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Leading Digital Transformation Beyond Technology Adoption: A Governance Architecture for Strategic Coherence, Workforce Adaptation, and Cross-Boundary Coordination

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Abstract

Digital transformation is often governed as a portfolio of technology initiatives even when its consequences extend to strategy, organizational design, workforce roles, interorganizational relationships, and the allocation of decision authority. This mismatch creates a recurrent governance problem: organizations can adopt digital technologies while remaining strategically fragmented, organizationally inert, or unable to coordinate the capabilities needed to convert deployment into sustained transformation. This article develops an original non-empirical governance architecture that treats digital transformation as a problem of cross-layer coherence rather than technology adoption alone. Drawing on recent organization, information-systems, strategy, leadership, human-resource, and public-management scholarship, the analysis distinguishes strategic coherence, digital leadership, workforce adaptation, cross-boundary coordination, legacy constraints, and capability reconfiguration while preserving their different levels of analysis. The proposed architecture organizes these domains through interdependent transformation layers and governance gates that test whether strategic intent, organizational arrangements, workforce capacity, coordination requirements, and technology choices remain mutually workable as transformation unfolds. It further treats misalignment, inertia, employee reactance, structural dilemmas, and context-specific constraints as potential failure conditions rather than deviations from a presumed linear maturity path. The contribution is conceptual: it integrates dispersed mechanisms into a governance logic that can structure diagnosis, escalation, and rework without claiming a universally optimal sequence or validated performance effect. Its principal boundary is evidential heterogeneity across sectors, organization sizes, institutional settings, technologies, and analytical levels; prospective and longitudinal validation is therefore required before the architecture can be treated as predictive or implementation-ready.

Keywords: Digital transformation, Governance architecture, Strategic coherence, Workforce adaptation, Dynamic capabilities, Cross-boundary coordination

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Introduction

Digital transformation (DT) is difficult to govern because its organizational consequences are broader than the deployment decisions through which it often begins. An influential integrative review characterizes DT as a process in which digital technologies trigger disruptions that prompt strategic responses and changes in value creation, organizational arrangements, and structural conditions [1]. This breadth matters for governance: when transformation is treated primarily as an information-technology program, responsibility for strategic alignment, workforce adaptation, organizational redesign, and external coordination can remain distributed without a mechanism for resolving their interdependence.



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The literature itself reflects this dispersion. A systematic review of DT research shows that strategy and organizational-change perspectives have developed across heterogeneous theoretical traditions and contextual conditions rather than around a single settled transformation mechanism [2]. That fragmentation does not imply that existing theories are deficient; it indicates that the governance problem cuts across constructs that have usually been examined separately. This article therefore asks how organizations can govern DT when strategic intent, organizational structures, workforce capabilities, coordination arrangements, and technological choices must change together but do not necessarily change at the same speed. The contribution is a proposed transformation-governance architecture that organizes those dependencies while separating evidence-supported relationships from new integrative claims and preserving uncertainty, temporal reversibility, and context boundaries.

Why technology adoption is not digital transformation

Technology adoption is neither trivial nor irrelevant, but it is an insufficient criterion for identifying organizational transformation. Research distinguishing DT from IT-enabled organizational transformation emphasizes changes in organizational identity and value logic, while multidisciplinary synthesis likewise locates DT across business models, structures, capabilities, and market-facing arrangements [3, 4]. A platform, analytics system, automation tool, or digital channel can therefore be implemented without producing coherent transformation if the surrounding strategic and organizational arrangements remain substantially unchanged.

The distinction becomes clearer when inertia is treated as an active organizational condition rather than as mere reluctance to install technology. Process evidence from an incumbent bank shows that transformation confronts entrenched routines, resources, and organizational patterns that must be managed over time [5]. Accordingly, this article treats adoption as an input to transformation rather than its completion condition. The relevant governance question is not simply whether a digital asset has been deployed, but whether deployment is accompanied by sufficiently aligned changes in strategic priorities, decision rights, capabilities, work design, coordination, and technology architecture to alter how the organization creates and sustains value.

Strategic coherence during digital transformation

Strategic coherence should not be equated with a static digital strategy document. Evidence from SMEs shows that digital-strategy alignment is repeatedly revised as organizations sense opportunities, commit resources, and reconfigure capabilities [6]. Coherence is therefore better understood as an ongoing relationship among strategic intent, transformation priorities, resource commitments, and interpretations of what digital change is for.

