



E-ISSN: 3108-4176

APSSHS

Academic Publications of Social Sciences and Humanities Studies

2025, Volume 6, Issue 2, Page No: 168-177

Available online at: <https://apsshs.com/>

Annals of Organizational Culture, Leadership and External Engagement Journal

How Digital Transformation Reshapes Leadership and Organizational Change: A Scoping Review of Governance, Culture, Capability, and Workforce Adaptation, 2017–2025

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Abstract

Digital transformation has become a central organizational concern, yet the literature remains divided over what is transformed, which organizational actors carry the process, and how leadership, governance, culture, capabilities, and workforce adaptation relate across levels and over time. This scoping review maps peer-reviewed Q1 journal evidence published from 2017 through 2025 to clarify those relationships without treating heterogeneous studies as evidence of a single causal pathway. The review distinguishes digital transformation from narrower digitization or technology adoption, charts evidence across five organizational domains, and examines where studies connect or isolate them. The synthesis indicates that transformation is most consistently described as organizational reconfiguration rather than technological substitution alone. Leadership evidence emphasizes context-sensitive competencies, meaning-making, communication, and strategic direction; governance studies emphasize strategic alignment, information quality, board and top-management interfaces, and structural choices; culture research treats norms and learning conditions as changeable but not sufficient; capability studies emphasize renewal, agility, and ecosystem dependence; and workforce research separates literacy, adaptation, resistance, well-being, and talent mechanisms. On this basis, the review proposes an integrative digital-transformation change framework in which the five domains are analytically distinct but mutually conditioning, with temporal, contextual, and level-of-analysis boundaries explicitly retained. The review informs future multilevel and longitudinal research and cautions managers against universal transformation recipes. Its conclusions are bounded by heterogeneous designs, sectoral variation, uneven cross-domain integration, and the non-causal purpose of scoping synthesis.

Keywords: Digital transformation, Organizational change, Digital leadership, Governance, Organizational culture, Dynamic capabilities

How to cite this article: Zhang W, Hui C, Tan M. How Digital Transformation Reshapes Leadership and Organizational Change: A Scoping Review of Governance, Culture, Capability, and Workforce Adaptation, 2017–2025. *Ann Organ Cult Leadersh Extern Engagem J.* 2025;6(2):168-77. <https://doi.org/10.51847/fyufYZRMJ0>

Received: 31 October 2025; **Revised:** 21 December 2025; **Accepted:** 23 December 2025

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Introduction

Digital transformation is increasingly treated as an organization-wide reconfiguration that extends beyond isolated technology adoption and can alter strategy, structures, value creation, and organizational change processes [1–3]. That breadth makes leadership and change inseparable from questions of governance, culture, capability formation, and workforce adaptation. It also makes the field difficult to synthesize through a single outcome lens because studies frequently examine different units, sectors, technologies, and transformation stages. The same label can therefore conceal materially different configurations of authority, learning, coordination, and employee involvement.



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Recent reviews show continuing conceptual and process heterogeneity even as digital-transformation scholarship has matured [4]. This heterogeneity does not itself imply weak effects; rather, it indicates that apparently similar labels may refer to different organizational changes, mechanisms, or levels of analysis. A mapping design is therefore useful for locating where evidence converges, where domains remain disconnected, and where temporal or contextual qualifications alter interpretation. Failure-oriented scholarship further cautions against treating widely repeated transformation-failure narratives as stable prevalence estimates or universal explanations [5]. Bibliometric concentration around failure themes can reveal how scholarship is organized, but not how often transformation fails or which factor causes failure. The review consequently centers evidence structure and organizational relationships rather than success-versus-failure counting.

Review purpose and scoping questions

The review maps how digital transformation reshapes leadership and organizational change across governance, culture, capability, and workforce adaptation. Digital transformation is bounded here as fundamental organizational change enabled by digital technologies rather than digitization alone [6]. This definition permits technological change to be necessary in many cases without assuming that the acquisition or deployment of a digital tool constitutes transformation.

A second boundary distinguishes digital transformation from broader IT-enabled organizational transformation when changes to organizational identity and value propositions become substantively implicated [7]. Identity-level change is not imposed as a universal criterion; instead, the distinction prevents routine IT modernization from being treated automatically as strategic transformation. The review asks how evidence across the five domains evolved during 2017–2025, which cross-domain relationships were actually examined, what contextual, temporal, and level-of-analysis conditions constrain interpretation, and which missing connections require targeted research designs rather than further descriptive accumulation.

Conceptual boundaries

The unit of interest is organizational transformation associated with digital technologies, not the technical performance of particular platforms or tools. Organization design is therefore treated as part of the substantive phenomenon because digital transformation can alter coordination, experimentation, decision rights, and structural arrangements [8]. No one-best structural form is assumed: coordination and experimentation may generate different tensions across established firms, public organizations, SMEs, and ecosystem settings.

