

**Cultural Aspects of Digital Transformation: A Two-Level Review of  
Organizational and National Culture  
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Digital transformation (DT) is widely framed as a strategic, enterprise-wide shift enabled by digital technologies, requiring organizations to rethink how they operate and deliver value. Yet DT is not “purely about the technology”; it also depends on how technologies are integrated into organizations and adopted in day-to-day work practices. This immediately places culture and leadership at the center of DT: leaders are expected to articulate a digital vision and guide change while building new capabilities across the organization.

Studies of the Firican D. [4], Goncalves D. et al. [2], and Jakab B., Kaszás N., Ernszt I. [5] examine culture as a central enabling (or constraining) condition for digital transformation, showing that it shapes both innovation capability and organizational responses to DT-related opportunities and threats. Across recent studies, culture repeatedly appears as a dual-purpose mechanism: it can enable DT or function as a barrier, and DT in turn reshapes culture over time [4]. At the organizational level, empirical work suggests that specific cultural configurations are associated with different innovation outcomes. For example, in research comparing incumbents and startups in the automotive industry using the Competing Values Framework, a blend of Hierarchy and Market cultures inhibited innovation capability, while Clan and Adhocracy cultures promoted it (with “agile culture” discussed as a productive combination) [2]. Complementing this, survey-based evidence links “learning organization” elements to how firms perceive Industry 4.0-related opportunities and threats – highlighting that cultural elements can be associated with both upside potential and perceived risk [5].

At the national level, DT unfolds inside cross-cultural environments where assumptions about hierarchy, time, uncertainty, and individual–collective orientations vary. In global enterprise technology rollouts, cultural dimensions (e.g., Hofstede’s Individualism/Collectivism and Long-Term Orientation, and Hall’s Monochronic/Polychronic time orientation) have been used to explain differences in post-implementation usage activity, based on large-scale communication-log data across subsidiaries [9]. In a separate empirical study, national culture is reported to significantly affect DT, with digital competencies and information system management practices mediating this effect and leadership moderating it – implying that managerial action can dampen or amplify cultural influences rather than merely “accepting” them as constraints [1].

Despite this growing body of work, the literature remains fragmented across levels of analysis: organizational-culture studies tend to focus on internal agility, learning, and “digital culture” practices while national-culture studies emphasize cross-cultural variance and adoption/implementation differences. This paper responds to that fragmentation by synthesizing both “inside” (organizational culture) and “outside” (national culture) perspectives, systematizing (i) the most crucial cultural factors at each level and (ii) the managerial practices most consistently proposed as effective for DT across these contexts.

The first step is to examine organizational culture as the “internal” cultural layer that management can influence most directly through leadership, structure, and everyday practices. In the literature, organizational culture is not treated as a decorative “soft” factor; rather, it functions as a set of shared assumptions and norms that shape how employees interpret change, how they coordinate across boundaries, and how they respond to uncertainty during transformation initiatives [4; 7]. At the same time, the available evidence warns against

deterministic claims: culture is consistently linked to transformation outcomes, but it typically operates alongside strategy, capabilities, and governance rather than replacing them as a single explanatory variable [5; 7].

A first recurring theme is the cultural foundation of organizational agility, particularly the tension between flexibility-oriented and control-oriented cultural logics. Using the Competing Values Framework in the context of digital innovation, Goncalves D. et al. show that a combination of Clan and Adhocracy values – interpreted as an “agile culture” – supports innovation capability, whereas strong Hierarchy and Market orientations tend to inhibit it, especially in incumbents facing legacy structures and routines. Importantly, the authors do not imply that control-oriented elements should be eliminated; rather, their findings highlight a structural-cultural challenge for mature organizations: innovation and speed require empowerment, collaboration, and openness, yet these expectations often collide with established procedures, performance controls, and rigid accountability systems [2].

A second theme concerns learning-organization properties as cultural resources for transformation. Jakab B., Kaszás N., and Ernszt I. empirically link several learning-oriented characteristics – such as anticipating change, seeking solutions beyond habitual routines, considering long-term impacts, and strengthening cross-unit learning – to how organizations perceive digital transformation-related opportunities and threats. Their results are also methodologically useful for synthesis: the reported explanatory power is modest, indicating that learning culture contributes meaningfully but only partially to how organizations interpret digital transformation, reinforcing the view that culture is an enabling condition interacting with other determinants rather than a stand-alone predictor [5].