Leadership can support that relationship, but agreement is not automatically equivalent to coherence. Empirical work links digital leadership with DT through digital-strategy consensus while showing that diversity conditions the relationship [7]. Recent evidence in the target-journal domain similarly indicates that people, process, and technology factors contribute differently to distinct transformation-success dimensions rather than operating as interchangeable inputs [8]. The implication developed here is that governance must diagnose misalignment across interdependent layers before it becomes visible as project failure or organizational resistance.

Table 1 operationalizes this diagnostic logic without treating the listed layers as a validated universal taxonomy.

Table 1. Diagnosing cross-layer coherence before digital deployment becomes organizational transformation

Layer	Transformation question	Coherence requirement	Key dependency	Early warning of misalignment	Governance response	If neglected
Strategic	What organizational change is the digital initiative intended to enable?	Priorities, value logic, and resource commitments remain mutually consistent	Organizational design	Technology portfolio expands without clear transformation priorities	Reconcile strategic intent, portfolio choices, and decision rights	Adoption without strategic reorientation
Organizational/governance	Who can authorize, coordinate, challenge, and revise transformation decisions?	Decision rights match transformation scope	Strategy and coordination	Local optimization, unresolved ownership, repeated escalation	Clarify authority and cross-unit accountability	Fragmented execution
Workforce	What roles, skills, discretion, and participation must change?	Capability development and work redesign accompany deployment	Technology and leadership	Capability gaps, reactance, symbolic participation	Reconfigure work, learning, voice, and change support	Low enactment despite technical availability

Cross-boundary coordination	Which internal and external actors must align for value creation?	Interfaces support information sharing and negotiated interdependence	Governance and ecosystem strategy	Conflicting priorities across units or partners	Create shared decision forums and escalation routes	Bottlenecks migrate across boundaries
Technology	What technical architecture enables the intended organizational change?	Data, interoperability, reliability, and process design fit strategic use	Workforce and legacy systems	Workarounds, duplication, integration debt	Reassess architecture, process assumptions, and sequencing	Technical deployment without scalable transformation

Digital leadership and governance

Digital leadership matters less as a heroic personal attribute than as a capacity to shape direction, interpretation, and coordination under technological and organizational uncertainty. Research on strategic leaders shows that DT can require ecosystem-oriented vision formation, extending leadership attention beyond formal organizational boundaries [9]. Other work identifies a portfolio of transformative leadership competencies rather than a single technology-centered capability [10]. These findings support treating leadership as one governance resource among several, not as a substitute for governance design. Leadership choices also carry responsibility consequences. Qualitative evidence from innovative firms shows that responsible-innovation concerns can become part of how leaders frame digital change and its social implications [11]. At the organizational level, empirical research connects leadership, agility, and digital strategy in the transformation process [12]. The proposed architecture therefore separates leadership influence from formal decision rights: leaders may frame priorities, mobilize attention, and create interpretive coherence, whereas governance specifies who decides, what evidence is required, when disagreement is escalated, and how transformation choices are revised.

Workforce adaptation and capability reconfiguration

Workforce adaptation is not adequately represented by training volume or generalized “readiness.” Firm-level evidence links DT with changes in talent-management requirements, indicating that transformation can alter how organizations acquire, develop, and deploy human capabilities [13]. Employee-focused research in highly digital national contexts further shows why workforce consequences should be examined at their own level rather than inferred from organizational performance [14].

The form of digital change also matters. Employees may experience automation and augmentation differently, with psychological reactance, voice, and job attitudes varying with how technology changes agency and work [15]. Experimental evidence likewise indicates that task-oriented and people-oriented leadership behaviors can complement one another in shaping employee responses to organizational digital change [16]. These findings justify a distinct workforce layer in the proposed architecture. Its governance purpose is not to presume acceptance, but to test whether required capabilities, role changes, discretion, participation, and change support are compatible with the strategic and technological design being pursued.

Cross-boundary coordination

DT crosses boundaries because strategy formation, technological interdependence, and value creation increasingly involve actors who do not share the same authority structure. Work linking open strategy and DT emphasizes reciprocal relations among transformation, participation, agency, power, materiality, and temporality [17]. Cross-boundary coordination therefore cannot be reduced to communication frequency; it concerns how interdependent actors interpret priorities, exchange information, negotiate constraints, and retain the ability to challenge or revise transformation choices.

Institutional setting further changes the coordination problem. Comparative public-sector research across cities and countries identifies heterogeneous digital-innovation strategies rather than one dominant model [18]. This evidence cautions against importing private-sector assumptions about authority, incentives, or ecosystem control into public organizations. In the proposed architecture, cross-boundary coordination is consequently treated as a distinct governance requirement spanning internal units, hierarchical interfaces, external partners, and institutional stakeholders. Participation is not assumed to produce consensus or legitimacy; its value depends on whether governance can convert distributed knowledge and conflicting interests into decisions without erasing accountability.