The review also keeps constructs separate when adjacent literatures sometimes collapse them. Leadership intent is not equivalent to employee experience; formal governance is not enacted coordination; culture is not a residual label for all behavioral conditions; digital capability is not synonymous with technology ownership; and workforce adaptation is not reducible to digital literacy. Evidence is interpreted at the level at which it was studied. Associations are not recast as mechanisms, cross-sectional relationships are not given temporal ordering, and organization-level implications are not inferred automatically from individual-level measures.

Materials and Methods

The review used a scoping design to map the breadth, conceptual organization, cross-domain relationships, and evidence gaps in scholarship published from 2017 through 2025. The method proceeded through explicit eligibility rules, domain-sensitive searching, candidate normalization, claim-fit screening, data charting, and analytical classification. Evidence was organized around leadership, governance and strategic alignment, organizational culture and change, dynamic and digital capabilities, and workforce adaptation, while methodological and conceptual sources were retained where required to establish review boundaries. Coverage rather than pooled effect estimation was the methodological priority. The synthesis preserved study-level context, level of analysis, temporal design, and stated limitations. It did not calculate transformation success or failure rates or infer causal effects from literature distributions. Review-flow reporting also distinguishes verified curated-pool counts from upstream identification stages that were not reproducibly enumerable.

Protocol and review design

A scoping review is appropriate when the objective is to map concepts, evidence characteristics, relationships, and gaps rather than answer a narrowly specified effectiveness question or estimate a pooled effect [9]. Accordingly, the review protocol treated breadth and conceptual differentiation as primary. Screening prioritized whether a source could support a specific manuscript claim, boundary condition, contradiction, methodological distinction, or cross-domain relationship rather than whether it merely mentioned digital transformation.

The design also separated substantive evidence from review-method evidence. Methodological sources informed scoping and reporting choices but were not used to substantiate organizational claims. Because the review integrates empirical, conceptual, and review evidence, synthesis emphasized what each design permits: empirical associations remained associations,

conceptual propositions remained theoretical, and review-level patterns were used to characterize the literature rather than to establish organizational causality.

Eligibility criteria

Eligible sources were peer-reviewed journal articles published between 2017 and 2025, with a verifiable DOI, Q1 status in a relevant journal category, and direct relevance to at least one review domain, methodological decision, theoretical distinction, boundary condition, or planned claim. Sources had to provide enough information to support claim-level assignment rather than topic-only inclusion. Both empirical and substantive conceptual or review articles were eligible when their evidence role was explicit.

Records were excluded when they fell outside the publication window, lacked the required journal or DOI status, duplicated another version, addressed only an adjacent topic, or would require transfer beyond the population, sector, level, technology, or institutional setting actually studied. Recency did not override evidence fit. The protocol therefore favored complementary explanatory coverage over accumulation of papers making substantially the same point.

Information sources and search strategy

Searches combined the core digital-transformation concept with terms for leadership, governance, strategic alignment, organizational culture, change, dynamic and digital capabilities, workforce adaptation, evidence gaps, boundary conditions, and review methodology. Publisher and DOI-indexed web records were used to locate and verify candidates, with separate searches for Q1 status and bibliographic metadata. Searches were bounded to the 2017–2025 publication window and iteratively refined using construct synonyms, opposing concepts, level-of-analysis terms, temporal language, and validation or limitation terms. Criticism, counter-concept, and contextual-moderator terminology was also used to locate evidence capable of constraining overly positive transformation narratives.

The search interface supported ranked discovery rather than exhaustive database export. Consequently, the method does not report a fabricated raw retrieval total. **Table 1** specifies how coverage decisions connected the substantive domains to eligibility, screening, and charting.

Table 1. Coverage decisions linking digital-transformation scoping questions to search and charting boundaries

Scoping domain or decision	Source/search concept	Eligibility boundary	Screening rule	Charting field affected	Rationale
Core transformation concept	Publisher/DOI-indexed records; digital transformation + organizational change	2017–2025; peer-reviewed Q1 journal; DOI	Retain claim-specific transformation relevance	Construct definition; context	Separate transformation from tool adoption
Leadership and governance	Leadership, board/TMT, strategy, information governance, alignment	Direct organizational relevance	Preserve actor and level distinctions	Actor; level; governance mechanism	Avoid collapsing leadership into governance
Culture and capabilities	Culture, learning, agility, dynamic/digital capability	Identifiable construct	Exclude topic-only mentions	Construct; mechanism; boundary	Distinguish conditions from outcomes
Workforce adaptation	Literacy, readiness, resistance, well-being, talent	Identifiable employee/team/organization level	Preserve level and outcome distinctions	Unit; measure; adaptation mechanism	Prevent workforce constructs becoming interchangeable
Verification and methods	DOI/publisher metadata; Q1 checks; scoping methods	Verifiable metadata or methodological relevance	Exclude insecure metadata or quartile fit	Bibliography; method role	Maintain reference and design integrity

