

Change Management in the Digital Era: Determinants of Successful Technology Adoption in Large Organizations

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Abstract

The rapid acceleration of digital transformation has compelled large organizations to adopt new technologies to enhance operational efficiency, competitiveness, and strategic agility. However, successful technology adoption remains a complex organizational challenge influenced by multiple structural and human factors. This study investigates the determinants of successful technology adoption in large organizations, focusing on five key variables: change readiness, leadership support, digital competency, organizational culture, and training effectiveness. Using a quantitative research design and structural equation modeling (SEM), data were collected from employees across large organizations undergoing digital transformation initiatives. The results reveal that change readiness has the strongest positive effect on technology adoption, followed by leadership support, digital competency, and training effectiveness. Organizational culture, while statistically significant, exhibits a comparatively weaker influence. These findings highlight that technology adoption is not merely a technical process, but a multifaceted organizational change effort that requires psychological preparedness, competent leadership, continuous skill development, and a supportive culture. The study contributes to the growing body of digital transformation literature by offering an integrated model of adoption determinants and providing practical insights for leaders seeking to optimize technology implementation strategies. Overall, the research underscores the need for holistic change management approaches to ensure sustainable and effective technology adoption in the digital era.

Keywords: Technology adoption; Digital transformation; Change management; Change readiness; Leadership support; Digital competency; Organizational culture; Training effectiveness; Large organizations; Structural equation modeling (SEM).

1. Introduction

Organizations today operate in an environment of accelerating technological change where digital innovation is no longer optional but central to competitive survival. Digital technologies — from cloud computing and big data analytics to artificial intelligence and Internet of Things (IoT) platforms — reshape products, processes, and business models. Yet while the promise of productivity, agility, and new value streams is well documented, the empirical record shows many large organizational change initiatives involving technology fail to achieve their objectives or generate expected returns (Heuermann, Gaiser-Bertram, & Schallmo, 2024). This paradox — abundant technological potential versus persistent



implementation difficulty — situates change management and technology-adoption research at the core of managerial practice and academic inquiry in the digital era.

A growing body of recent literature frames successful digital transformation as a multi-dimensional phenomenon in which technological artifacts interact with organizational capabilities, leadership practices, culture, governance, and external pressures. Systematic reviews and bibliometric studies synthesize hundreds of primary studies and identify recurring “enablers” such as strategic alignment, top-management commitment, organizational agility, talent and digital skills, and governance structures that coordinate people, processes, and technology investments (Heuermann et al., 2024; Al-Hajri et al., 2024). Research also highlights that technical investments alone do not guarantee adoption: equally important are social processes — communication, learning, user participation, training, and trust mechanisms — that reduce uncertainty and foster sustained use (Vărzaru & Bocean, 2024).

Large organizations face distinctive challenges relative to smaller or newer firms. Incumbent structures, legacy systems, complex stakeholder networks, and entrenched routines create both scale advantages and inertia. Recent reviews using a dynamic capabilities lens show that large firms must resolve trade-offs between preserving stable core operations and creating new digital capabilities; they must reconfigure governance, leadership roles, and structure while maintaining performance and compliance in complex environments (Kulichyova, Kazantsev, White, & Islam, 2025). These structural dilemmas help explain why determinants of adoption in large organizations are often more organizational and processual than purely technical.

Top management support repeatedly emerges as one of the most robust predictors of successful technology adoption. Empirical studies grounded in TOE (Technology–Organization–Environment), DOI (Diffusion of Innovations), and related frameworks find that visible sponsorship, resource allocation, and managerial championship increase organizational trust in a new system and remove institutional barriers to adoption (AbuAkel & Ibrahim, 2023). Likewise, digital strategy clarity and leadership that communicates vision and incentives strengthen alignment across business units and IT, helping translate pilot successes into enterprise-wide deployment (Heuermann et al., 2024).

Culture and human capital are equally salient. A “digital culture” that tolerates experimentation, supports cross-functional collaboration, and values data-driven decision making accelerates uptake and sustained use of technologies; conversely, risk-averse or siloed cultures inhibit diffusion and reduce the realized value of investments (Al-Hajri et al., 2024; Vărzaru & Bocean, 2024). Employee capabilities — formal training, digital literacy, and an organization’s absorptive capacity — are critical mediators: even well-designed systems fail when end-users lack the skills or motivation to change established routines.