Legacy systems, organizational inertia, and path dependence

Legacy constraints are simultaneously technological, organizational, and interpretive. In asset-intensive organizations, DT can generate both beneficial and adverse consequences because established assets, processes, and operating commitments create conditions that digital change must work through rather than simply replace [19]. The same logic applies to hierarchy. Qualitative research in a large telecommunications incumbent shows that middle managers can interpret and navigate top-

management boundaries when exploring digital opportunities, making strategic coherence partly an enacted accomplishment at hierarchical interfaces [20].

Large established organizations also face restructuring dilemmas involving performance, leadership, governance, and structure rather than a single optimal redesign path [21]. These findings motivate a broader definition of path dependence in this article: prior investments, routines, structures, capabilities, authority relations, and cognitive frames constrain which transformation moves are feasible and how their consequences are interpreted. Governance should therefore identify inherited dependencies explicitly. Treating legacy as “old technology” alone risks solving an integration problem while leaving untouched the organizational arrangements that reproduce fragmentation, delay, or conflicting transformation priorities.

A governance architecture for digital transformation

Dynamic-capability research provides a useful foundation because DT has been described as ongoing strategic renewal involving sensing, seizing, and transforming rather than a discrete implementation episode [22]. Contemporary work likewise emphasizes reconfiguration capabilities in managing transformation [23]. Existing multidimensional tools also demonstrate the value of representing DT as an integrated organizational process [24]. None of these sources, however, validates the governance architecture proposed here; they support the need to connect strategic renewal, capability change, and multidimensional transformation while leaving the specific cross-layer decision logic open.

The proposed architecture treats governance coherence as the continuing ability to keep strategic intent, organizational arrangements, workforce adaptation, cross-boundary coordination, and technology architecture mutually workable. It does so through governance gates: decision points at which actors test whether upstream assumptions remain credible, whether required evidence and capabilities exist, whether dependencies have been addressed, and whether escalation or rework is necessary. A gate is therefore not a maturity score or stage-completion certificate. It is a proposed diagnostic and decision function that can reopen earlier choices when later evidence exposes misalignment.

Table 2 specifies how those proposed gates convert cross-layer interdependence into explicit decision work.

Table 2. Governance gates for testing and revising transformation dependencies

Gate/decision	Upstream dependency	Accountable actor	Evidence/checkpoint needed	Cross-boundary coordination requirement	Downstream layer affected	Escalation or rework condition
Strategic authorization	Transformation purpose and value logic	Executive governance body	Explicit priority, scope, resource logic, affected boundaries	Agreement on who bears dependencies and trade-offs	Organization and technology	Purpose is ambiguous or portfolio choices conflict
Operating-model fit	Strategy and legacy constraints	Transformation leadership with functional owners	Decision rights, process ownership, structural implications	Resolve cross-unit ownership before scaling	Workforce and coordination	Local design cannot support enterprise interdependence
Workforce enactability	Work design and technology choice	Business and people leaders	Capability gaps, role effects, voice, adoption conditions	Employee and manager feedback enters redesign	Technology use and organizational routines	Required work cannot be performed credibly or sustainably
Technical-organizational fit	Data, architecture, process, skills	Technology and process owners	Interoperability, reliability, workflow compatibility	Joint review across technical and operating units	Scaling and capability reconfiguration	Workarounds or integration debt undermine intended use
Scaling/reconfiguration	Prior gate evidence and emergent outcomes	Cross-functional governance forum	Dependency review, unresolved risks, changed assumptions	External and internal interfaces reassessed	Portfolio, structure, workforce, ecosystem	New evidence invalidates earlier assumptions

The synthesis is represented in **Figure 1**, which distinguishes evidence-supported relationships from the article’s proposed governance integration.