Screening and study selection

Candidate records were normalized by title, DOI, publication status, journal fit, and intended evidence role before claim-fit screening. The verified curated pool contained 52 distinct candidates. Fifteen were excluded for redundant contribution, overly narrow context, insecure journal/Q1 or metadata status, or emphasis outside the intended organizational scope. Thirty-seven sources were retained. These counts characterize the curated selection pool and are not relabeled as exhaustive title/abstract or full-text screening counts.

Selection reporting follows PRISMA-ScR principles of transparent identification, screening, eligibility, and inclusion, but the reporting guideline does not justify inventing unavailable counts [10]. Complete raw search exports were unavailable;

therefore, upstream identification, deduplication, reports-sought, and formal full-text eligibility totals remain not reportable. **Figure 1** represents those boundaries explicitly and restricts numerical flow to verified selection data.

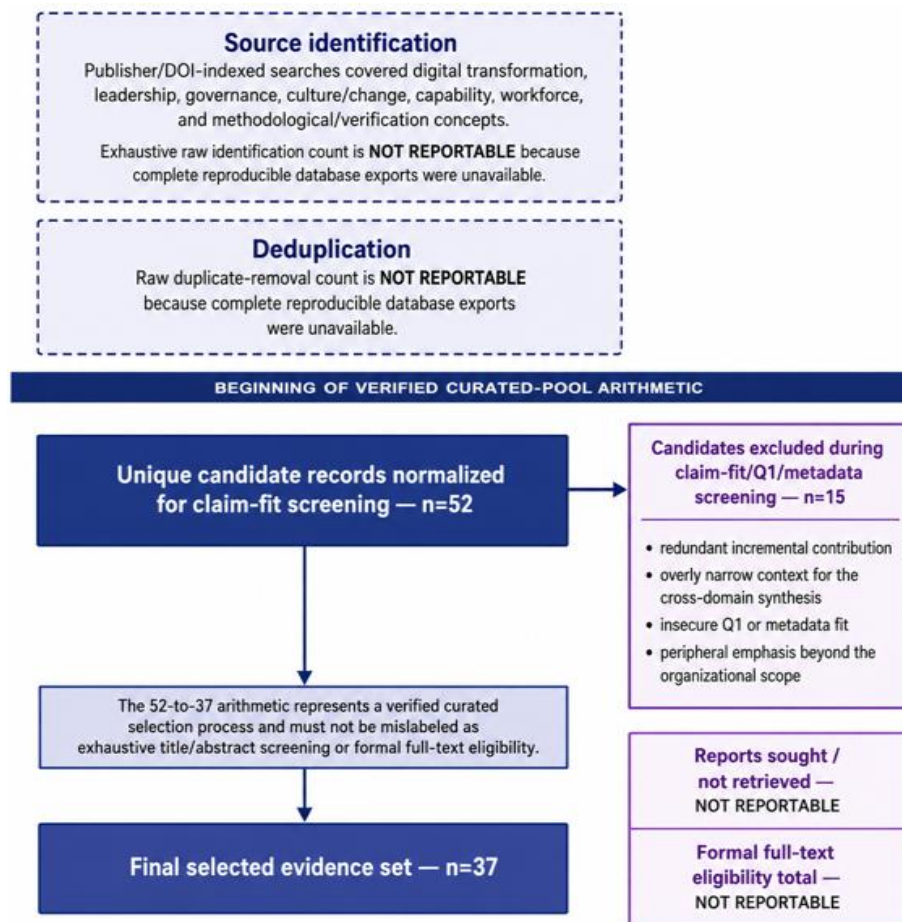


Figure 1. Study identification and evidence coverage across leadership, governance, culture, capability, and workforce adaptation

Data charting

Data charting preserved the distinctions required to interpret heterogeneous organizational evidence rather than reducing each source to a topical label. For every retained article, the chart recorded focal construct, definition or operationalization, organizational setting, sector, sample or unit of analysis, level of analysis, study design, theoretical lens, analytical method, evidence type, reported relationship or argument, boundary condition, limitation, transferability constraint, and the exact claim the source could support. Missing information was recorded as not reported rather than inferred. This approach follows the scoping-review emphasis on systematic mapping rather than effect aggregation [9]. It also allowed conceptually adjacent evidence to remain separated: leadership from governance, culture from capability, employee literacy from adaptation, and empirical association from theoretical proposition. Potential exhibit relevance was charted independently from substantive inclusion so that later synthesis could use evidence-derived entries without introducing citation numbers or unsupported information into visible tables.

