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Design and Validation of a Strategic Management Model for Digital Transformation with Emphasis on Organizational Dynamic Capabilities and Competitive Agility in Business Enterprises

Mojtaba. Asili[1*], Mohammad. Akbari Arekamari[2]

[1] MA Student, Department of Business Management, Payame Noor University, Mashhad, Iran
[2] Faculty of Management and Economics, Payame Noor University, Tehran, Iran

*** Corresponding author email address**: mojtabaasili@student.pnu.ac.ir

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A B S T R A C T

Objective: This study aimed to design and validate a strategic management model for digital transformation with emphasis on organizational dynamic capabilities and competitive agility in business enterprises in Tehran.

Methods and Materials: The study employed an applied exploratory sequential mixed-method design. In the qualitative phase, 18 academic and executive experts in strategic management, digital transformation, information technology, innovation, and organizational development were selected through purposive sampling and interviewed until theoretical saturation was achieved. The qualitative data were analyzed through systematic thematic coding to identify the main dimensions, components, and indicators of the model. In the quantitative phase, 384 managers and professional employees of medium-sized and large business enterprises in Tehran participated using stratified random sampling. Data were collected using a researcher-developed questionnaire derived from the qualitative findings and assessed for content validity, construct validity, convergent validity, discriminant validity, and reliability. Confirmatory factor analysis, structural equation modeling, and bootstrap analysis were applied to test the measurement and structural models.

Findings: Strategic digital transformation management significantly predicted dynamic sensing capability ($\beta = 0.71$, $p < 0.001$), dynamic seizing capability ($\beta = 0.68$, $p < 0.001$), dynamic reconfiguration capability ($\beta = 0.62$, $p < 0.001$), and competitive agility ($\beta = 0.22$, $p < 0.001$). Dynamic sensing, seizing, and reconfiguration capabilities significantly predicted strategic flexibility and innovation capability with β values of 0.33, 0.39, and 0.43, respectively (all $p < 0.001$). These capabilities also significantly predicted competitive agility with β values of 0.19, 0.26, and 0.31, respectively (all $p < 0.001$). Strategic flexibility and innovation capability significantly predicted competitive agility ($\beta = 0.38$, $p < 0.001$). The indirect effect of strategic digital transformation management

on competitive agility through dynamic capabilities was significant (β = 0.36, 95% CI [0.28, 0.45], p < 0.001). The model explained 72% of the variance in competitive agility.

Conclusion: The validated model indicates that digital transformation generates competitive agility when strategic orientation, digital leadership, governance, infrastructure, and resource readiness are translated into sensing, seizing, reconfiguration, strategic flexibility, and innovation capabilities.

Keywords: *Digital Transformation; Strategic Management; Dynamic Capabilities; Competitive Agility; Digital Leadership; Strategic Flexibility; Innovation Capability*

1 Introduction

Digital transformation has become one of the most consequential strategic challenges confronting contemporary organizations because it extends far beyond the adoption of isolated technological tools and requires fundamental changes in strategy, structure, culture, leadership, capabilities, processes, and business models. The accelerating diffusion of artificial intelligence, advanced analytics, cloud infrastructures, digital platforms, automation, and other disruptive technologies has intensified competitive pressure and altered the mechanisms through which firms create, deliver, and capture value. Organizations are therefore increasingly expected not only to invest in digital technologies but also to redesign the strategic logic through which technological resources are coordinated with market opportunities and organizational competencies. Recent research has emphasized that digital transformation should be conceptualized as an enterprise-wide strategic process rather than a narrowly technical modernization project, because successful transformation depends on the alignment of digital initiatives with organizational objectives, the availability of complementary capabilities, and the capacity to respond continuously to environmental change (Malifete et al., 2026; Ohiomah, 2026; Rizana et al., 2025). The contemporary digital environment is also characterized by technological disruption, uncertain customer expectations, shortened innovation cycles, intensifying competition, and the growing strategic significance of data and artificial intelligence. These conditions increase the importance of managerial systems capable of continuously integrating technological change into strategic decision-making and organizational renewal (Gregory et al., 2025; Riti et al., 2025). Accordingly, the strategic management of digital transformation has increasingly become a critical determinant of whether digital investment results in sustainable competitive value or remains fragmented, episodic, and disconnected from organizational priorities.

