (2025) identify organizational agility as a mechanism connecting digital leadership capability and knowledge-management capability with digital transformation. Benitez et al. (2022) demonstrate that platform digitization capability translates digital leadership into innovation performance, whereas Held et al. (2026) show that dynamic capabilities may also precede and cultivate digital leadership. These findings suggest that digital leadership should not automatically be equated with a dynamic capability. Rather, leadership frequently operates as a microfoundation that initiates or strengthens organizational routines of sensing, learning, coordinating, innovating, and reconfiguring. DCT therefore provides the main theoretical explanation for the T and C domains of the A-T-C-O framework.

2.3. Resource-Based View/Resource-Based Theory

RBV/RBT complements DCT by explaining the resource basis of capability development and organizational advantage. RBV/RBT argues that organizational performance depends not simply on resource possession but on the effective organization and combination of strategically valuable resources (J. Barney et al., 2001; J. B. Barney, 2001). In digital transformation, relevant resources include leadership competencies, employee knowledge, technological infrastructure, data, digital platforms, organizational culture, social capital, and managerial capabilities.

This perspective helps explain why digital leadership alone does not consistently produce superior outcomes. Leadership becomes valuable when it enables organizations to mobilize and combine complementary resources into capabilities that competitors cannot easily reproduce. For example, Benitez et al. (2022) show that digital leadership generates innovation value through platform digitization capability, while Shin et al. (2023) identify digital culture and employees' digital capabilities as mechanisms connecting leadership with organizational performance. Similarly, Khan et al. (2026) demonstrate that digital innovation carries digital leadership capabilities into firm performance. Thus, RBV/RBT supports the proposition that leader-level resources acquire organizational value through capability formation rather than through direct effects alone.

Taken together, UET, DCT, and RBV/RBT provide a coherent multilevel theoretical architecture. UET explains why leaders differ in their digital strategic orientation; RBV/RBT explains the organizational resources that leadership mobilizes; and DCT explains how these resources are converted into adaptive organizational capabilities and subsequent outcomes. Their integration therefore supports the central argument of this review: digital leadership becomes organizationally consequential when leader-level cognition and behavior are institutionalized through conversion mechanisms into collective, repeatable capabilities that enable transformation, innovation, resilience, sustainability, and organizational performance.

3. RESEARCH METHOD

This study employed a systematic literature review (SLR) to synthesize empirical evidence on how digital leadership is translated into organizational capabilities, transformation processes, and performance outcomes. The review process was structured in accordance with PRISMA 2020 to ensure transparent identification, screening, eligibility assessment, and study inclusion (Page et al., 2021). Scopus served as the sole bibliographic database because its multidisciplinary coverage spans management, business, information systems, innovation, and organizational research and because it supports reproducible field-based searching and structured BibTeX export. The use of a single database is nevertheless treated as a review limitation rather than as evidence of exhaustive coverage.

3.1. Search Strategy and Review Scope

The search was conducted on 12 September 2026 in the Scopus TITLE-ABS-KEY field using a Boolean expression designed to capture the intersection of digital leadership, digital transformation or innovation, capability-related constructs, organizational settings, and performance outcomes. The exact search string was: TITLE-ABS-KEY(("digital leadership" OR "digital leader*") AND ("digital transformation" OR "digital innovation" OR digitalization) AND (capabilit* OR competenc* OR strateg* OR behavior*) AND (organization* OR firm* OR enterprise* OR workplace*) AND (performance OR innovation OR agility OR resilience OR transformation))

The search yielded 442 records. The unit of analysis was the peer-reviewed journal article reporting original empirical research in an organizational, workplace, firm, public-sector, or comparable management context. Digital leadership, digital leaders, or digital leadership capability had to constitute a focal construct in the empirical model or qualitative analysis. No restrictions were imposed on industry or country because contextual variation was considered theoretically relevant to the review question; however, only English-language final publications with accessible full texts were eligible for inclusion.

3.2. Eligibility Criteria and Study Selection

Eligibility criteria were specified before full-text synthesis to ensure that the final evidence base comprised original empirical research rather than secondary or purely conceptual literature. The inclusion criteria are:

- Peer-reviewed journal articles reporting original empirical research.
- Digital leadership, digital leader(s), or digital leadership capability treated as a focal construct.
- Organizational, firm, workplace, public-sector, SME, or comparable management context.
- At least one relevant mechanism, capability, or outcome related to transformation, innovation, agility, resilience, sustainability, or performance.
- English-language final publication with accessible full text.

Whilst, the exclusion criteria are:

- Conference proceedings, book chapters, books, dissertations, editorials, notes, errata, and other non-article formats.