Analytical classification and synthesis

The analytical classification used five domains—leadership, governance and strategic alignment, organizational culture and change, dynamic and digital capabilities, and workforce adaptation—because prior digital-transformation synthesis shows that strategy and organizational change span multiple organizational dimensions rather than a single technical process [3]. Articles could contribute to more than one domain when their designs genuinely connected constructs, but cross-domain assignment did not erase the source’s original level or context. Within domains, evidence was compared by study design, organizational setting, focal mechanism or relationship, temporal orientation, and boundary condition.

The second stage examined couplings among domains: leadership with strategy or culture, governance with information and structural choices, capabilities with adaptation, and workforce outcomes with learning or leadership conditions. Convergence was treated as repeated compatibility of findings or arguments, not as replicated causal proof. Divergence, narrow contexts,

missing temporal order, and level mismatches were retained as analytical results. The integrative framework developed later is therefore explicitly proposed as a review-derived organizing architecture, not presented as a validated mechanism.

Results and Discussion

The selected literature portrays digital transformation as organizationally distributed rather than controlled by a single actor or reducible to one capability. Across the mapped evidence, leadership studies increasingly address competencies, communication, and strategic direction; governance studies address boards, top-management interfaces, information quality, and restructuring; culture studies examine norms, learning environments, and data-driven change; capability studies emphasize renewal, agility, adaptation, and ecosystem support; and workforce studies separate literacy, readiness, resistance, well-being, and talent processes.

The evidence base is nevertheless uneven. Many relationships are examined within one level or context, whereas fewer studies connect executive governance to employee experience, organizational capability to workforce adaptation over time, or ecosystem resources to internal cultural change. Study designs also vary from conceptual and review work to cross-sectional modeling and qualitative process studies. Consequently, thematic recurrence indicates where scholarly attention has concentrated, but it cannot be interpreted as comparative effect size, causal importance, or managerial effectiveness.

Evolution of the evidence base, 2017–2025

Earlier work in the review period established process-oriented foundations. A longitudinal financial-services case showed that digital-transformation strategy making may emerge iteratively instead of following a completely specified top-down plan [11]. Multiple-case research subsequently framed transformation as continuing strategic renewal supported by dynamic capabilities rather than a discrete implementation event [12]. By 2022, quantitative evidence more explicitly separated leadership, organizational agility, and digital strategy while examining their relationships [13], and top-management research brought digital knowledge and TMT interfaces into the governance of digital innovation [14].

The 2023–2025 evidence then broadened toward leadership contingencies, culture design, information governance, resilience, workforce adaptation, organizational restructuring, and ecosystem capability. This shift is best read as expansion of the field's analytical coverage, not proof of a linear theoretical progression. **Table 2** displays the temporal redistribution of emphasis without converting the curated evidence set into invented prevalence estimates.

Table 2. How digital-transformation evidence broadened across organizational domains

Period × stratum	Domain emphasis	Context/design	Concentration	Emerging shift	Caveat
2017–2020 × strategy/capability	Strategy, design, dynamic capability	Cases; conceptual work	Early	Iterative renewal	Case-bound
2021–2022 × managerial/workforce	Leadership, TMT knowledge, literacy, readiness	Reviews; quantitative studies	Broader	Actor/level differentiation	Causal order unresolved
2023–2024 × organizational mechanisms	Leadership, information, culture, capability, resilience	Mixed empirical designs	Dense	Enactment and context	Sector heterogeneity
2025 × cross-boundary change	Workforce, structure, CEOs, ecosystems, process	Empirical and conceptual	Expanding	Multilevel/ecosystem focus	Cross-level links remain thin

Leadership in digital transformation

Leadership evidence does not support a universal digital-leader profile. A contingency study instead indicates that relevant leadership competencies vary with transformation demands [15]. Longitudinal public-sector evidence adds temporal meaning: transformation narratives and change communication evolve as organizational actors interpret digital change [16]. Conceptual and practice-informed work further argues that human-centric and knowledge-integration competencies complement technical orientation [17]. In SMEs, professional leadership and digital self-efficacy appear as distinct conditions within transformation journeys, cautioning against treating leader capability and employee confidence as interchangeable [18].

Quantitative modeling similarly separates digital transformational leadership, organizational agility, digital culture, and digital strategy while identifying conditional relationships among them [19]. Collectively, these studies reposition leadership from heroic sponsorship toward situated coordination, interpretation, capability mobilization, and alignment. Yet the evidence

spans different sectors, units, and designs. It supports contingency and construct differentiation more strongly than any claim that a particular leadership style reliably produces successful transformation.