The strategic dimension of digital transformation is especially important because technological resources alone do not automatically generate superior organizational performance. The impact of digitalization depends on the organization's ability to configure technology, human capital, governance systems, knowledge resources, leadership practices, and strategic priorities into an integrated capability architecture. Research on digital transformation capabilities has increasingly demonstrated that firms require combinations of technological, managerial, learning, innovation, and relational capabilities to convert digital investments into performance outcomes (Rizana et al., 2025; Zhang et al., 2025). Strategic and organizational factors therefore determine whether digital capabilities are successfully developed and institutionalized. In this context, organizational structure, governance mechanisms, managerial coordination, and strategic alignment shape the capacity of firms to deploy digital resources effectively (Gera & Sarma, 2026; Gómez et al., 2026). Moreover, emerging evidence suggests that enterprises frequently experience incomplete transformation when they focus heavily on technological infrastructure while neglecting human capital, organizational learning, managerial competence, and the behavioral requirements of change (Guidkaya, 2026). This problem is particularly relevant in organizations attempting to transform established processes and business models, because technology adoption can create new operational possibilities while simultaneously exposing deficiencies in managerial routines, employee capabilities, cross-functional coordination, and strategic responsiveness. Consequently, an integrated model of digital transformation management should explain not only which digital resources organizations possess, but also how those resources are strategically mobilized and transformed into adaptive organizational capabilities.

Within this perspective, digital leadership has emerged as one of the most important antecedents of successful transformation. Digital transformation requires leaders who can articulate a coherent digital vision, recognize technological opportunities, coordinate organizational change, support experimentation, allocate resources under uncertainty, and create conditions for continuous learning. Digital leadership is increasingly understood as a dynamic

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managerial capability through which leaders interpret technological developments and orchestrate organizational resources in response to rapidly changing environments (Hossain et al., 2025). Studies have further demonstrated that effective digital leadership can enhance digitalization, organizational agility, sustainable performance, resilience, and innovation by integrating strategic orientation with cultural and organizational mechanisms (Alhameed & Emeagwali, 2026; Uzunbacak & KaragÖZ, 2026). In small and medium-sized enterprises, digital leadership, digital orientation, and digital capabilities have also been shown to interact with agility in supporting sustainable digital innovation (Ozon & Akhlaghimofrad, 2026). Similar evidence from tourism and hospitality suggests that digital leadership and artificial intelligence can reinforce innovation and enable organizations to operate more effectively in digitally intensive environments (Seraj et al., 2025). Leadership is therefore not merely a contextual variable surrounding digital transformation; rather, it represents an active strategic mechanism through which organizations interpret digital disruption and convert technological possibilities into coordinated organizational action.

The theoretical significance of dynamic capabilities is particularly pronounced in explaining how organizations achieve such adaptation. The dynamic capabilities perspective focuses on the ability of organizations to sense environmental changes, seize emerging opportunities, and reconfigure internal and external resources in response to changing competitive conditions. In digitally turbulent environments, these capabilities become fundamental because technological change frequently renders existing routines, competencies, and business models obsolete. Digital transformation therefore requires firms to continuously detect technological and market developments, decide which opportunities warrant strategic commitment, and restructure resources, processes, and relationships accordingly. Empirical research has demonstrated that dynamic capabilities can strengthen digital transformation and innovation performance, particularly in organizations operating in rapidly evolving manufacturing and technology-intensive contexts (Zhu, 2023). More recent studies have extended this reasoning by showing that intellectual capital, digital leadership, and dynamic capabilities jointly enable organizations to reorchestrate resources and manage transformational change (Doghri et al., 2026). From this perspective, digital transformation becomes a capability-driven process in which organizations continuously renew the resource base rather than simply implement predefined technology projects. The integration of dynamic capabilities into strategic digital transformation management is therefore theoretically important because it provides a mechanism explaining how digital strategic intent is translated into adaptive organizational behavior and competitive outcomes.