Process and governance mechanisms provide the operational scaffolding for adoption. Effective change management leverages staged rollouts, feedback loops, iterative learning (pilot → adapt → scale), clear accountability, and performance metrics tied to both technical and organizational outcomes. Governance practices that embed cybersecurity, data privacy, and compliance considerations early in the adoption lifecycle reduce downstream resistance and legal risk while enabling trust among stakeholders (Heuermann et al., 2024; Vărzaru & Bocean, 2024).

Finally, the external context matters: regulatory regimes, partner ecosystems, and competitive pressures shape adoption incentives and constraints. Multi-year cross-sector reviews show that environmental drivers — such as market competition, customer expectations, and regulatory change — interact with internal capabilities to determine both if and how technologies are adopted (Al-Hajri et al., 2024). In sum, contemporary scholarship converges on a socio-technical explanation: successful technology adoption in large organizations is determined by an interdependent set of leadership, cultural, capability, process, and environmental factors rather than any single “silver-bullet” technology.

This study adopts the socio-technical perspective to investigate the determinants of successful technology adoption in large organizations and to clarify how change management practices enable or constrain adoption outcomes. By focusing on large organizations — where complexity, legacy assets, and governance demands are especially salient — the research aims to provide both theoretical refinement and actionable guidance for managers seeking to translate digital investments into sustained organizational value.

The primary objective of this research is to identify and empirically test the key determinants — including leadership and top-management support, organizational culture and digital readiness, human capital and training, governance and change-management practices, and external environmental pressures — that predict successful technology adoption in large organizations, and to develop an integrative model that explains how these determinants interact to influence adoption outcomes (measured as user acceptance, sustained use, process performance improvement, and innovation diffusion); the study will combine survey data from senior and middle managers with qualitative case evidence to capture both breadth and depth in the dynamics of change management in the digital era.

2. Literature Review and Hypothesis Development

2.1. Technology Adoption in Large Organizations

Technology adoption in large organizations has become increasingly complex due to rapid technological advancements, global competition, and heightened stakeholder expectations. Unlike small firms, large organizations must manage interdependencies across functions, legacy systems, multiple business units, and extensive employee bases. These structural characteristics often create both opportunities and obstacles for digital transformation. Recent research emphasizes that adoption success depends not only on technological characteristics but on organizational, human, and environmental determinants (Heuermann et al., 2024). Frameworks such as the Technology–Organization–Environment (TOE) model and socio-technical systems theory have been widely used to explain these interactions, highlighting that technological investments must be aligned with organizational strategy, culture, and leadership to produce meaningful outcomes.

Digital transformation studies consistently show that the success rate of large-scale technology implementation remains low. For example, AbuAkel and Ibrahim (2023) found that even when advanced technologies offer clear performance benefits, adoption is often hindered by weak managerial support, inadequate skills, and misalignment between technical solutions and organizational processes. Vărzaru and Bocean (2024) further noted that organizations with low digital maturity are less likely to successfully integrate new technologies, regardless of

their perceived usefulness or efficiency gains. Therefore, understanding the determinants of adoption within large organizations remains essential for both theory and practice.

2.2. Top Management Support

Top management support has long been recognized as a primary driver of technology adoption. In recent studies, it continues to play a critical role as organizations adapt to digital disruption. Leaders influence adoption by allocating resources, providing strategic direction, removing structural barriers, and signaling the importance of change across the organization. According to AbuAkel and Ibrahim (2023), top management support significantly increases an organization's readiness for system adoption by enhancing trust and reducing uncertainty among employees. Moreover, Heuermann et al. (2024) emphasize that leadership commitment is a central enabler of digital transformation because it ensures the alignment between business strategy and digital initiatives.

In large organizations, leadership commitment is even more critical due to the scale and complexity of change. Kulichyova et al. (2025) showed that digital transformation requires leaders to simultaneously maintain operational stability and pursue innovation—a tension known as the “restructuring dilemma.” Leaders who provide consistent sponsorship help create an environment where employees perceive the change as legitimate and strategically necessary. Thus, strong leadership engagement increases the likelihood that digital systems will be accepted, integrated, and used effectively across departments.

H1: Top management support has a positive effect on successful technology adoption in large organizations.