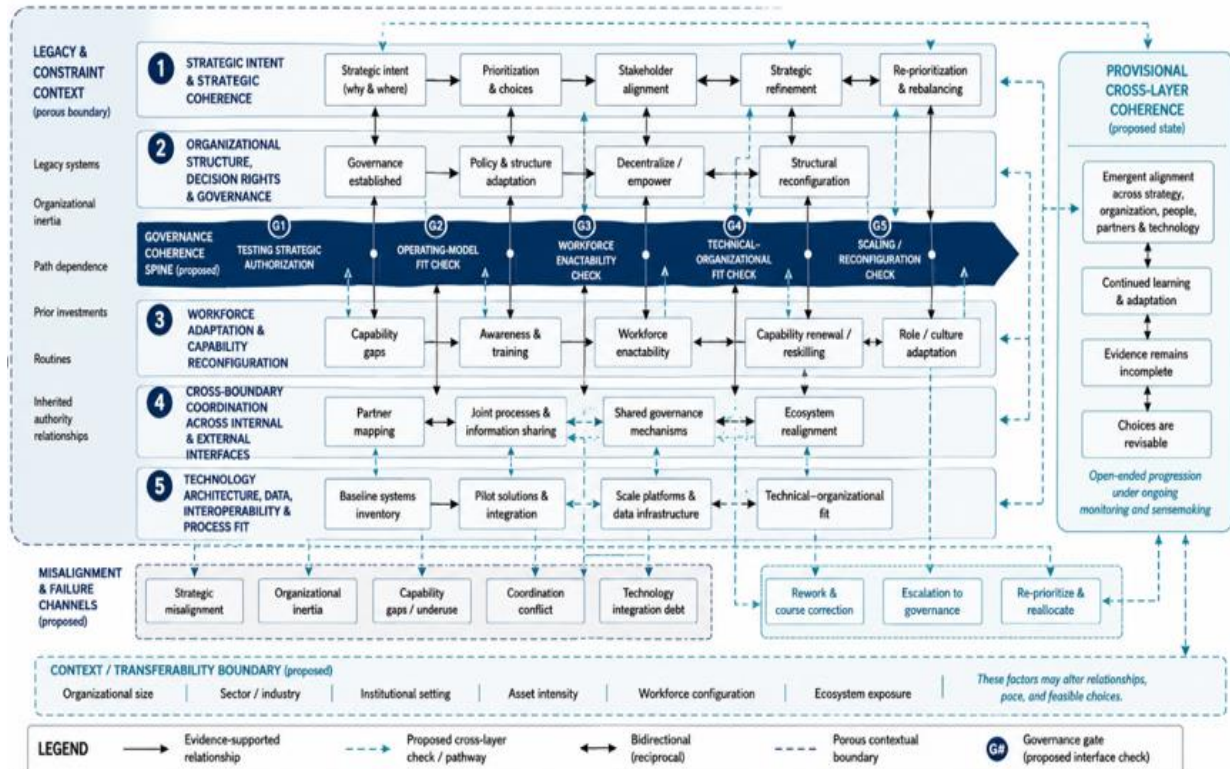


Figure 1. Governance coherence couples strategic intent, workforce adaptation, cross-boundary coordination, and technology during digital transformation

Strategic, organizational, workforce, and technology layers

The proposed architecture separates transformation into analytical layers because coherence cannot be assessed when substantively different processes are collapsed into a single readiness construct. At the organizational layer, culture can shape whether transforming capabilities are enacted and connected to innovation rather than merely declared [25]. At the workforce layer, talent systems, employee experience, skills, discretion, and participation concern people who enact transformation rather than abstract organizational resources. At the strategic layer, priorities and value logic determine why transformation is pursued; at the technology layer, architecture, data, interoperability, and process design determine what digitally enabled arrangements are technically feasible.

These distinctions are analytical rather than claims that organizational reality is neatly partitioned. A critical multilevel research agenda shows that DT involves effects and mechanisms distributed across levels and that favorable organizational outcomes cannot automatically be inferred from lower-level responses or vice versa [26]. Accordingly, workforce evidence concerning talent reconfiguration remains relevant without becoming a surrogate measure of organization-level transformation [13]. The architecture therefore uses layers to prevent category errors while allowing dependencies among them. Coherence exists provisionally when decisions made in one layer remain workable given conditions in the others; it deteriorates when a locally rational choice transfers unresolved constraints elsewhere.

Cross-layer dependencies and governance gates

Cross-layer dependencies make governance necessary because transformation barriers rarely remain confined to the layer in which they first become visible. Public-sector evidence identifies interacting drivers and impediments to digital-government transformation, illustrating that organizational, managerial, institutional, and technological conditions can jointly shape transformation rather than operate independently [27]. Expert evidence from public organizations similarly defines DT through changes to processes, relationships, and value creation that exceed digitization alone [28].

The governance gates proposed here convert this interdependence into explicit opportunities for challenge and revision. Their purpose is not to certify that a transformation has reached a universal stage. Instead, a gate asks whether assumptions made upstream remain defensible after organizational, workforce, coordination, or technical consequences become clearer. A strategic decision may therefore be returned for reconsideration when the workforce model proves untenable; a technology choice may require redesign when interoperability creates excessive process workarounds; and a scaling decision may be delayed when accountability across organizational boundaries remains unresolved. Gates are consequently rework mechanisms, not pass-fail milestones. They also preserve disagreement: escalation is warranted when relevant actors cannot reconcile dependencies within their delegated authority rather than when they merely fail to achieve consensus.