- Review articles, systematic or scoping reviews, bibliometric studies, research agendas, and other secondary syntheses.
- Conceptual or theoretical papers without original empirical evidence.
- Studies in which digital leadership was not a substantive focal phenomenon.
- Studies outside the organizational/business-management domain or lacking a relevant capability, transformation, or outcome construct.

The Scopus export contained 442 records. Before title-and-abstract screening, 201 records were removed on pre-specified metadata criteria: 160 non-article document types, 10 non-English journal articles, and 31 non-final publications; no duplicate records or automation-based exclusions were identified. The remaining 241 records were screened by title and abstract. Of these, 165 were excluded because they were confined to education-only contexts ($n = 38$) or did not show sufficient alignment with the focal relationship between digital leadership and organizational capability, transformation, or performance outcomes ($n = 127$). Seventy-six reports were sought for retrieval; 17 were not available in the retrieved full-text set, leaving 59 reports for full-text eligibility assessment. Twenty-five reports were excluded at full text: nine review, overview, bibliometric, or research-agenda papers; eight conceptual or theoretical non-empirical papers; and eight empirical studies outside the focal digital-leadership scope. The final synthesis therefore comprised 34 empirical journal articles. The archived review record does not document independent duplicate screening or a second independent coder; accordingly, no claim of dual independent screening is made, and this is acknowledged as a limitation. Eligibility was determined at article level from the Scopus export. A journal's later discontinuation from Scopus was not used to exclude an article that fell within the source's historical Scopus coverage; this applies to Elidjen et al. (2019), whose journal has final Scopus coverage in 2020. Figure 1 summarizes the study-selection process.

3.3. Data Extraction and Evidence Synthesis

Data from each included article were extracted into a structured evidence matrix comprising bibliographic information, country and sector, sample and unit of analysis, research design and analytical method, conceptualization of digital leadership, theoretical foundation, mediating or moderating mechanisms, organizational capabilities, outcome variables, and principal findings. Coding followed a hybrid deductive-inductive procedure. The four research questions and the theoretical lenses supplied the deductive top-level categories (leader-level inputs, conversion mechanisms, organizational capabilities, and outcomes/context), while recurrent subthemes were developed inductively through repeated comparison of the extracted evidence. Coding was conducted manually within the structured evidence matrix rather than with a dedicated qualitative-analysis software package.

The extracted evidence was analyzed through iterative thematic comparison. Each construct was coded by analytical level and causal role so that leader attributes, employee or team mechanisms, organization-level capabilities, moderators, and distal outcomes were not conflated. Subthemes were consolidated only when studies placed conceptually related constructs in comparable causal positions; divergent uses were retained and discussed rather than forced into a single category. Because the studies were heterogeneous in design, measurement, sector, and outcome specification, statistical pooling was not considered appropriate. The review therefore used structured qualitative thematic synthesis and non-exclusive frequency counts to identify recurrent capability-conversion pathways and contextual boundary conditions.

3.4. Methodological Quality and Rigor

Given the methodological heterogeneity of the evidence base, methodological adequacy was assessed during full-text review against four reporting criteria: original empirical data, a clearly identifiable research context and sample, an interpretable methodological procedure, and sufficiently explicit results to support extraction of mechanisms, capabilities, and outcomes. A post hoc MMAT score was not introduced because the archived extraction matrix did not retain

all item-level information required for defensible retrospective MMAT judgments; generating such scores at revision would create false precision. The absence of a standardized, independently replicated appraisal is therefore acknowledged as a methodological limitation. Study-level limitations reported in the articles, including cross-sectional design, single-source measurement, weak temporal ordering, or limited contextual generalizability, were retained in the synthesis.

Secondary reviews and foundational conceptual or theoretical works were used only to support the introduction, theoretical framing, and discussion. They were not counted among the 34 empirical studies included in the PRISMA-based synthesis.