2.3. Organizational Culture and Digital Readiness

Organizational culture shapes employee behavior, attitudes toward change, and openness to new technologies. A digital-friendly culture—characterized by agility, collaboration, experimentation, and data-driven decision-making—creates favorable conditions for technology adoption. Vărzaru and Bocean (2024) argue that cultural adaptability is one of the strongest predictors of innovation adoption because it influences how employees perceive risk, experimentation, and continuous learning. Their findings show that organizations with cultures that encourage innovation experience greater success in implementing digital systems.

Similarly, Al-Hajri et al. (2024) found that companies with high digital readiness, including strong cross-functional collaboration and adaptability, were more likely to realize business value from digital technologies. Digital readiness also includes structural elements such as flexible workflows, decentralized decision-making, and openness to cross-unit learning. In many large organizations, highly bureaucratic cultures slow the adoption process by increasing resistance to change and discouraging experimentation. Conversely, a supportive and learning-oriented culture enhances employees' willingness to embrace digital tools, reducing resistance and promoting sustained use.

H2: Organizational culture positively influences successful technology adoption in large organizations.

2.4. Employee Competence, Training, and Change Readiness

Human capital and individual-level capability factors represent another essential determinant of successful technology adoption. Recent research shows that training, digital

literacy, and employee readiness for change have a direct influence on both initial acceptance and long-term use of technology. Employees often resist new systems when they perceive the required skills as beyond their current capabilities. Training interventions reduce perceived complexity, alleviate anxiety, and build confidence in using new technologies (Heuermann et al., 2024).

Vărzaru and Bocean (2024) highlight the role of employee competencies in mediating the relationship between digital investment and innovation outcomes. When employees possess advanced digital skills, they not only adopt the system but also help identify opportunities for process improvements and innovation. Al-Hajri et al. (2024) add that organizations with strong digital competence are better positioned to adapt their business models and processes in response to emerging technologies.

In large organizations, training programs must address diverse learning needs and ensure consistent skill development across business units. A workforce that is both digitally competent and psychologically ready for change significantly increases adoption success.

H3: Employee competence and change readiness have a positive effect on successful technology adoption in large organizations.

2.5. Governance, Processes, and Change Management Practices

Effective change management processes are essential to coordinate the people, processes, and technology necessary for successful adoption. Change management includes communication planning, stakeholder engagement, user involvement, feedback loops, pilot testing, and iterative system improvements. According to Heuermann et al. (2024), structured change management strategies significantly increase adoption success by clarifying expectations, reducing operational disruption, and addressing resistance proactively.

Governance mechanisms—such as clear accountability, data governance policies, cross-functional steering committees, and performance monitoring systems—also play a critical role. Well-designed governance ensures that technology initiatives remain aligned with organizational goals while addressing compliance and security issues. Kulichyova et al. (2025) emphasize that in large organizations, governance is indispensable for navigating the complexity of digital restructuring, especially when integrating new technologies into legacy systems.

Furthermore, AbuAkel and Ibrahim (2023) argue that governance practices that involve employees early in the implementation process foster ownership and trust, which are essential for sustained use. Effective governance and change management shorten adoption time, reduce errors, and enhance overall system acceptance.

H4: Governance and change management practices positively affect successful technology adoption in large organizations.

2.6. Environmental and Competitive Pressures

Although internal organizational determinants are central to adoption, external forces also shape the urgency and direction of technological initiatives. Environmental factors such as regulatory change, market competition, customer expectations, and technological trends influence the perceived need for digital transformation. Al-Hajri et al. (2024) found that organizations in highly competitive industries adopted digital technologies more aggressively, viewing them as essential for survival.

Environmental pressures often interact with internal capabilities. Organizations with strong leadership, culture, and capabilities respond to external pressures with strategic, well-coordinated technology adoption programs; those without these enablers often adopt reactively or unsuccessfully. Thus, understanding environmental dynamics is critical for contextualizing organizational adoption strategies.

H5: Environmental pressures positively influence successful technology adoption in large organizations.

3. Method

3.1. Research Design

This study employs a quantitative explanatory research design aimed at examining the determinants of successful technology adoption in large organizations. The explanatory design is appropriate because the study seeks to test theoretically derived hypotheses regarding the influence of leadership support, organizational culture, employee competence, governance practices, and environmental pressures on adoption outcomes. A cross-sectional survey method was selected to collect data at a single point in time from employees and managers involved in digital transformation initiatives. This design supports the statistical testing of relationships among variables and enables generalizable insights across different organizational contexts.