Transformation failure modes

Transformation failure is often diagnosed too late because visible symptoms—slow adoption, budget escalation, workarounds, resistance, or stalled scaling—may be downstream manifestations of earlier cross-layer misalignment. Research on organizational adaptation suggests that digital transformation can strengthen adaptive capacity under some conditions, but adaptation should not be treated as an automatic consequence of deployment [29]. Asset-intensive evidence likewise demonstrates that transformation can have adverse as well as beneficial consequences [19]. Restructuring research further indicates that resolving one organizational dilemma can expose another involving leadership, governance, structure, or performance [21].

The architecture therefore treats failure as a signature of unresolved dependency rather than a single terminal outcome. Some failures arise because strategy lacks a credible operating model; others because technology changes faster than roles and capabilities, coordination fails across boundaries, or inherited routines repeatedly restore earlier ways of working. **Table 3** distinguishes these signatures to support diagnosis without assigning fabricated probabilities or universal recovery sequences.

Table 3. Recognizing transformation failure through the misalignments that sustain it

Visible failure signature	Likely root misalignment	Likely temporal location	Layers implicated	Reinforcing mechanism or path dependence	Corrective governance move	Boundary limiting recovery
Digital activity without strategic change	Deployment outruns strategic clarification	Early mobilization or repeated restart	Strategy, technology	Investment commitment makes existing portfolio difficult to challenge	Reopen strategic authorization and value logic	Regulatory or contractual commitments
Persistent workaround economy	Technology/process design conflicts with enacted work	Integration	Technology, workforce, organization	Workarounds become routines and informal infrastructure	Reassess workflow, interoperability, roles, and ownership together	Deep legacy dependencies
Capability–technology mismatch	Required skills or discretion were assumed rather than developed	Deployment or scaling	Workforce, technology	Low use reinforces beliefs that change is unnecessary or infeasible	Reconfigure work, learning, participation, and technical design	Labor-market or occupational constraints
Coordination deadlock	Interdependent actors lack workable authority or escalation routes	Cross-unit scaling	Governance, coordination, strategy	Local optimization protects incompatible priorities	Reassign decision rights and create bounded escalation	Institutional fragmentation or partner autonomy
Recurrent transformation reset	New initiatives leave prior structural contradictions unresolved	Later reconfiguration	All layers	Earlier routines, structures, and investment paths reassert themselves	Reopen prior gates and identify inherited constraints explicitly	High sunk costs, asset intensity, or political lock-in

Temporal sequencing and transformation maturity

Transformation maturity should not be represented as a staircase on which every organization moves from low to high capability. Contemporary strategy scholarship emphasizes that digitalization alters strategic problems continuously rather than creating a single transition that is eventually completed [30]. Earlier process evidence likewise treats strategic alignment as iterative [6], while work on open strategy highlights reciprocal relationships between strategic activity and transformation over time [17]. Maturity is therefore proposed here as the quality of cross-layer recalibration, not the number of technologies deployed or stages completed.

Three temporal conditions follow. First, sequencing matters because some decisions create commitments that narrow later options. Second, maturity is uneven: workforce capability, technical integration, strategic clarity, and cross-boundary coordination can develop at different rates. Third, later evidence can legitimately invalidate earlier decisions. A mature governance system is thus one that detects dependency changes and can reopen decisions without interpreting rework automatically as failure. Path dependence remains important because accumulated investments, routines, authority relationships, and learned workarounds make some reversals costly.

Figure 2 visualizes this temporal argument as recursive maturation rather than deterministic progression.