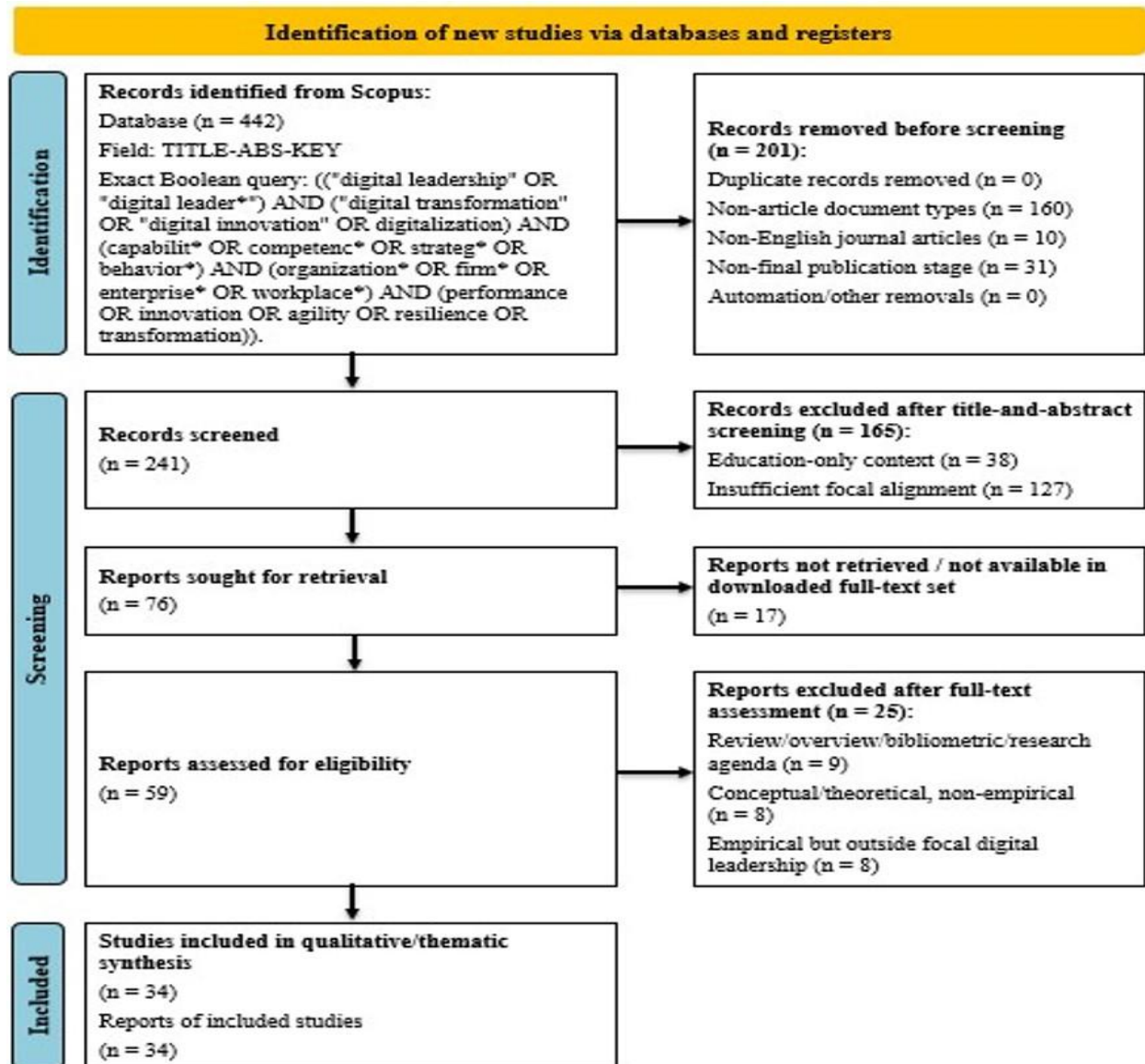


Figure 1. PRISMA 2020 flow diagram for study identification, screening, eligibility, and inclusion.

4. RESULTS AND DISCUSSION

4.1. Results

4.1.1. Study Profile and Evidence Structure

The final synthesis comprised 34 empirical journal articles published between 2019 and 2026, with 24 studies published during 2024-2026. Asian and Asia-Pacific settings predominate, complemented by evidence from European and African contexts and studies whose location was not explicit in the extraction matrix. Quantitative survey designs using SEM or PLS-SEM dominate (31 studies), while the corpus contains two qualitative studies and one mixed-method study. Time-lagged or multi-wave designs remain uncommon. Table 1 summarizes the temporal,

methodological, geographic, and causal-role profile of the included evidence. Theoretical framing was not reported consistently enough across the extraction matrix to support a reliable frequency ranking; Dynamic Capability Theory, UET, and RBV/RBT are therefore used as integrative explanatory lenses rather than presented as exhaustive counts of theories used.

Table 1. Descriptive profile of the 34 included empirical studies.

Profile dimension	Category	n	%
Publication year	2019	1	2.9
Publication year	2022	4	11.8
Publication year	2023	5	14.7
Publication year	2024	7	20.6
Publication year	2025	11	32.4
Publication year	2026	6	17.6
Research design	Quantitative	31	91.2
Research design	Qualitative	2	5.9
Research design	Mixed methods	1	2.9
Geographic reporting	Asia/Asia-Pacific settings	19	55.9
Geographic reporting	Europe	2	5.9
Geographic reporting	Africa	1	2.9
Geographic reporting	Location not explicit in extraction matrix	12	35.3
Role of digital leadership	Antecedent-like / enabling role	28	82.4
Role of digital leadership	Mediator/intermediate role	2	5.9
Role of digital leadership	Moderator	2	5.9
Role of digital leadership	Outcome/enabled construct	2	5.9