Governance and strategic alignment

Governance evidence adds formal authority and information arrangements to the leadership picture. Board-level research distinguishes digital awareness from the organizational action through which awareness is enacted [20]. The distinction matters because knowing that digital change is strategically important does not specify decision rights, resource commitments, coordination mechanisms, or implementation behavior. A qualitative military-organization case shows that information-quality strategy can structure how complex transformation is navigated [21], highlighting information governance as more than a technical data-management issue.

Together, these findings suggest that strategic alignment depends on translation across governance layers: board attention, top-management interfaces, information-quality arrangements, and operational choices must connect rather than merely coexist. The review does not infer that any single governance mechanism is sufficient. Board evidence remains board-level, while military evidence is institutionally distinctive. The principal unresolved question is therefore how governance arrangements travel across levels and interact with culture, capabilities, and workforce experience over time.

Organizational culture and change

Culture cannot be interpreted independently of adjacent capability processes. Traditional-bank evidence uses dynamic capabilities to explain navigation of digital transformation and innovation pressures [22]; mixed-method research triangulates capability categories through literature, survey, and Delphi evidence without converting consensus into causal validation [23]; and longitudinal crisis cases show that digital transformation can alter adaptation and resilience-seeking processes under exceptional conditions [24]. These studies establish the capability boundary against which cultural explanations should be read, not cultural effects themselves.

Culture-specific evidence then shows greater differentiation. Qualitative research treats culture as something that may be actively shaped through leadership and organizational practices rather than as a fixed background variable [25]. Quantitative evidence connects transformation capabilities with organizational commitment under conditions involving digital leadership and continuous learning [26], while other studies keep culture, digitally transforming capability, and product innovation conceptually distinct [27]. Manufacturing evidence also relates organizational culture to data-driven transformation, but within a sector-specific, associational design [28]. Culture therefore matters without becoming an all-purpose explanation.

Dynamic and digital capabilities

Capability research complements culture by focusing on organizational capacity to renew, recombine, and adapt. In traditional banks, dynamic capabilities help explain how incumbents navigate simultaneous transformation and innovation pressures [22]. Mixed-method work identifies capability categories through multiple evidence modes, including literature synthesis, survey, and expert Delphi input [23]. That triangulation strengthens descriptive confidence in the relevance of identified capability areas but does not establish that possessing them causes successful transformation.

Longitudinal comparative evidence adds a temporal boundary: during crisis conditions, digital transformation can reshape how incumbent firms generate adaptations and pursue resilience [24]. This makes capability contingent on both prior digital change and environmental disruption. Across these studies, capability is therefore better understood as a changing organizational capacity than as a static resource inventory. What remains unresolved is how capability formation interacts with governance choices, cultural conditions, workforce learning, and ecosystem support across ordinary and crisis periods.

Workforce adaptation

Workforce adaptation is broader than employees' ability to use digital tools. Employee digital literacy has been conceptualized as multidimensional and organizationally situated, linking individual competence to the affordances and conditions of work [29]. Integrative evidence further places workplace preparation across individual, team, and organizational levels [30]. Treating those levels as interchangeable would conceal whether a transformation problem arises from skills, team coordination, job design, organizational support, or their interaction.

Recent empirical work also separates resistance from well-being rather than assuming that less resistance necessarily means better employee outcomes [31]. Talent-management research likewise distinguishes talent practices, transformational leadership, and resistance to change as separate mechanisms within a specific contextual setting [32]. The workforce literature therefore resists a simple "upskill and adopt" model. Adaptation involves capability, interpretation, employment experience, support, and change responses, while evidence remains insufficient to specify a universally ordered pathway linking these conditions to organization-level transformation outcomes.

Cross-domain relationships and evidence gaps

The strongest gap is not absence of domain-specific evidence but limited testing of their couplings. Industrial-organization evidence associates digital transformation with structural reconfiguration while providing no basis for a single optimal organizational structure [33]. Across strategy making, dynamic-capability renewal, and top-management digital knowledge, the evidence jointly suggests that digital expertise must be connected to strategic reconfiguration rather than treated as an isolated technical asset [11, 12, 14]. Yet these streams rarely establish how that connection is experienced by teams and employees or how it changes across transformation phases.

Table 3 therefore maps cross-domain couplings rather than listing the five domains independently. The pattern shows greater evidence around leadership–strategy, culture–capability, and capability–adaptation relationships than around governance–workforce, ecosystem–culture, or cross-level temporal pathways. “Thin” and “developing” denote the qualitative coverage of the selected evidence, not statistical frequency or effect strength.