Among the consequences of dynamic capability development, organizational and strategic agility occupy a central position. Agility reflects the capacity of an organization to detect changes rapidly, make timely decisions, reallocate resources, modify operational arrangements, and respond effectively to emerging opportunities and threats. In contemporary digital environments, agility is increasingly considered essential because competitive advantage depends not only on possessing valuable resources but also on deploying them more rapidly than competitors. Research has demonstrated that organizational agility can mediate the relationship between digital capabilities and organizational performance, indicating that digital resources create value partly through their contribution to organizational responsiveness and adaptability (Atobishi et al., 2024). Strategic agility also plays an important role in promoting digital transformation because organizations with greater strategic flexibility are better able to adapt priorities and resource configurations as technological and market conditions evolve (Mohammed Ahmed Ali Shujaa & Al-Hemyari, 2024). In addition, strategic agility has been associated with organizational resilience and sustainable transformation, particularly in environments characterized by uncertainty and disruption (Hamad & Çelebi, 2026). These findings suggest that agility is both a product of digital transformation and an enabling condition for its continued development, creating a reciprocal relationship between digital strategy and organizational responsiveness.

The importance of agility is further strengthened by its relationship with innovation, organizational resilience, and sustainable competitive advantage. Digital transformation often generates value when it enables firms to experiment, innovate, redesign processes, and modify business models more rapidly than competitors. Transformational leadership and digital transformation have been shown to enhance organizational agility and corporate resilience, thereby contributing to sustainable competitive advantage (Probojakti et al., 2024). Knowledge sharing and open innovation also strengthen organizational agility, particularly when supported by transformational leadership

in digital transformation contexts (Bux et al., 2025). Likewise, paradoxical leadership has been linked to the simultaneous development of innovation culture and organizational agility, highlighting the importance of leadership mechanisms that balance competing organizational demands during transformation (Su et al., 2025). Research on business model innovation similarly identifies strategic agility as an urgent capability because organizations must continuously adjust value creation mechanisms in response to environmental volatility and technological disruption (Mueller-Saegebrecht & Walter, 2025). These findings collectively indicate that digital transformation should not be evaluated solely in terms of technological implementation or operational efficiency; its strategic significance lies in whether it enables organizations to innovate, adapt, and compete more effectively over time.

The relationship between agility and organizational capability is also influenced by internal structural and human resource arrangements. Agile work cultures can facilitate innovation by encouraging flexibility, collaboration, experimentation, and rapid decision-making, particularly in information technology environments (Ajayi & Udeh, 2024). Talent development and succession planning may similarly strengthen organizational agility by ensuring that firms possess the managerial and professional capabilities required to respond to emerging challenges (Alrifae et al., 2025). Contemporary management approaches further emphasize the combined roles of leadership, organizational culture, and change management in enabling organizations to respond to technological and competitive disruption (Orieno et al., 2024). These arguments reinforce the proposition that competitive agility is not generated by digital technology alone but by the interaction between technological assets and organizational systems that enable rapid learning and action. Consequently, strategic digital transformation management must incorporate human capital development, cultural readiness, leadership capability, knowledge integration, and flexible resource allocation if organizations are to derive sustainable value from digital technologies.

Another important element concerns organizational ambidexterity and the need to balance exploitation and exploration during digital transformation. Firms undergoing transformation must simultaneously improve existing processes while experimenting with new technologies, markets, and business models. This dual requirement creates psychological, managerial, and structural tensions that influence the organization's ability to sustain innovation while maintaining operational stability. Research on organizational ambidexterity suggests that psychological and managerial drivers can shape the capacity of organizations to reconcile competing demands, particularly when advanced artificial intelligence becomes embedded in decision-making and organizational processes (Kardes et al., 2026). Similarly, research on business intelligence and analytics competencies indicates that strategic diversification is influenced by the organization's dominant logic and its ability to deploy information-based competencies in support of new strategic directions (Faúndez, 2025). These findings reinforce the importance of strategic flexibility, because digital transformation often requires organizations to challenge established assumptions while simultaneously protecting core operational capabilities. An effective transformation model must therefore account for the organization's capacity to combine exploitation, exploration, learning, innovation, and strategic reconfiguration.

Organizational resilience represents another important outcome of strategic digital transformation and dynamic capability development. Resilience refers to the capacity to withstand disruption, recover from adverse conditions, and adapt to new environmental realities. Digital transformation can contribute to resilience by improving information processing, flexibility, connectivity, and responsiveness; however, the relationship is frequently indirect and dependent on complementary organizational mechanisms. Recent evidence suggests that digital transformation can strengthen corporate resilience through intermediary organizational and strategic processes, including sustainability-oriented performance mechanisms (Shen et al., 2026). In higher education, hybrid modeling approaches have likewise highlighted the complex relationship among digital transformation, institutional adaptation, and resilience (Alharbi, 2026). In logistics and supply chain contexts, strategic management has increasingly shifted beyond narrow cost minimization toward resilience-oriented configurations capable of absorbing disruptions while maintaining long-term sustainability (Alakaş et al., 2025). These findings demonstrate that resilience, agility, and dynamic capabilities are closely interconnected strategic outcomes of transformation, particularly under conditions of volatility and uncertainty.