4.1.2. Integrative Evidence-Based Framework

Cross-study synthesis produced an integrative A-T-C-O capability-conversion framework (Figure 2). The framework separates leader-level inputs from organizational conversion mechanisms, collective capabilities, and outcomes. The A domain now contains five dimensions directly supported in the included evidence: digital vision and strategic orientation, digital mindset and technology sensemaking, change orchestration, empowerment and collaboration, and innovation orientation. The T domain contains strategic alignment and digital orientation, learning and knowledge sharing, digital culture and HR practices, employee activation, and technology integration and innovation processes. The C domain comprises dynamic capabilities, organizational/strategic agility, digitalization/technological capability, innovation/service-innovation capability, organizational learning capability, and transformation capability. The O domain is restricted to outcomes observed in the 34-study corpus: digital transformation, innovation and innovation performance, organizational/financial performance, sustainability outcomes, and proximal employee or organizational responses. Contextual moderators shown in the figure are limited to conditions actually identified in the included studies, including strategic agility, technology readiness, person-job fit, task interdependence, absorptive capacity, innovation atmosphere, top-management innovativeness, environmental dynamism, digital culture, and national/contextual setting. Dashed feedback arrows represent the reciprocal or reverse relationships reported in selected studies. Table 2 provides study-level traceability, and Table 3 reports non-exclusive frequencies for recurrent mechanism, capability, and outcome families.

Table 2. Characteristics & Synthesized Contribution of the 34 Included Empirical Studies

Reference	Context / design	Role of digital leadership	Capability-conversion mechanism	Outcome(s)	Key synthesis finding
Truong & Nguyen (2026)	Vietnam; senior executives/business owners; quantitative PLS-SEM	Antecedent	Sensing, seizing, and transforming capabilities	Organizational performance	Dynamic capabilities mediate the leadership-performance relationship; seizing and transforming provide especially strong indirect routes.
El Ozon & Akhlaghi Mofrad (2026)	Lebanese SMEs; 423 employees; quantitative PLS-SEM	Antecedent	Digital capabilities; digital orientation; strategic agility	Sustainable digital innovation	Digital capabilities and orientation transmit leadership effects; strategic agility strengthens the digital-orientation pathway.
Khan et al. (2026)	Chinese IT firms; 338 managers; PLS-SEM and ANN	Higher-order antecedent capability	Digital innovation; dynamic workplace	IT-firm performance	Digital innovation carries the effect of digital leadership capabilities to firm performance; workplace effects follow a partly different route.
Held et al. (2026)	German SMEs; empirical quantitative study	Outcome/enabled construct	Dynamic capabilities; digital culture	SME digital transformation	Dynamic capabilities help cultivate digital leadership and digital culture, indicating that leadership can also be produced by broader organizational capabilities.
Hareebin et al. (2026)	Phuket hotel industry; quantitative study	Intermediate driver	Entrepreneurial dynamic capabilities; agility; innovation capability	Hotel business performance	Entrepreneurial dynamic capabilities predict digital leadership, agility, and innovation capability, which contribute to performance.
Liu et al. (2026)	China's Baijiu industry; quantitative study	Antecedent	Employees' digital capabilities; organizational learning	Organizational innovation	Employee digital capability links leadership with organizational innovation and also carries learning-related effects.
Zhang et al. (2025)	High-tech firms, Yangtze River Delta; quantitative study	Mediator/intermediate construct	Digital transformation capability; strategic intuition	Firm performance	Digital leadership can emerge within a pathway initiated by transformation capability, challenging a purely upstream leadership model.
Zada et al. (2025)	Firm-level quantitative study	Antecedent	Green innovation; top-management innovativeness	Firm sustainability	Green innovation mediates leadership effects, while top-management innovativeness strengthens the leadership-innovation relationship.
M. Yang et al. (2025)	Employee-level; three-wave multi-source design	Antecedent	Innovation self-efficacy; knowledge sharing; technology readiness	Employee creativity	Leadership enhances creativity through two mediated routes; technology readiness strengthens the indirect effects.
Y. Wang et al. (2025)	Manufacturing employees; 306 questionnaires; quantitative study	Antecedent	Task and cognitive job crafting; person-job fit	Employee innovative performance	Task and cognitive crafting transmit leadership effects; person-job fit strengthens the cognitive-crafting pathway.
Tunaboylu & Cerasi (2025)	Organizational quantitative study; regression/PROCESS	Antecedent	Digitalization capability	Innovation performance	Digital leadership has a positive effect, but digitalization capability is the stronger mechanism explaining innovation outcomes.