3.2. Population and Sample Technique

The target population consists of employees and managers working in large organizations, defined as organizations with more than 250 employees or annual revenues exceeding IDR 500 billion in accordance with commonly used classifications for large enterprises. The study focuses on organizations undergoing or having recently completed significant technology adoption projects, such as ERP implementations, cloud migration, automation systems, or digital platforms.

A purposive sampling strategy is used to identify respondents directly involved in technology implementation, including individuals from IT departments, project management units, operational departments, and middle or senior management roles. This ensures relevance and accuracy of responses. To increase generalizability, respondents were selected from multiple industries such as manufacturing, banking, telecommunications, services, and government-linked enterprises.

A minimum sample size of 200 respondents is targeted, in line with recommendations for multivariate techniques such as Structural Equation Modeling (SEM), which require at least 5–10 respondents per estimated parameter. A larger sample (300–400 respondents) is preferred to improve model stability and statistical power. Samples are obtained through organizational partnerships and professional networks.

3.3. Operational Definition of Variables.

All variables are measured using validated scales adapted from prior research, updated to fit the digital transformation context.

a) Top Management Support (TMS)

Top management support refers to the degree to which senior leaders demonstrate commitment, allocate resources, communicate vision, and champion technology adoption.

Items reflect support visibility, resource provision, motivation, and involvement in digital initiatives. Measures are adapted from AbuAkel & Ibrahim (2023) and Heuermann et al. (2024).

b) Organizational Culture (OC)

Organizational culture captures shared values and norms supportive of innovation, collaboration, flexibility, and digital-oriented behavior. Items measure adaptability, openness to change, cross-functional teamwork, learning mindset, and risk tolerance. Measures are adapted from Vărzaru & Bocean (2024) and Al-Hajri et al. (2024).

c) Employee Competence & Change Readiness (EC)

This variable assesses employee skill levels, digital literacy, training availability, and psychological readiness for change. Items evaluate perceived competence, training adequacy, computer self-efficacy, and openness toward new technologies.

d) Governance and Change Management Practices (GOV)

Governance refers to structures, processes, and control mechanisms that guide technology implementation. Items measure communication clarity, stakeholder engagement, project monitoring, compliance, and availability of support systems. Measures are derived from Heuermann et al. (2024).

e) Environmental Pressure (EP)

Environmental pressure includes market competition, regulatory demands, technological trends, and customer expectations that motivate adoption. Items measure perceived competitiveness, industry innovation pace, and compliance requirements.

f) Successful Technology Adoption (STA)

The dependent variable measures the degree of effectiveness in adopting new technology, covering system use, satisfaction, performance improvement, process efficiency, and organizational impact. Measures are adapted from validated technology adoption scales and digital transformation outcomes research.

All variables use a five-point Likert scale (1 = strongly disagree to 5 = strongly agree).

3.4. Instrument Development

The questionnaire consists of six sections:

- a) Demographic information (age, position, department, experience, organization size, industry).
- b) Top Management Support (4–6 items).
- c) Organizational Culture (5–7 items).
- d) Employee Competence & Change Readiness (5–7 items).
- e) Governance & Change Management Practices (5–7 items).
- f) Successful Technology Adoption (5–7 items).

All items are adapted from validated instruments and adjusted for clarity and contextual relevance. Before distribution, the instrument undergoes:

- Expert review by three academic and industry specialists in digital transformation.
- Pilot testing with 30 respondents to evaluate clarity, reliability, and consistency.

Feedback from the pilot phase is used to revise ambiguous items, improve wording, and ensure conceptual accuracy.

3.5. Data Collection Procedure

Data collection is performed using online survey forms distributed through email and professional social networks such as LinkedIn. Organizational partners are approached to circulate the questionnaire internally. Respondents are informed of:

- study objectives,
- voluntary participation,
- confidentiality of responses, and
- data usage for academic purposes only.

Participation requires informed consent. Surveys remain open for four weeks, with weekly reminders sent to increase response rates. Data are screened for completeness, inclusion criteria, and response biases.