The digitalization of industries also reveals that transformation trajectories vary substantially across sectors and institutional contexts. Manufacturing organizations, for example, must integrate disruptive technologies with

production systems, workforce capabilities, operational processes, and sustainability objectives (Ohiomah, 2026). Insurance organizations face distinct transformation challenges related to digital platforms, customer expectations, data utilization, regulatory requirements, and organizational adaptation (Malifete et al., 2026). High-technology firms, meanwhile, rely heavily on digital transformation capability, strategic intuition, and digital leadership to improve organizational performance under highly competitive conditions (Zhang et al., 2025). These sectoral differences imply that digital transformation models should be sufficiently comprehensive to explain general strategic mechanisms while remaining adaptable to the environmental and organizational characteristics of specific business contexts. The common pattern across industries, however, is that successful transformation depends less on isolated technologies and more on the organization's capacity to integrate digital capabilities with leadership, strategy, agility, learning, and reconfiguration.

Despite the expanding literature, important conceptual and empirical gaps remain. Many studies examine individual relationships such as digital leadership and performance, digital capabilities and agility, agility and resilience, or digital transformation and innovation, but fewer studies integrate these mechanisms within a unified strategic management framework. Existing research often emphasizes either technological capability, leadership, organizational agility, or dynamic capabilities separately, leaving the combined pathway from strategic digital transformation management to competitive agility insufficiently specified. This fragmentation limits understanding of how strategic orientation, leadership and governance, digital resources and infrastructure, sensing capability, seizing capability, reconfiguration capability, strategic flexibility, innovation, and competitive responsiveness operate as interconnected elements of the same transformation architecture. Moreover, firms increasingly require models that explain not only whether digital transformation improves performance, but through which organizational capabilities this effect occurs and how those capabilities can be deliberately developed. The literature on strategic agility, digital leadership, and dynamic capabilities strongly suggests that competitive outcomes are produced through interdependent mechanisms rather than isolated variables (Alhameed & Emeagwali, 2026; Doghri et al., 2026; Uzunbacak & KaragÖZ, 2026). At the same time, emerging research on artificial intelligence, disruptive technologies, organizational structures, and human capital indicates that the complexity of transformation is increasing and requires more integrated strategic explanations (Gera & Sarma, 2026; Gregory et al., 2025; Guidkaya, 2026).

This need is particularly relevant for business enterprises operating in highly dynamic metropolitan environments where organizations face simultaneous technological, competitive, economic, and institutional pressures. Enterprises must increasingly develop the capacity to recognize emerging digital trends, mobilize organizational resources rapidly, redesign internal processes, coordinate digital initiatives across functional boundaries, and respond to competitive changes with greater speed and precision. Under these conditions, competitive agility becomes a critical strategic outcome because it reflects the organization's capacity to translate digital resources and dynamic capabilities into timely market action. The growing evidence linking digital transformation to organizational agility, resilience, innovation, leadership, and sustainable performance provides a strong basis for developing an integrated model that positions dynamic capabilities as a central mechanism and competitive agility as a principal strategic consequence (Atobishi et al., 2024; Hamad & Çelebi, 2026; Ozon & Akhlaghimofrad, 2026; Probojakti et al., 2024). Such a model can provide both theoretical value by integrating previously fragmented streams of research and practical value by identifying the strategic and organizational capabilities that managers should develop in order to convert digital initiatives into sustainable competitive responsiveness.

Accordingly, the aim of the present study was to design and validate a strategic management model for digital transformation with emphasis on organizational dynamic capabilities and competitive agility in business enterprises in Tehran.