Reference	Context / design	Role of digital leadership	Capability-conversion mechanism	Outcome(s)	Key synthesis finding
Takyi et al. (2025)	Ghanaian manufacturing firms; quantitative study	Antecedent	Technological capability; digital transformation; digital culture	Enterprise performance	Leadership and technological capability foster transformation; digital culture conditions the leadership-transformation relationship.
Sawaeen & Aburumman (2025)	Kuwaiti SMEs; quantitative mediation-moderation design	Antecedent	Digital capability; innovation culture	Innovation performance	Digital capability mediates leadership effects and innovation culture acts as a contextual moderator.
Rahman et al. (2025)	South Korean automobile industry; 355 respondents; PLS-SEM	Antecedent	Knowledge sharing; organizational learning capability	Organizational learning capability	Knowledge sharing fully mediates the effects of digital leadership and IT support on organizational learning capability.
Li et al. (2025)	Employee-level quantitative moderated-mediation study	Antecedent	Techno-insecurity; felt responsibility for constructive change; task interdependence	Proactive behavior	Leadership promotes proactive behavior by reducing insecurity and strengthening constructive-change responsibility; task interdependence conditions the pathways.
Khattak et al. (2025)	China; digital-transformation projects; time-lagged survey	Antecedent capability	Knowledge-management capability; organizational agility	Digital transformation	Organizational agility transmits the effects of digital leadership and knowledge-management capability to transformation.
Cheng et al. (2025)	Chinese IT SMEs; moderated-mediation study	Antecedent	Digital capability; digital organizational culture; absorptive capacity; innovation atmosphere	Organizational sustainability	Two mediated routes link leadership to sustainability, with different organizational conditions strengthening each route.
Mollah et al. (2024)	Bangladesh; IT firms; 416 responses; SEM	Antecedent	Digital transformation; digital innovation; environmental dynamism	Sustainable financial performance	Digital innovation partially transmits leadership effects to performance and the broader model is contingent on environmental dynamism.
C. Yang et al. (2024)	Employee-level; two-wave study	Antecedent	Employee empowerment; work engagement	Promotive and prohibitive voice	Empowerment and engagement provide differentiated pathways from digital leadership to employee voice behavior.
G. Wang et al. (2024)	Chinese SMEs; quantitative SEM	Antecedent	High-involvement HRM; employee dynamic capability	Employee digital performance	No simple direct effect is found; HRM practices and a sequential capability route explain performance effects.
Senadjki et al. (2024)	Malaysia; 164 responses; SmartPLS/mediation analysis	Antecedent	Digital transformation	Firm financial performance	Leadership dimensions influence performance mainly through digital transformation rather than through a direct route.
Chen et al. (2024)	Firm-level moderated-mediation study	Moderator	Digital exploitation/exploration capabilities; business-model innovation	Sustainable business performance	Digital leadership capability strengthens the conversion of business-model innovation into sustainable performance.

Reference	Context / design	Role of digital leadership	Capability-conversion mechanism	Outcome(s)	Key synthesis finding
Braojos et al. (2024)	Organizational quantitative empirical study	Mediator/ intervening mechanism	Digital transformation capabilities; continuous learning environment	Organizational commitment	Digital leadership functions within, rather than solely before, the transformation-capability pathway.
Arabian et al. (2024)	Tehran printing/publishing sector; 235 respondents; structural modeling	Antecedent	Organizational entrepreneurship	Business performance	Organizational entrepreneurship mediates the relationship between digital-leadership dimensions and business performance.
Türk (2023)	Senior managers; qualitative interviews	Strategic enabler	Digital mindset; digital culture; strategic alignment and adaptation	Transformation-oriented business strategy	Digital leadership supports the development of business strategy aligned with digital transformation.
Shin et al. (2023)	South Korea; 149 employees; SEM	Antecedent	Digital culture; employees' digital capabilities	Organizational performance	Digital culture and employee digital capabilities partially mediate the relationship between leadership and performance.
Sagbas et al. (2023)	Istanbul IT sector; 390 employees; SEM	Antecedent	Innovative behavior	Intrapreneurship intention; job performance	Innovative behavior fully mediates the effect on intrapreneurship intention and partially mediates the effect on job performance.
Chatterjee et al. (2023)	Organizational survey; dynamic-capability model	Moderator	Digital workplace transformation; organizational dynamic capabilities	Employee and organizational performance	Digital leadership capability strengthens relationships within a wider capability-workplace-performance architecture.
Brunner et al. (2023)	39 semi-structured interviews; Grounded Theory	Micro-foundation	Personal, social, and organizational capital; service innovation capability	Management of technology-driven change	Leader-level capital is translated into dynamic service-innovation capabilities that support repeated technology-driven change.
T. Wang et al. (2022)	401 followers and 88 leaders; time-lagged design	Antecedent	Digital entrepreneurial orientation; digital organizational culture; big-data analytics capability	Exploratory innovation	Strategic orientation and culture mediate leadership effects, while analytics capability strengthens the indirect pathway.
Niu et al. (2022)	Comparative evidence from South Korea and China; quantitative study	Antecedent	ESG management; organizational innovation	Organizational sustainability	Leadership influences ESG management and innovation, but the mediation pattern toward sustainability differs across national contexts.
Karippur & Balaramachandran (2022)	Asia-Pacific enterprises; empirical organizational study	Outcome of antecedent conditions	Leadership attributes; strategic priorities; exploration focus; digital governance	Effective digital leadership	The study identifies organizational and managerial antecedents that shape whether effective digital leadership emerges.
Benitez et al. (2022)	Europe; 10 case studies plus 117-firm survey; mixed methods	Lower-order leadership capability	Platform digitization capability	Innovation performance	Platform digitization capability carries digital-leadership effects to innovation performance, providing direct evidence of capability conversion.