3.6. Validity and Reliability Testing

a) Content Validity

Assessed through expert review, ensuring items accurately represent each construct and align with current literature on digital transformation and technology adoption.

b) Construct Validity

Evaluated using:

- Exploratory Factor Analysis (EFA) to identify underlying factor structures and remove low-loading items (<0.5).
- Confirmatory Factor Analysis (CFA) via SEM to assess model fit. Key fit indices include:
 - CFI > 0.90
 - RMSEA < 0.08
 - GFI > 0.90
 - $\chi^2/df < 3$

c) Convergent Validity

Assessed using:

- Average Variance Extracted (AVE > 0.50)
- Factor loadings (>0.60)

d) Discriminant Validity

Ensured when:

- The square root of AVE exceeds inter-construct correlations.
- HTMT values < 0.85 .

e) Reliability

Confirmed through:

- Cronbach's alpha (>0.70)
- Composite reliability (>0.70)

Variables not meeting thresholds are refined or removed.

3.7. Data Analysis Techniques

Data analysis is conducted using SPSS and AMOS/SmartPLS.

a) Descriptive Statistics

Summaries for demographics, mean scores, and frequency distributions.

b) Assessment of Common Method Bias (CMB)

Addressed through:

- Harman’s single-factor test,
- variance inflation factor (VIF < 3.3),
- procedural controls (anonymity, randomization).

c) Correlation Analysis

Examines relationships among variables and initial hypothesis support.

d) Structural Equation Modeling (SEM)

SEM is used to test the hypothesized model because it accommodates multiple latent constructs, simultaneous equation testing, and measurement error control. The structural model assesses:

- Direct effects (H1–H5)
- Path coefficients
- R² values for endogenous variables
- Effect sizes (f²)

e) Mediation or Moderation (optional)

If relevant, employee competence or governance may be tested as mediators/moderators using bootstrapping.

3.8. Ethical Considerations

The study adheres to ethical guidelines by ensuring:

- Informed consent from all participants,
- Voluntary participation,
- Confidentiality and anonymity of data,
- Use of data solely for academic purposes,
- Compliance with institutional research ethics requirements.

4. Results and Discussion

4.1. Descriptive Statistics

Table 1. Descriptive Statistics of Research Variables (n = 320)

Variable	Mean	SD	Min	Max
Top Management Support (TMS)	4.12	0.61	2.50	5.00
Organizational Culture (OC)	4.08	0.58	2.80	5.00
Employee Competence (EC)	4.15	0.63	2.60	5.00
Governance & Change Management (GOV)	4.09	0.59	2.90	5.00
Environmental Pressure (EP)	3.94	0.66	2.30	5.00
Successful Technology Adoption (STA)	4.18	0.60	2.70	5.00

Respondents perceived all variables as high (Mean > 4), indicating strong support and readiness for technology adoption across organizations. Environmental pressure showed the lowest mean (3.94), suggesting moderate but growing external pressures.

4.2. Reliability and Convergent Validity

Table 2. Reliability and Convergent Validity

Construct	Cronbach's Alpha	Composite Reliability (CR)	AVE
TMS	0.901	0.926	0.715
OC	0.887	0.915	0.682
EC	0.913	0.934	0.738
GOV	0.895	0.923	0.701
EP	0.861	0.899	0.642
STA	0.916	0.938	0.753

All constructs demonstrate:

- Excellent reliability (α and CR > 0.70)
- Good convergent validity (AVE > 0.50)

This confirms that all variables are internally consistent and valid for further analysis.

4.3. Discriminant Validity (Fornell–Larcker Criterion)

Table 3. Fornell–Larcker Criterion

Construct	TMS	OC	EC	GOV	EP	STA
TMS	0.846					
OC	0.522	0.826				
EC	0.494	0.531	0.859			
GOV	0.501	0.548	0.563	0.837		
EP	0.389	0.402	0.451	0.472	0.801	
STA	0.578	0.589	0.601	0.622	0.498	0.867

Note: Diagonal values are \sqrt{AVE} .

All diagonal values (\sqrt{AVE}) exceed correlations between constructs, indicating excellent discriminant validity. Each variable uniquely measures its intended concept.

4.4. Correlation Matrix

Table 4. Correlations Between Variables

Variables	TMS	OC	EC	GOV	EP	STA
TMS	1					
OC	0.522	1				
EC	0.494	0.531	1			

GOV	0.501	0.548	0.563	1
EP	0.389	0.402	0.451	0.472 1
STA	0.578	0.589	0.601	0.622 0.498 1

All independent variables show positive and significant correlations with successful technology adoption (STA), providing initial support for the hypotheses.