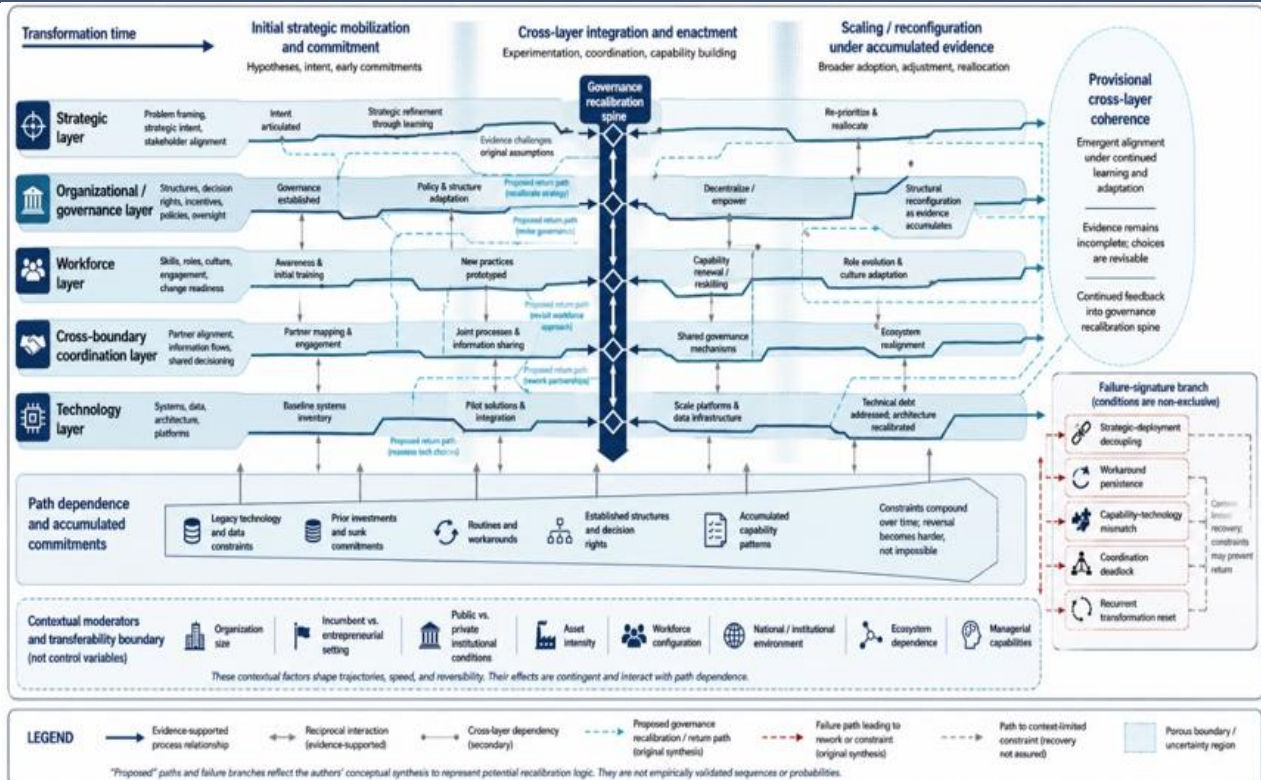


Figure 2. Transformation maturity emerges through sequencing, feedback, and path-dependent recalibration across organizational layers

Boundary conditions across organizational contexts

The architecture is not expected to operate identically across organizational contexts. Qualitative research in agrifood SMEs shows that transformation capabilities can be embedded in stakeholder relationships, collaboration, and territorial conditions [31]. Earlier SME research likewise demonstrates that entrepreneurial transformation depends on capability formation under resource and organizational conditions distinct from those of large incumbents [32]. Size therefore changes more than resource volume; it can alter authority concentration, coordination costs, access to specialized expertise, and the feasibility of formal governance gates.

National, sectoral, and managerial conditions also matter. Evidence from Pakistan's service sector connects talent management and transformational leadership with DT while showing that resistance-to-change relationships should not be assumed to follow one universal mediation pattern [33]. Research on innovative Spanish SMEs further indicates that CEO digital expertise, external connectivity, empowering leadership, age, and tenure can condition transformation-related relationships [34]. The proposed architecture therefore treats contextual variables as boundary conditions on dependencies and feasible governance responses, not as additional layers. Public organizations, asset-intensive incumbents, entrepreneurial SMEs, and digitally advanced firms may confront analogous coherence problems while requiring different decision rights, evidence thresholds, coordination mechanisms, and recovery options.

Theoretical contributions

The article contributes by shifting the conceptual center of DT from technology adoption to governance coherence across differentiated but interdependent layers. Existing scholarship establishes that DT extends beyond technology deployment [1]. It also distinguishes transformation from narrower IT-enabled change [3]. Dynamic-capability work shows that transformation involves ongoing strategic renewal rather than one-off implementation [22]. The new claim advanced here is that these insights can be organized as a governance problem in which cross-layer dependencies must repeatedly be surfaced, tested, and revised. A second contribution is the proposed distinction between governance gates and maturity stages. Gates are diagnostic decision interfaces, whereas maturity concerns the evolving capacity to recalibrate across layers. A third contribution is multilevel discipline: employee experience, leadership action, organizational structure, technological architecture, and institutional context remain connected without being treated as interchangeable constructs. This responds to calls for multilevel precision in DT research [26]. The architecture consequently offers propositions for future testing rather than a validated causal model.