Reference	Context / design	Role of digital leadership	Capability-conversion mechanism	Outcome(s)	Key synthesis finding
Elidjen et al. (2019)	Indonesia; telecommunication; 88 senior leaders; quantitative study	Antecedent	Innovation management; dynamic capability; collaboration	Dynamic capability and innovation-related outcomes	Innovation management and collaboration are examined as intervening/accelerating conditions connecting digital leadership with dynamic capability.

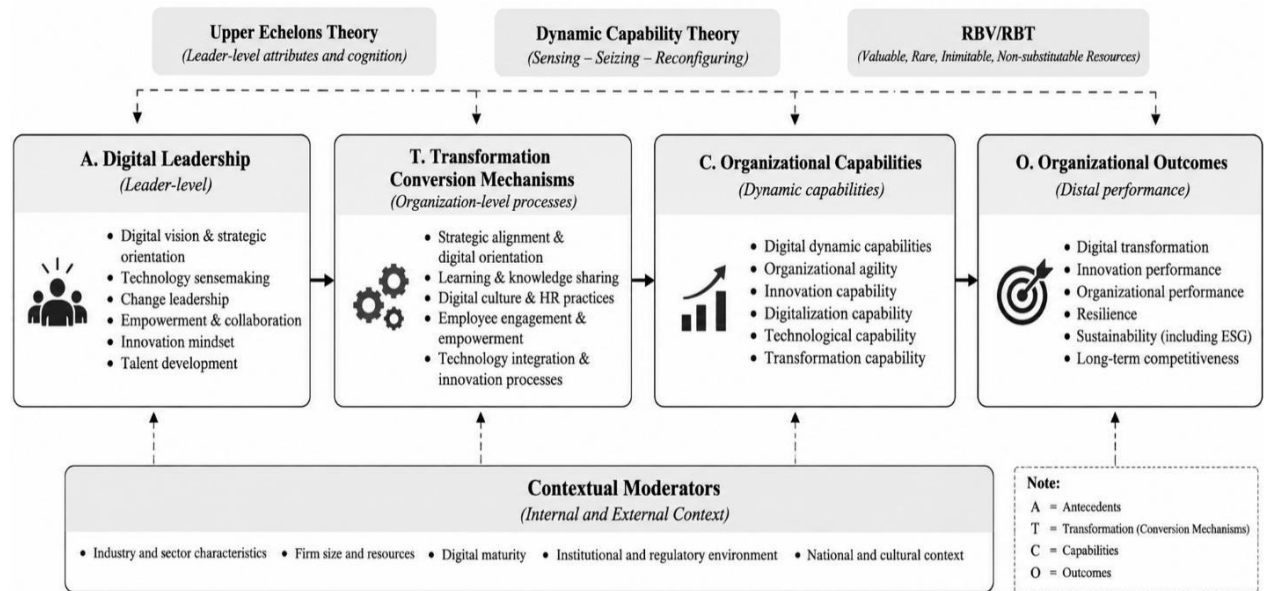


Figure 2. Integrative Digital Leadership Capability-Conversion Framework (A-T-C-O).

Table 3. Frequency of recurring A-T-C-O evidence categories across the 34 included studies.

Domain	Synthesized category	Studies, n	Interpretive note
T - Conversion mechanisms	Strategic alignment / digital orientation	5	Non-exclusive coding
T - Conversion mechanisms	Learning / knowledge sharing	5	Non-exclusive coding
T - Conversion mechanisms	Digital culture / HR systems	9	Non-exclusive coding
T - Conversion mechanisms	Employee activation / adaptive behavior	7	Non-exclusive coding
T - Conversion mechanisms	Technology integration / innovation processes	18	Non-exclusive coding
C - Organizational capabilities	Dynamic-capability family	5	Explicit dynamic-capability constructs
C - Organizational capabilities	Organizational / strategic agility	3	Explicit agility constructs
C - Organizational capabilities	Digitalization / technological capability	6	Organization-level digital/technology capability
C - Organizational capabilities	Innovation / service-innovation capability	2	Explicit capability labels only