Table 3. Cross-domain couplings that connect—and still separate—digital-transformation research

Coupling	Relationship studied	Evidence	Pattern	Coverage	Missing link	Framework implication
Leadership ↔ strategy	Direction, agility, strategy	Quantitative/contingency	Related, distinct	Developed	Temporal order	Conditional coordination
Governance ↔ strategy	Board action, TMT, information	Governance/case	Translation matters	Developing	Board-to-operation	Enacted alignment
Culture ↔ capability	Culture shaping, learning, capability	Mixed empirical	Interdependent	Developed	Coevolution	No cultural determinism
Capability ↔ adaptation	Renewal, resilience	Case/mixed	Context-sensitive	Developed	Normal vs crisis	Time explicit
Governance/ecosystem ↔ workforce	Authority or external support to employee change	Mostly indirect	Siloed	Thin	Cross-level pathway	Priority gap

An integrative digital-transformation change framework

The review proposes digital transformation as a configuration of mutually conditioning but non-interchangeable organizational domains. Structural evidence in large established organizations identifies multiple restructuring dilemmas, undermining a one-best design assumption [34]. Executive-level evidence likewise suggests that institutional entrepreneurship can vary with transformation form or tempo, but CEO attributes should not be treated as organizational destiny [35]. At the interorganizational level, SME research shows that transformation-relevant capabilities can reside in innovation intermediaries and ecosystems rather than solely inside the focal firm [36]. A flow-oriented perspective further supports analyzing transformation across time and organizational space instead of as a linear implementation sequence [37].

The proposed framework therefore has three analytical commitments. First, leadership, governance, culture, capability, and workforce adaptation remain distinct. Second, their relevance changes with context, level, and transformation phase. Third, boundaries extend outward to ecosystem actors and inward to employee experience. Culture, digital leadership and learning conditions, and digitally transforming capability are thus treated as interdependent organizational conditions rather than interchangeable labels [25–27]. The framework organizes evidence; it does not validate a universal mechanism.

Research agenda

Future research should move from co-occurrence toward discriminating tests of temporal order, cross-level pathways, and contextual contingency. A process perspective implies that transformation unfolds through time and organizational space, making longitudinal and multilevel designs particularly important [37]. The priority is not to test whether all five domains “matter,” but to determine when one domain changes the meaning or consequences of another.

Table 4 converts the review’s principal whitespace into designs capable of distinguishing competing explanations. Proposed studies should follow leadership and governance decisions into team and employee experience, examine culture–capability coevolution rather than static fit, compare ordinary and disruption periods, and trace ecosystem support into internal organizational change. Sector, organizational age, size, institutional constraints, and transformation phase should be modeled rather than treated as background noise.

Table 4. Research designs for unresolved cross-level and temporal connections in digital transformation

Whitespace	Why insufficient	Setting needed	Level/time	Design/data	Discriminating outcome	Payoff
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Governance → workforce	Executive studies stop upstream	Multi-sector organizations	Executive–employee; longitudinal	Linked decisions + panels	Local work change	Cross-level governance
Culture ↔ capability	Mostly static/separate	Incumbents and comparators	Organization; repeated phases	Longitudinal comparison	Direction of change	Coevolution
Leadership → team adaptation	Team level under-tested	Transformation teams	Leader–team; repeated	Multilevel panel	Learning/resistance trajectory	Cross-level leadership
Capability across disruption	Crisis transfer uncertain	Same firms across regimes	Pre/during/post	Event-based longitudinal	Reconfiguration pattern	Temporal boundary
Ecosystem → internal change	External support rarely traced inward	SMEs + intermediaries	Interorganizational–internal	Network + matched cases	Internal capability/workforce change	Boundary location

Implications for management and practice

Managerial implications should be diagnostic rather than prescriptive. Leadership requirements vary with transformation demands [15], so organizations should avoid treating a competency checklist, culture program, governance reform, or capability investment as a universal intervention. The review instead suggests examining whether decision rights, strategic direction, learning conditions, capability availability, and workforce experience are aligned for the organization’s current transformation phase.

This does not imply that simultaneous intervention across all five domains will improve outcomes. In some contexts, the binding constraint may be governance translation; in others, information quality, workforce capacity, structural rigidity, or ecosystem dependence may dominate. Managers can use the proposed framework to locate misalignment and formulate questions, but intervention choices require organization-specific evidence, implementation assessment, and attention to unintended consequences.

Review limitations

This review maps heterogeneous evidence and therefore cannot establish pooled effectiveness or universal causal effects [9]. Its publication window, Q1-journal criterion, DOI requirement, and claim-fit screening improve protocol consistency but narrow coverage. Relevant evidence in non-Q1 outlets, books, conferences, practitioner reports, or grey literature may therefore be absent. Ranked search interfaces also did not yield a reproducible exhaustive identification count, which is why the selection figure reports only verified curated-pool arithmetic.

Substantive evidence is uneven across sectors and levels. Some claims rest on financial services, banking, military, public-sector, manufacturing, SME, or crisis contexts, and several quantitative studies are associational. The proposed framework consequently reflects mapped relationships and gaps rather than prospective validation. Future reviews using reproducible database exports, broader source coverage, and updated post-2025 evidence may revise both the distribution of attention and the apparent cross-domain whitespace.