A third theme is the consolidation of what the literature increasingly labels “digital culture.” Firican D. synthesizes recurring cultural dimensions proposed across prior studies and frames them as a practical cultural architecture for digital transformation. This synthesis repeatedly emphasizes collaboration and knowledge sharing, customer orientation, participation and decentralization, flexibility and responsiveness, innovation and entrepreneurial behavior, tolerance for experimentation, learning orientation and digital skills, data-driven decision making, openness to change, and supportive digital leadership. The value of this contribution is not that it introduces an entirely new construct; rather, it systematizes the cultural elements that appear most consistently across the fragmented digital transformation discourse and links them to practice-oriented steps [4].

A fourth theme, particularly visible in smaller organizational settings, is the role of trust, transparency, and cooperation as cultural preconditions for adoption. Tuukkanen V., Wolgsjö E., and Rusu L. document cultural values in a small-company transformation context, highlighting continuous learning, tolerance for mistakes, openness to calculated risks, internal and client-facing trust, and cooperation as salient values shaping how digital changes are interpreted and sustained. Their analysis further suggests that trust is not merely an abstract “good climate” variable: it is reinforced through concrete practices such as transparent communication and ongoing implementation support, which stabilise adoption and reduce uncertainty during tool and process change [8].

Finally, several sources treat strategy–culture alignment as a feasibility condition for transformation rather than an optional refinement. Khanzad Z. G. and Gooyabadi A. A., drawing on a systematic review, explicitly characterize organizational culture as a “double-edged sword”: it can accelerate digital strategizing when aligned with digital goals, but can

also act as a barrier when entrenched values and routines conflict with the requirements of agility, customer-centricity, and innovation-oriented work practices. In this reading, cultural change is not pursued for its own sake; it is pursued because it reduces the implementation gap between strategic intent and actual behavioral adoption in day-to-day operations [7].

Table 1

**Managerial approaches for shaping organizational culture in digital transformation**

| <b>Cluster of managerial approaches</b> | <b>Key approaches</b>  | <b>What it targets (cultural mechanism)</b>  | <b>Main supporting sources</b> |
|---|--|--|--------------------------------|
| Leadership and meaning-making           | (1) Clarify DT rationale/direction; (2) build digital leadership (vision, data use, cross-functional collaboration, learning); (3) assess current culture and tailor interventions | Shared meaning and legitimacy; role-modeling; alignment of norms with DT intent                      | [2], [3], [6]                  |
| Capability building and learning        | (1) Institutionalize digital learning; (2) deploy champions/communities; (3) design group-learning routines  | Skill/competence foundation; diffusion of new norms; psychological safety and continuous improvement | [4], [5]                       |
| Structural enablers                     | (1) Combine tools/processes/structures with change measures; (2) clarify roles and enable cross-unit collaboration; (3) ensure transparency of progress/decisions                  | Makes desired behaviors easier; coordination across boundaries; accountability and trust             | [4]                            |
| Change-management discipline            | (1) Transparent, multi-channel communication; (2) training, sponsorship, champion networks; (3) clear objectives and ongoing implementation support                                | Trust and reduced resistance; sustained engagement; adoption stabilization during rollout            | [4], [8]                       |

Building on the organizational-level literature reviewed above, Table 1 systematizes the most frequently emphasized managerial practice clusters for cultivating a DT-supportive culture. Rather than treating culture as an abstract backdrop, the table links recurring interventions – leadership meaning-making, capability building, structural enablers, and change-management discipline – to the cultural mechanisms they primarily influence (e.g., shared meaning, diffusion of norms, coordination routines, and trust). This synthesis is grounded in the practice-oriented consolidation of “digital culture” steps, complemented by evidence on agility-oriented cultural logics, learning-organization drivers [5], and implementation-centered trust building in smaller firms, with diagnostic tailoring highlighted in case-based analysis and leadership capabilities discussed in the digital leadership literature.

Where some of the scholars treated culture as an internal managerial domain (norms, routines, and behaviors that can be reshaped through leadership and organizational design), global digital transformation also unfolds within national-cultural environments that condition how people

interpret technology, authority, time, and uncertainty. In this sense, national culture does not replace organizational culture; rather, it frames the boundary conditions under which organizational practices travel across subsidiaries and labor markets. Empirically, this matters because global programs frequently standardize technology and rollout communication, yet post-implementation adoption and use still vary systematically across countries [9]. Complementing this adoption perspective, survey-based evidence suggests that national culture influences digital transformation partly through its effects on digital competencies and information system management practices, while leadership can strengthen (or weaken) these pathways [1]. Together, these findings justify treating national culture as the second analytical layer in a two-level cultural review.