Domain	Synthesized category	Studies, n	Interpretive note
C - Organizational capabilities	Organizational learning capability	2	Explicit learning-capability constructs
C - Organizational capabilities	Transformation capability	2	Explicit transformation-capability constructs
O - Outcomes	Digital transformation	2	Outcome explicitly coded as transformation
O - Outcomes	Innovation / innovation performance	8	Includes organizational and employee innovation outcomes
O - Outcomes	Organizational / firm / financial performance	11	Non-exclusive outcome family
O - Outcomes	Sustainability-related outcomes	6	Excludes ESG as a distal outcome
O - Outcomes	Proximal employee / organizational responses	7	Creativity, voice, proactivity, commitment, digital performance, etc.

4.2. Discussion

RQ1: What Constitutes Digital Leadership?

The review identifies five recurring constitutive domains of digital leadership: digital vision and strategic orientation; technology sensemaking and digital mindset; change orchestration; empowerment and collaboration; and innovation-oriented behavior. Türk (2023) supports strategic alignment and digital mindset; T. Wang et al. (2022) link digital leadership with digital entrepreneurial orientation and organizational culture; Brunner et al. (2023) connect leader-level personal, social, and organizational capital with the management of technology-driven change; and Karippur and Balaramachandran (2022) identify leadership attributes, strategic priorities, exploration focus, and digital governance as antecedents of effective digital leadership. Change orchestration is therefore retained because it is supported by evidence on technology-driven change and transformation-oriented strategy, whereas talent/capability development is moved from the A domain to conversion mechanisms because the corpus more often treats employee capability development as an organizational process than as a defining leadership dimension.

The synthesis also exposes a measurement and level-of-analysis inconsistency. Digital leadership is variously operationalized as a multidimensional leader behavior, a leadership capability, a moderator, a mediator, a microfoundation, or an enabled construct. Most studies position it upstream, but Benitez et al. (2022) distinguish lower-order digital leadership capability from higher-order platform digitization capability, Brunner et al. (2023) treat leadership as a microfoundation of service-innovation capability, and Held et al. (2026) show that broader dynamic capabilities can cultivate digital leadership. This heterogeneity limits direct comparability of effect sizes and supports interpreting the A domain as a leader-level microfoundation rather than as a single, universally equivalent organizational capability. This interpretation is consistent with dynamic-capability theory (Teece, 2007, 2018; Teece et al., 1997) and the capability-lifecycle view (Helfat & Peteraf, 2003).

RQ2: Through What Organizational Mechanisms are Leadership Inputs Converted into Organization-Level Capabilities?

Five recurrent mechanism families explain how leadership inputs are converted into organization-level capability (Table 3). Technology integration and innovation processes are the most frequently coded family (18 studies), followed by digital culture and HR systems (9),

employee activation and adaptive behavior (7), strategic alignment/digital orientation (5), and learning/knowledge sharing (5). The frequencies are non-exclusive because many studies combine mechanisms. Rahman et al. (2025), for example, place knowledge sharing between digital leadership and organizational learning capability, whereas G. Wang et al. (2024) show that high-involvement HRM precedes employee dynamic capability and digital performance. These patterns indicate that conversion is not one mechanism but a layered process connecting strategic, social, behavioral, and technological routines.

At the micro level, empowerment, work engagement, job crafting, innovative behavior, and proactive responsibility provide behavioral bridges between leadership and broader outcomes (Li et al., 2025; Sagbas et al., 2023; Y. Wang et al., 2025; C. Yang et al., 2024). At the organizational level, platform digitization (Benitez et al., 2022), digitalization capability (Tunaboylu & Cerasi, 2025), digital innovation (Khan et al., 2026), and technological capability (Takyi et al., 2025) institutionalize strategic intent in repeatable routines. The distinction matters because studies often label both employee responses and organization-level routines as 'capabilities'; the revised synthesis preserves their analytical level rather than collapsing them into a single mediator.

RQ3: Which Dynamic Organizational Capabilities Mediate or Embody the Conversion Process?

The C domain identifies the collective capacities that most consistently embody capability conversion. Explicit dynamic-capability constructs appear in five studies, agility constructs in three, organization-level digitalization/technological capabilities in six, organizational learning capability in two, transformation capability in two, and explicit innovation/service-innovation capability in two (Table 3). Truong and Nguyen (2026) provide the clearest dynamic-capability test by showing that sensing, seizing, and transforming capabilities mediate the digital leadership-performance relationship, while Khattak et al. (2025) position organizational agility between digital leadership capability, knowledge-management capability, and digital transformation. These recurring patterns support the C domain, but their unequal frequencies caution against treating all capability labels as equally established.