Conclusion

Digital transformation reshapes organizational change by redistributing attention across leadership, governance, culture, capabilities, workforce adaptation, structure, and ecosystem relationships rather than by replacing one stable organizational model with another. The scoping synthesis shows that these domains are connected but not interchangeable, and that their relationships depend on level, context, timing, and transformation conditions. The proposed integrative framework therefore organizes transformation as a multilevel, temporally unfolding configuration while preserving evidential boundaries. Its value lies in identifying where organizational explanations connect and where they remain siloed. It should guide research questions and diagnostic reasoning, not be read as a validated causal model, universal managerial prescription, or implementation guarantee.

Acknowledgments: None

Conflict of interest: None

Financial support: None

Ethics statement: None

References

1. Vial G. Understanding digital transformation: A review and a research agenda. *J Strateg Inf Syst.* 2019;28(2):118-44. doi:10.1016/j.jsis.2019.01.003
2. Verhoef PC, Broekhuizen T, Bart Y, Bhattacharya A, Dong JQ, Fabian N, et al. Digital transformation: A multidisciplinary reflection and research agenda. *J Bus Res.* 2021;122:889-901. doi:10.1016/j.jbusres.2019.09.022
3. Hanelt A, Bohnsack R, Marz D, Antunes Marante C. A systematic review of the literature on digital transformation: Insights and implications for strategy and organizational change. *J Manag Stud.* 2021;58(5):1159-97. doi:10.1111/joms.12639
4. Plekhanov D, Franke H, Netland TH. Digital transformation: A review and research agenda. *Eur Manag J.* 2023;41(6):821-44. doi:10.1016/j.emj.2022.09.007
5. Oludapo S, Carroll N, Helfert M. Why do so many digital transformations fail? A bibliometric analysis and future research agenda. *J Bus Res.* 2024;174:114528. doi:10.1016/j.jbusres.2024.114528
6. Gong C, Ribiere V. Developing a unified definition of digital transformation. *Technovation.* 2021;102:102217. doi:10.1016/j.technovation.2020.102217
7. Wessel LK, Baiyere A, Ologeanu-Taddei R, Cha J, Jensen TB. Unpacking the difference between digital transformation and IT-enabled organizational transformation. *J Assoc Inf Syst.* 2021;22(1):102-29. doi:10.17705/1jais.00655
8. Kretschmer T, Khashabi P. Digital transformation and organization design: An integrated approach. *Calif Manage Rev.* 2020;62(4):86-104. doi:10.1177/0008125620940296
9. Munn Z, Peters MDJ, Stern C, Tufanaru C, McArthur A, Aromataris E. Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. *BMC Med Res Methodol.* 2018;18:143. doi:10.1186/s12874-018-0611-x
10. Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA extension for scoping reviews (PRISMA-ScR): Checklist and explanation. *Ann Intern Med.* 2018;169(7):467-73. doi:10.7326/M18-0850
11. Chanas S, Myers MD, Hess T. Digital transformation strategy making in pre-digital organizations: The case of a financial services provider. *J Strateg Inf Syst.* 2019;28(1):17-33. doi:10.1016/j.jsis.2018.11.003
12. Warner KSR, Wäger M. Building dynamic capabilities for digital transformation: An ongoing process of strategic renewal. *Long Range Plann.* 2019;52(3):326-49. doi:10.1016/j.lrp.2018.12.001
13. AlNuaimi BK, Kumar Singh S, Ren S, Budhwar P, Vorobyev D. Mastering digital transformation: The nexus between leadership, agility, and digital strategy. *J Bus Res.* 2022;145:636-48. doi:10.1016/j.jbusres.2022.03.038
14. Firk S, Gehrke Y, Hanelt A, Wolff M. Top management team characteristics and digital innovation: Exploring digital knowledge and TMT interfaces. *Long Range Plann.* 2022;55(3):102166. doi:10.1016/j.lrp.2021.102166
15. Müller SD, Konzag H, Nielsen JA, Sandholt HB. Digital transformation leadership competencies: A contingency approach. *Int J Inf Manage.* 2024;75:102734. doi:10.1016/j.ijinfomgt.2023.102734
16. Nielsen JA, Elmholdt KT, Noesgaard MS. Leading digital transformation: A narrative perspective. *Public Adm Rev.* 2024;84(4):589-603. doi:10.1111/puar.13721
17. Schiuma G, Santarsiero F, Carlucci D, Jarrar Y. Transformative leadership competencies for organizational digital transformation. *Bus Horiz.* 2024;67(4):425-37. doi:10.1016/j.bushor.2024.04.004
18. Malodia S, Mishra M, Fait M, Papa A, Dezi L. To digit or to head? Designing digital transformation journey of SMEs among digital self-efficacy and professional leadership. *J Bus Res.* 2023;157:113547. doi:10.1016/j.jbusres.2022.113547
19. Alakaş EÖ. Digital transformational leadership and organizational agility in digital transformation: Structural equation modelling of the moderating effects of digital culture and digital strategy. *J High Technol Manag Res.* 2024;35(2):100517. doi:10.1016/j.hitech.2024.100517
20. Adelakun O, Bui QN, Turel O, Anderberg G. Survival of the fittest through digital transformation: Turning the board's digital awareness to action. *Inf Syst J.* 2025;35(5):1460-76. doi:10.1111/isj.12587
21. Struijk M, Angelopoulos S, Ou C, Davison RM. Navigating digital transformation through an information quality strategy: Evidence from a military organisation. *Inf Syst J.* 2023;33(4):912-52. doi:10.1111/isj.12430
22. de Paula Pereira G, de Medeiros JF, Kolling C, Ribeiro JLD, Morea D, Iazzolino G. Using dynamic capabilities to cope with digital transformation and boost innovation in traditional banks. *Bus Horiz.* 2024;67(4):317-30. doi:10.1016/j.bushor.2024.03.006
23. Feroz AK, Zo H, Eom J, Chiravuri A. Identifying organizations' dynamic capabilities for sustainable digital transformation: A mixed methods study. *Technol Soc.* 2023;73:102257. doi:10.1016/j.techsoc.2023.102257
24. Browder RE, Dwyer SM, Koch H. Upgrading adaptation: How digital transformation promotes organizational resilience. *Strateg Entrep J.* 2024;18(1):128-64. doi:10.1002/sej.1483