2 Methods and Materials

The present study was conducted using an applied research approach and an exploratory sequential mixed-method design consisting of qualitative and quantitative phases. The qualitative phase was undertaken to identify the dimensions, components, and indicators of strategic management of digital transformation with particular emphasis on organizational dynamic capabilities and competitive agility, whereas the quantitative phase was designed to validate the proposed model and examine the relationships among its principal constructs. The statistical population of the qualitative phase consisted of academic

experts, senior managers, digital transformation specialists, strategic management professionals, information technology executives, and organizational development experts working in business enterprises located in Tehran, Iran. Participants were selected through purposive sampling based on their theoretical knowledge and practical experience in the fields of strategic management, digital transformation, dynamic capabilities, organizational agility, and competitive strategy. Eligibility criteria included holding at least a master's degree in management, information technology, industrial engineering, entrepreneurship, or a related discipline; having at least five years of relevant managerial, professional, or academic experience; and demonstrating sufficient familiarity with digital transformation initiatives and strategic organizational change. Semi-structured interviews were conducted with 18 experts, and sampling continued until theoretical saturation was achieved, meaning that additional interviews no longer generated substantively new concepts or categories. The quantitative phase included managers and professional employees of medium-sized and large business enterprises operating in Tehran. These individuals were drawn from organizations in manufacturing, service, technology, commercial, financial, and knowledge-intensive sectors that had either implemented digital transformation initiatives or were actively engaged in digitalization programs. A total of 384 participants were included in the quantitative phase. Participants were selected using a stratified random sampling procedure to provide appropriate representation of different organizational sectors and managerial levels. Inclusion criteria for the quantitative phase required at least three years of organizational work experience, direct or indirect involvement in strategic decision-making or digital transformation activities, and sufficient familiarity with the organization's competitive environment and digital initiatives. Questionnaires with substantial missing information or uniform response patterns were excluded from the final analysis. Participation in both phases was voluntary, participants were informed of the purpose and procedures of the research, confidentiality of individual information was assured, and the collected data were used exclusively for scientific purposes.

Data collection was conducted separately for the qualitative and quantitative phases. In the qualitative phase, data were collected through semi-structured, in-depth interviews developed on the basis of the theoretical foundations of strategic management, digital transformation, dynamic capabilities, and competitive agility. The interview protocol contained open-ended questions designed to explore the strategic prerequisites of digital transformation, organizational mechanisms for sensing and interpreting technological and market changes, processes through which organizations seize emerging digital opportunities, organizational reconfiguration capabilities, strategic resource allocation, leadership and governance requirements, digital culture, technological infrastructure, organizational learning, innovation capacity, interorganizational collaboration, responsiveness to competitors, speed of strategic action, flexibility in resource deployment, and expected organizational and competitive outcomes. Follow-up and probing questions were used whenever necessary to clarify participants' views and obtain deeper descriptions of organizational processes and relationships among the emerging concepts. Interviews continued until conceptual and theoretical saturation was reached. With the participants' permission, interviews were recorded and subsequently transcribed verbatim to facilitate systematic coding and analysis. The results of the qualitative analysis were then used to develop the initial pool of items for the quantitative instrument. The preliminary questionnaire was reviewed by a panel of academic and executive experts to assess the relevance, clarity, comprehensiveness, and conceptual correspondence of the items with the identified dimensions. Necessary modifications were made to ambiguous, repetitive, or conceptually overlapping items before the final administration. The quantitative questionnaire assessed the major dimensions of strategic digital transformation management, including strategic orientation toward digital transformation, digital leadership and governance, digital resource and infrastructure readiness, sensing capability, seizing capability, organizational reconfiguration capability, organizational learning and knowledge integration, innovation capability, strategic flexibility, responsiveness to environmental and competitive changes, speed of competitive action, and competitive agility. Responses were measured using a five-point Likert scale ranging from 1, representing “strongly disagree,” to 5, representing “strongly agree.” The content validity of the instrument was assessed through expert judgment, and both the Content Validity Ratio and Content Validity Index were examined to ensure that the retained items adequately represented the conceptual domain of the study. Construct validity was evaluated through confirmatory factor analysis by examining standardized factor loadings and the measurement structure of the latent variables. Convergent

validity was evaluated using the Average Variance Extracted, with values above 0.50 considered satisfactory, while discriminant validity was assessed by comparing the shared variance among constructs and by examining the distinctiveness of the latent variables. Internal consistency reliability was evaluated using Cronbach's alpha and composite reliability coefficients, with coefficients of 0.70 or higher regarded as acceptable. A pilot administration was also conducted prior to the main survey in order to evaluate item comprehensibility, response consistency, completion procedures, and the preliminary psychometric properties of the instrument.