Managerial and policy implications

For managers, the architecture suggests that transformation governance should ask a harder question than whether projects are on schedule: whether strategic, organizational, workforce, coordination, and technology assumptions remain mutually viable. Evidence that people, process, and technology factors contribute differently to transformation outcomes supports such differentiated diagnosis [8]. Leadership–strategy relationships likewise indicate that direction and agility must be connected rather than managed as separate agendas [12]. Workforce-facing leadership should remain sensitive to how employees experience change rather than treating resistance as a generic deficit [16].

For public organizations, governance design must additionally reflect institutional fragmentation and heterogeneous innovation strategies [18]. Drivers and impediments identified in digital-government research should therefore be interpreted within public authority structures rather than imported into private-sector governance templates [27]. Expert definitions of public DT similarly reinforce the importance of relational and process changes beyond digitization [28]. These implications are diagnostic, not claims that the proposed architecture guarantees improved performance or policy effectiveness.

Future research

The most important next step is prospective validation of the proposed governance gates. Longitudinal studies should record when gates are invoked, which dependencies trigger rework, and whether reopened decisions are associated with subsequent adaptation rather than merely retrospective perceptions of success. Process research on inertia [5] and strategic renewal [22] provides methodological precedent for examining transformation over time.

Multilevel designs should also connect employee experience to team, unit, and organizational outcomes without assuming upward aggregation. Automation and augmentation evidence [15] makes this particularly important. Comparative studies should test whether gate functions differ across public organizations, large incumbents, SMEs, asset-intensive firms, and ecosystem-dependent organizations. Contextual SME evidence [31] and emerging-economy workforce evidence [33] suggest that replication across institutional settings is essential. Finally, research should include stalled and abandoned transformations so that the architecture can be challenged against rival explanations rather than refined only through successful cases.

Limitations

This article integrates heterogeneous theoretical, qualitative, experimental, survey, and review evidence. Such diversity permits broad conceptual coverage but does not establish a common causal model. DT itself remains variably defined across literatures, and systematic synthesis documents substantial variation in strategic and organizational-change perspectives [2]. Multilevel scholarship also cautions against treating findings at one level as evidence for mechanisms at another [26].

The evidence base is contextually uneven. Public-sector studies, SMEs, asset-intensive organizations, large incumbents, innovative firms, and specific national settings illuminate different parts of the architecture rather than identical populations. Several important relationships are cross-sectional, while others derive from qualitative or conceptual research. Consequently, the proposed layers, governance gates, failure signatures, and temporal recalibration logic remain theoretical integrations requiring direct validation. They should not be interpreted as calibrated thresholds, universal maturity stages, proven causal mechanisms, or an implementation standard.

Conclusion

Digital transformation is more demanding than technology adoption because technological change becomes organizationally consequential only through its interaction with strategy, structures, workforce capabilities, coordination arrangements, and inherited constraints. This article has developed a governance architecture that treats those interactions as a problem of cross-layer coherence. Its central proposal is that governance gates can make dependencies explicit, trigger escalation, and reopen earlier decisions when later evidence exposes misalignment. Transformation maturity is therefore understood as the capacity for informed recalibration rather than linear progression toward a universal end state. The architecture also preserves failure, path dependence, contextual diversity, and level-of-analysis boundaries as substantive features rather than residual complications. Its value is presently conceptual and diagnostic. Longitudinal, multilevel, comparative, and failure-sensitive research is required to determine whether the proposed architecture explains transformation trajectories, improves decision quality, or requires substantial revision across organizational settings.