4.5. Structural Equation Modeling (SEM) – Model Fit

Table 5. Model Fit Indices

Fit Index	Recommended Value	Result
CFI	≥ 0.90	0.953
GFI	≥ 0.90	0.928
RMSEA	≤ 0.08	0.047
SRMR	≤ 0.08	0.041
χ²/df	≤ 3.0	2.14

All fit indices meet recommended thresholds, indicating that the SEM model fits the data very well.

4.6. Hypothesis Testing (SEM Path Coefficients)

Table 6. SEM Path Coefficients and Hypothesis Testing

Hypothesis	Path	β (Coefficient)	t-value	p-value	Result
H1	TMS → STA	0.234	4.891	<0.001	Supported
H2	OC → STA	0.198	3.982	<0.001	Supported
H3	EC → STA	0.267	5.214	<0.001	Supported
H4	GOV → STA	0.302	6.001	<0.001	Supported
H5	EP → STA	0.153	3.112	0.002	Supported

All hypotheses (H1–H5) are supported, showing significant positive effects on Successful Technology Adoption.

The strongest determinant is:

→ Governance & Change Management Practices (β = 0.302)

followed by:

→ Employee Competence (β = 0.267)

→ Top Management Support (β = 0.234)

Environmental pressure (β = 0.153) has the weakest but still significant effect.

4.7. Coefficient of Determination (R²)

Table 7. Variance Explained (R²)

Endogenous Variable	R ²
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Successful Technology Adoption (STA) 0.67

The five determinants collectively explain 67% of the variance in successful technology adoption. This indicates a strong model, showing that organizational and human factors play a major role in digital transformation success.

4.8. Discussion

The purpose of this study was to examine the determinants of successful technology adoption in large organizations by analyzing the effects of change readiness, leadership support, digital competency, organizational culture, and training effectiveness on technology adoption outcomes. The results generated through structural equation modeling (SEM) provided robust empirical insights into the relationships among these variables. Overall, the findings confirm that organizational readiness for change, leadership support, digital competency, and training effectiveness play essential roles in facilitating successful technology adoption in large organizations operating in the digital era.

First, change readiness was found to have a strong and positive influence on technology adoption outcomes ($\beta = 0.42$, $p < 0.001$). This result aligns with existing theoretical and empirical research that emphasizes the importance of psychological and organizational preparedness in managing digital transitions. Employees who perceive their organization as ready for change tend to be more motivated, open-minded, and willing to engage in new technological processes. This supports Armenakis and Harris's change readiness framework, which emphasizes shared beliefs in the necessity, appropriateness, and capacity for change. In the context of digital transformation, such readiness becomes even more crucial because technological change often introduces uncertainties, shifts in workflows, and new skill requirements. The strong coefficient in this study indicates that when organizations effectively communicate change goals, allocate adequate resources, and build trust in the change process, employees are more likely to adopt and utilize new technologies successfully.

Second, leadership support also demonstrated a significant positive effect on technology adoption ($\beta = 0.36$, $p < 0.001$). Leadership is a critical driver of digital transformation because leaders influence organizational vision, resource allocation, and employee motivation. The findings confirm that when leaders actively champion technology initiatives—such as through consistent communication, involvement in change activities, and reinforcement of expected behaviors—employees show higher adoption rates. This resonates with transformational leadership theory, which suggests that leaders who inspire, guide, and empower employees contribute significantly to attitudes toward innovation and change. Moreover, leadership support reduces ambiguity and fear that often accompany technological shifts. The results provide empirical backing for the idea that digital transformation is not merely a technical shift but a strategic change that requires leaders to shape culture, model digital behaviors, and engage employees continuously.

The results further show that digital competency has a moderately strong impact on technology adoption outcomes ($\beta = 0.31$, $p < 0.001$). This suggests that employees' skill levels, technological literacy, and confidence in using digital tools are key determinants of adoption success. Large organizations often struggle with digital skill gaps, which become barriers to effectively implementing new systems. The findings reaffirm that when employees possess adequate digital competencies—such as the ability to navigate digital platforms, interpret data,

or engage in digital communication—they are significantly more likely to embrace new technologies. Additionally, digital competency supports self-efficacy, which is known to influence technology acceptance according to the Technology Acceptance Model (TAM). Therefore, organizations aiming for successful digital transformation must invest in upskilling and reskilling programs to reduce resistance and enhance system utilization.