A first cluster of factors concerns individual-level orientations that structure technology acceptance and collective uptake. In a cross-cultural study of unified communication technology adoption in a multinational enterprise, Meske C. et al. show that Hofstede's Individualism/Collectivism and Long-Term Orientation, as well as Hall's Monochronic/Polychronic time orientation, help explain differences in post-implementation usage activity across subsidiaries. The substantive implication is not that "one culture adopts and another refuses," but that the shape of adoption and stabilization can differ by cultural context even when the technology and internal marketing are standardized [9]. This supports a core claim for global DT: diffusion dynamics are culturally patterned, and "go-live" is not the endpoint of adoption.

A second cluster concerns authority and uncertainty orientations, which influence how digital work practices are legitimated and routinized. Meske C. et al. explicitly include Hofstede dimensions such as power distance and uncertainty avoidance as theoretically relevant to adoption and the pace of adaptation in hierarchical contexts and in settings where new technologies are perceived as risky or "unsafe" [9]. Alshammari K. H. and Alshammari A. F. likewise frame national culture as a significant determinant of DT, emphasizing that cultural traits influence individuals' perceptions and usage of digital technologies and can shape organizational attitudes toward information system adoption and management practices. The key point is conceptual: national culture matters not only at the "attitude" level, but through the institutionalization of practices around technology governance and capability building [1].

A third cluster concerns capability mediation: national culture influences DT indirectly by shaping the development of competencies and management routines required for transformation. In their empirical model (surveying managers and employees with DT experience), Alshammari K. H. and Alshammari A. F. find that national culture significantly affects DT, with digital competencies and information system management practices acting as mediators [1]. This is an important refinement for synthesis because it moves the discussion beyond cultural determinism: cultural context can be operationalized in terms of the capability pathways it strengthens or constrains.

Across these sources, managerial practices that address national culture are most defensibly framed as adaptation and mediation strategies – i.e., ways to preserve global coherence while localizing implementation, and ways to reduce cultural friction by strengthening competencies and IS practices.

First, global DT programs benefit from monitoring and managing post-implementation adoption trajectories by region, rather than assuming a uniform diffusion curve. Meske C. et al. show measurable cross-country differences in usage activity after rollout and argue that IT

managers should anticipate cultural influences when introducing such technologies in global enterprises [9]. Practically, this supports region-sensitive change management: locally calibrated reinforcement, communication cadence, and support intensity should be aligned to observed adoption patterns rather than applied uniformly.

Second, organizations can mitigate adverse national-cultural effects by investing deliberately in digital competencies and implementing effective IS management practices. Alshammari K. H. and Alshammari A. F. explicitly conclude that firms should prioritize establishing digital competencies and efficient IS management procedures because these mediate the national culture–DT relationship. In a review synthesis, this implies that capability-building is not merely a technical training agenda; it is a cross-cultural management instrument that stabilizes adoption and enables consistent execution standards.

Third, leadership functions as a culturally relevant amplifier. Alshammari K. H. and Alshammari A. F. find that leadership moderates the relationship between (a) digital competencies and DT and (b) IS management practices and DT, and they emphasize the role of transformational leadership in amplifying positive effects and overcoming detrimental cultural constraints [1]. This positions leadership not as a generic “success factor,” but as a mechanism for translating competencies and governance into transformation outcomes under varying national-cultural conditions.

## **Conclusion**

This paper showed that digital transformation is culturally conditioned at two interdependent levels. Internally, organizational culture influences whether digital initiatives become durable changes in behavior through agility-oriented norms, learning routines, collaboration, trust, and leadership that legitimizes and guides change. Externally, national culture shapes how people interpret authority, risk, time, and collective uptake, affecting both adoption dynamics and the capability pathways through which transformation becomes executable.

Two implications follow. First, cultural work in DT is a coordinated portfolio of practices – leadership sense-making, capability building, structural enablement, and disciplined change management – rather than a single intervention. Second, in global settings these practices require localization to culturally patterned adoption trajectories while preserving coherence through shared competencies, governance routines, and leadership.

Future research should examine cross-cultural and national-cultural factors deeper, and establish how specific cultural mechanisms interact with distinct DT phases and technologies. Such work would strengthen both explanatory power and the practical guidance available for globally distributed transformations.

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