The critical issue is conceptual overlap. Digital capability, digitalization capability, platform digitization capability, technological capability, and transformation capability are related but not interchangeable. Likewise, innovation is variously modeled as a capability, process, mediator, or outcome, and agility may operate as a capability or intervening mechanism. Benitez et al. (2022), Tunaboylu and Cerasi (2025), Rahman et al. (2025), Zhang et al. (2025), and Braojos et al. (2024) illustrate these different causal placements. Accordingly, the framework groups constructs at a higher level while retaining their study-specific roles in Table 2. Dashed feedback paths in Figure 2 acknowledge that conversion is not irreversible: organizational capabilities can precede or reshape digital leadership in selected studies. This interpretation is compatible with RBV/RBT, in which resources create value when organized into firm-specific capability configurations (Barney, 2001).

RQ4: What Organizational Outcomes are Associated with the Pathways, and What Contextual Conditions Shape Them?

The reviewed pathways lead to several distinct outcome families rather than a single performance endpoint. Eleven studies report organizational, firm, business, or financial performance outcomes; eight report innovation or innovation-performance outcomes; six report sustainability-related outcomes; two treat digital transformation as the explicit outcome; and seven report proximal employee or organizational responses such as creativity, voice, proactivity, commitment, or digital performance (Table 3). Resilience and long-term competitiveness are not

retained as O-domain outcomes because they are not measured in the 34-study evidence matrix. ESG is likewise not treated as a distal outcome: in Niu et al. (2022), ESG management functions within the explanatory pathway to organizational sustainability.

The evidence does not support a universal digital-leadership effect. The moderators actually identified in the included studies include strategic agility, technology readiness, person-job fit, task interdependence, absorptive capacity, innovation atmosphere, top-management innovativeness, environmental dynamism, digital culture, and national/contextual setting (Cheng et al., 2025; Mollah et al., 2024; Takyi et al., 2025; Y. Wang et al., 2025; M. Yang et al., 2025; Zada et al., 2025). These conditions are now shown explicitly in Figure 2 rather than replaced by broader moderators not directly evidenced in the corpus. Overall, the synthesis favors a capability-conversion explanation over a direct-effect model, consistent with the proposition that resources generate value through intermediate organizational options and agility (Mikalef & Pateli, 2017; Sambamurthy et al., 2003). However, the dominance of survey-based SEM/PLS-SEM, heterogeneous digital-leadership measures, and single-country samples limits causal and cross-context comparability.

5. CONCLUSION AND SUGGESTION

This review addressed the fragmented understanding of how digital leadership moves from leader-level attributes to organization-level capability. Across 34 empirical studies, the dominant pattern is not a simple leadership-performance effect but an A-T-C-O conversion process: digital-leadership microfoundations are translated through strategic, learning, cultural/HR, behavioral, and technology-innovation mechanisms into collective capabilities, which are then associated with digital transformation, innovation, organizational and financial performance, sustainability, and proximal employee or organizational responses. The evidence also shows selected reciprocal relationships, indicating that organizational capabilities can sometimes cultivate or reshape digital leadership rather than only follow it.

The main theoretical implication is that digital leadership should not be treated as synonymous with organizational capability. The A-T-C-O framework clarifies the distinction between leader-level inputs, conversion mechanisms, collective capabilities, contextual moderators, and outcomes. Practically, organizations should complement leadership development with knowledge-sharing routines, learning systems, HR practices, digital culture, technology integration, and cross-functional coordination so that leader-level influence becomes repeatable organizational capability.

This review has several limitations. It uses Scopus as the sole database and an intentionally restrictive search string requiring digital transformation, digital innovation, or digitalization terms; relevant digital-leadership studies using different terminology may therefore have been missed. Independent duplicate screening was not documented, and the review did not apply a standardized MMAT appraisal with independently verified item-level ratings. The evidence base is also dominated by cross-sectional surveys and heterogeneous construct labels, limiting causal inference and comparability. Future research should test the A-T-C-O pathways with longitudinal, multilevel, multi-source, and cross-context designs, and should distinguish more clearly among leader-level competencies, employee capabilities, organizational dynamic capabilities, and distal outcomes.

DECLARATION OF THE USE OF ARTIFICIAL INTELLIGENCE (AI)

The author acknowledges the use of artificial intelligence (AI) tools to support language editing, improve academic writing clarity, and refine the structure and presentation of the manuscript. AI tools were used solely as supplementary aids and did not replace the author's intellectual contribution, critical evaluation, or scholarly judgment. The author takes full responsibility for the accuracy, originality, interpretation, and integrity of the manuscript,

including the verification of the literature reviewed, the synthesis of findings, and the conclusions presented in this systematic review.

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CONFLICT OF INTEREST

The author declares no financial, professional, or personal conflicts of interest that could have influenced this systematic review or the interpretation and reporting of its findings.

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