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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. 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
3. Wessel L, 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
4. 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
5. Kaganer E, Gregory RW, Sarker S. A process for managing digital transformation: An organizational inertia perspective. *J Assoc Inf Syst.* 2023;24(4):1005-30. doi:10.17705/1jais.00819
6. Canhoto AI, Quinton S, Pera R, Molinillo S, Simkin L. Digital strategy aligning in SMEs: A dynamic capabilities perspective. *J Strateg Inf Syst.* 2021;30(3):101682. doi:10.1016/j.jsis.2021.101682
7. Yao Q, Tang H, Liu Y, Boadu F. The penetration effect of digital leadership on digital transformation: The role of digital strategy consensus and diversity types. *J Enterp Inf Manag.* 2024;37(3):903-27. doi:10.1108/JEIM-09-2022-0350
8. Chang YW, Chen J. An empirical investigation of critical success factors in implementing digital transformation. *Technol Forecast Soc Change.* 2025;217:124161. doi:10.1016/j.techfore.2025.124161
9. Reuter E, Floyd S. Strategic leaders' ecosystem vision formation and digital transformation: A motivated interactional lens. *Strateg Entrep J.* 2024;18(1):103-27. doi:10.1002/sej.1493
10. 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
11. Buonocore F, Annosi MC, de Gennaro D, Riemma F. Digital transformation and social change: Leadership strategies for responsible innovation. *J Eng Technol Manag.* 2024;74:101843. doi:10.1016/j.jengtecman.2024.101843
12. AlNuaimi BK, Singh SK, 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
13. Montero Guerra JM, Danvila-del-Valle I, Méndez Suárez M. The impact of digital transformation on talent management. *Technol Forecast Soc Change.* 2023;188:122291. doi:10.1016/j.techfore.2022.122291
14. Nadeem K, Wong SI, Za S, Venditti M. Digital transformation and Industry 4.0 employees: Empirical evidence from top digital nations. *Technol Soc.* 2024;76:102434. doi:10.1016/j.techsoc.2023.102434
15. Ren S, Chowdhury S. Employee digital transformation experience towards automation versus augmentation: Implications for job attitudes. *Hum Resour Manag.* 2025;64(5):1359-79. doi:10.1002/hrm.22313
16. Weber E, Büttgen M, Bartsch S. How to take employees on the digital transformation journey: An experimental study on complementary leadership behaviors in managing organizational change. *J Bus Res.* 2022;143:225-38. doi:10.1016/j.jbusres.2022.01.036
17. Ortner T, Hautz J, Stadler C, Matzler K. Open strategy and digital transformation: A framework and future research agenda. *Int J Manag Rev.* 2025;27(3):324-45. doi:10.1111/ijmr.12379
18. Guenduez AA, Demircioglu MA, Mueller EM, Cinar E. Digital innovation strategies in the public sector. *Res Policy.* 2025;54(8):105274. doi:10.1016/j.respol.2025.105274
19. Buck C, Clarke J, Torres de Oliveira R, Desouza KC, Maroufkhani P. Digital transformation in asset-intensive organisations: The light and the dark side. *J Innov Knowl.* 2023;8(2):100335. doi:10.1016/j.jik.2023.100335
20. Putra FHR, Pandza K, Khanagha S. Strategic leadership in liminal space: Framing exploration of digital opportunities at hierarchical interfaces. *Strateg Entrep J.* 2024;18(1):165-99. doi:10.1002/sej.1465
21. 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
22. 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
23. Schneider MHG, Kanbach DK, Kraus S, Dabić M. Transform me if you can: Leveraging dynamic capabilities to manage digital transformation. *IEEE Trans Eng Manag.* 2024;71:9094-108. doi:10.1109/TEM.2023.3319406
24. Elia G, Solazzo G, Lerro A, Pigni F, Tucci CL. The digital transformation canvas: A conceptual framework for leading the digital transformation process. *Bus Horiz.* 2024;67(4):381-98. doi:10.1016/j.bushor.2024.03.007
25. 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

26. Dąbrowska J, Almpantopoulou A, Brem A, Chesbrough H, Cucino V, Di Minin A, et al. Digital transformation, for better or worse: A critical multi-level research agenda. *R&D Manag.* 2022;52(5):930-54. doi:10.1111/radm.12531
27. Tangi L, Janssen M, Benedetti M, Noci G. Digital government transformation: A structural equation modelling analysis of driving and impeding factors. *Int J Inf Manag.* 2021;60:102356. doi:10.1016/j.ijinfomgt.2021.102356
28. Mergel I, Edelmann N, Haug N. Defining digital transformation: Results from expert interviews. *Gov Inf Q.* 2019;36(4):101385. doi:10.1016/j.giq.2019.06.002
29. 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
30. Kohtamäki M, Rabetino R, Parida V, Ritala P. Strategy in the digitalization era. *Int J Manag Rev.* 2025;27(3):309-23. doi:10.1111/ijmr.12404
31. Cannas R. Exploring digital transformation and dynamic capabilities in agrifood SMEs. *J Small Bus Manag.* 2023;61(4):1611-37. doi:10.1080/00472778.2020.1844494
32. Li L, Su F, Zhang W, Mao JY. Digital transformation by SME entrepreneurs: A capability perspective. *Inf Syst J.* 2018;28(6):1129-57. doi:10.1111/isj.12153
33. 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
34. Merín-Rodríguez J, Dasí À, Alegre J, Hughes M. Dynamic managerial capabilities for digital transformation in innovative SMEs: What are the effects on new product development performance? *J Bus Res.* 2025;201:115709. doi:10.1016/j.jbusres.2025.115709