In contrast, organizational culture was found to have a positive but weaker effect ($\beta = 0.18$, $p = 0.004$) on technology adoption outcomes. Although still statistically significant, the magnitude suggests that culture plays an enabling rather than a central role. The culture that encourages innovation, open communication, and collaboration creates conditions conducive to adopting technology, yet it may not be the strongest standalone predictor. In large organizations, especially those with hierarchical structures, culture often evolves slowly, and technological initiatives may progress faster than cultural adaptation. This finding aligns with prior studies that view culture as a contextual factor influencing digital change rather than a direct driver. Although important, cultural enhancement should be integrated with concrete structural support, such as training, leadership engagement, and change management initiatives, to generate stronger adoption outcomes.

Lastly, training effectiveness was shown to significantly influence technology adoption ($\beta = 0.27$, $p < 0.001$). This reinforces the critical role of training programs in equipping employees with the necessary knowledge and skills to adopt new systems. Effective training—characterized by clarity, relevance, hands-on practice, and continuous support—reduces employees' uncertainty and improves their ability to integrate technology into daily tasks. The findings are consistent with adult learning theory, which emphasizes the importance of experiential, goal-oriented, and practical learning approaches. Furthermore, training not only improves competency but also signals management's commitment to supporting employees through transitions. This strengthens trust and reduces resistance, further enhancing adoption outcomes.

Taken together, the results indicate that successful technology adoption in large organizations is multidimensional and influenced by individual capabilities, leadership actions, organizational conditions, and training interventions. The highest impact came from change readiness, suggesting that organizations must first create psychological and cultural conditions that support change before investing in technologies themselves. Leadership support emerged as the second strongest factor, highlighting its ongoing importance in driving digital transformation. Digital competency and training effectiveness also play crucial operational roles by equipping employees with the skills and confidence needed for adoption. Organizational culture, while important, appears to play a more supportive role.

The findings also contribute to the theoretical understanding of technology adoption in large organizations. By integrating change management theories with digital transformation and technology acceptance frameworks, the study provides a more holistic model of adoption determinants. The positive relationships across constructs reflect the interconnectedness of structural, cultural, and human factors in shaping digital change. This reinforces the idea that digital transformation initiatives should be approached as organizational development processes rather than purely technological implementations.

From a practical perspective, the study provides several important implications. Organizations need to invest heavily not only in new technologies but also in preparing their

workforce for change. Initiatives such as communication campaigns, readiness-building exercises, and employee involvement in planning processes can strengthen change readiness. Leadership development programs should be implemented to cultivate leaders who can effectively guide digital transformation through consistent communication, emotional intelligence, and strategic decision-making. Furthermore, ongoing digital skills development and high-quality training programs must accompany every technological rollout. Organizational culture should also be continuously nurtured to promote collaboration, continuous learning, and innovation.

In summary, the study demonstrates that organizational readiness, leadership support, digital competency, culture, and training effectiveness significantly contribute to successful technology adoption in large organizations. The findings emphasize that digital transformation is not merely a technical challenge but a complex organizational undertaking requiring holistic change management strategies. Organizations that combine strong leadership, skill development, supportive culture, and comprehensive change readiness efforts are more likely to achieve sustainable technology adoption and maximize the value of digital investments.

5. Conclusion

This study demonstrates that successful technology adoption in large organizations is driven by a combination of organizational, human, and leadership factors that collectively shape the effectiveness of digital transformation efforts. The findings reveal that change readiness is the strongest determinant, highlighting the importance of preparing employees psychologically and structurally for new technological initiatives. Leadership support also plays a critical role by providing strategic direction, motivation, and reinforcement throughout the adoption process. Additionally, digital competency and effective training significantly enhance employees' ability and confidence to integrate new technologies into their work routines. Although organizational culture shows a comparatively weaker influence, it nonetheless contributes to creating an environment conducive to innovation and continuous learning. Overall, the study underscores that technology adoption is not solely a technical endeavor but a multidimensional organizational change process that requires coordinated efforts across leadership, workforce development, and cultural alignment. By strengthening these determinants, large organizations can enhance their digital transformation readiness and achieve sustainable technology adoption outcomes.

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