25. Butt A, Imran F, Helo P, Kantola J. Strategic design of culture for digital transformation. *Long Range Plann.* 2024;57(2):102415. doi:10.1016/j.lrp.2024.102415
26. Braojos J, Weritz P, Matute J. Empowering organisational commitment through digital transformation capabilities: The role of digital leadership and a continuous learning environment. *Inf Syst J.* 2024;34(5):1466-92. doi:10.1111/isj.12501
27. Cao G, Duan Y, Edwards JS. Organizational culture, digital transformation, and product innovation. *Inf Manag.* 2025;62(4):104135. doi:10.1016/j.im.2025.104135
28. Ghafoori A, Gupta M, Merhi MI, Gupta S, Shore AP. Toward the role of organizational culture in data-driven digital transformation. *Int J Prod Econ.* 2024;271:109205. doi:10.1016/j.ijpe.2024.109205
29. Cetindamar Kozanoglu D, Abedin B. Understanding the role of employees in digital transformation: Conceptualization of digital literacy of employees as a multi-dimensional organizational affordance. *J Enterp Inf Manag.* 2021;34(6):1649-72. doi:10.1108/JEIM-01-2020-0010
30. Trenerry B, Chng S, Wang Y, Suhaila ZS, Lim SS, Lu HY, et al. Preparing workplaces for digital transformation: An integrative review and framework of multi-level factors. *Front Psychol.* 2021;12:620766. doi:10.3389/fpsyg.2021.620766
31. Valtonen A, Holopainen M. Mitigating employee resistance and achieving well-being in digital transformation. *Inf Technol People.* 2025;38(8):42-72. doi:10.1108/ITP-05-2024-0701
32. Mahroof J, Rafi A, Ahmad A. Talent management during digital transformation: Role of transformational leadership and resistance to change. *Technol Soc.* 2025;83:102964. doi:10.1016/j.techsoc.2025.102964
33. Shahzad K, Imran F, Butt A. Digital transformation and changes in organizational structure: Empirical evidence from industrial organizations. *Res Technol Manag.* 2025;68(3):25-40. doi:10.1080/08956308.2025.2465706
34. Kulichyova A, Kazantsev N, White L, Islam N. Digital transformation in large established organisations: Four restructuring dilemmas based on dynamic capabilities. *Int J Manag Rev.* 2025;27(3):420-50. doi:10.1111/ijmr.12395
35. Firk S, Hennig JC, Meier J, Wolff M. Institutional entrepreneurship and digital transformation: The role of outsider CEOs. *Strateg Organ.* 2025;23(3):426-52. doi:10.1177/14761270241242905
36. Hafeez S, Shahzad K, De Silva M. Enhancing digital transformation in SMEs: The dynamic capabilities of innovation intermediaries within ecosystems. *Long Range Plann.* 2025;58(3):102525. doi:10.1016/j.lrp.2025.102525
37. Mozaffar H, Candi M. Extending the process frontier of digital transformation: A flow-oriented perspective. *Inf Syst J.* 2025;35(2):720-60. doi:10.1111/isj.12557