Qualitative and quantitative data were analyzed in accordance with the sequential structure of the research design. In the qualitative phase, interview transcripts were examined through systematic thematic coding. The analysis began with repeated reading of the interview transcripts to obtain an overall understanding of participants' experiences and interpretations. Meaningful statements were subsequently identified and assigned initial codes. Conceptually similar codes were compared and grouped into more comprehensive categories, and relationships among categories were examined to identify the major dimensions and subdimensions of the strategic management model for digital transformation. Through continuous comparison, refinement, integration, and abstraction of the qualitative categories, the principal constructs of the proposed model and the relationships among them were established. The credibility of the qualitative findings was strengthened through prolonged engagement with the data, continuous comparison of codes across interviews, expert review of the extracted categories, and re-examination of the coding structure to ensure conceptual consistency. In the quantitative phase, descriptive statistics, including frequency, percentage, mean, and standard deviation, were first calculated to summarize the demographic characteristics of the participants and the distribution of the study variables. Data were subsequently examined for missing values, outliers, normality, and multicollinearity before testing the measurement and structural models. The adequacy of the measurement model was evaluated through confirmatory factor analysis, standardized factor loadings, Cronbach's alpha, composite reliability, Average Variance Extracted, and discriminant validity indices. Structural equation modeling was then employed to validate the conceptual model and assess the magnitude and statistical significance of the hypothesized relationships among strategic digital transformation management, organizational dynamic capabilities, and competitive agility. Model adequacy was assessed using multiple goodness-of-fit indices, including the chi-square to degrees-of-freedom ratio, Root Mean Square Error of Approximation, Comparative Fit Index, Tucker-Lewis Index, Goodness-of-Fit Index, and Incremental Fit Index. Standardized path coefficients, critical ratios, coefficients of determination, and significance levels were examined to determine the explanatory power of the proposed model and the strength of the relationships among its constructs. Indirect effects were additionally examined using bootstrap resampling in order to assess the mediating role of organizational dynamic capabilities in the relationship between strategic management of digital transformation and competitive agility. Statistical significance was established at $p < 0.05$. The integration of qualitative findings with quantitative validation provided the basis for developing the final strategic management model of digital transformation for business enterprises in Tehran.

3 Findings and Results

The qualitative phase of the study involved 18 experts with academic and executive backgrounds in strategic management, digital transformation, information technology, organizational development, innovation management, and competitive strategy. Of the 18 qualitative participants, 13 were male and 5 were female. Their professional experience ranged from 8 to 27 years, with the majority having more than 10 years of managerial, consulting, or academic experience related to organizational transformation and digital technologies. Seven participants held doctoral degrees and were primarily affiliated with universities or research institutions, while 11 participants possessed master's or doctoral degrees and occupied senior managerial, consulting, information technology, strategic planning, or organizational development positions in business enterprises located in Tehran. Analysis of the interviews continued until theoretical saturation was achieved, and the final interviews did not generate substantively new categories beyond those already identified. In the quantitative phase, valid questionnaires from 384 participants were included in the final analysis. Of these participants, 246 (64.06%) were male and 138 (35.94%) were female. Regarding age, 54 participants (14.06%) were younger than 30 years, 132 (34.38%) were between 30 and 39 years, 128 (33.33%) were between 40 and 49 years, and 70 (18.23%) were 50 years of age or older. In

terms of educational attainment, 52 participants (13.54%) held a bachelor's degree, 238 (61.98%) held a master's degree, and 94 (24.48%) held a doctoral degree. With respect to organizational experience, 61 participants (15.89%) had between 3 and 5 years of experience, 119 (30.99%) had between 6 and 10 years, 126 (32.81%) had between 11 and 15 years, and 78 (20.31%) had more than 15 years of professional experience. The sample included senior executives, middle-level managers, strategic planning specialists, information technology managers and experts, innovation and business development professionals, and employees directly involved in digitalization initiatives. This distribution provided representation across different organizational positions and experience levels and was considered appropriate for evaluating a strategic model involving digital transformation, dynamic capabilities, and competitive agility.

Table 1

Dimensions, Components, and Indicators Extracted from the Qualitative Analysis

Main Dimension	Component	Representative Indicators
Strategic Digital Transformation Orientation	Digital strategic alignment	Alignment of digital initiatives with corporate strategy; integration of digital priorities into strategic planning; prioritization of digital investments
Strategic Digital Transformation Orientation	Environmental and technological scanning	Monitoring technological developments; identifying digital disruption; assessment of emerging market opportunities and threats
Digital Leadership and Governance	Transformational digital leadership	Senior management commitment; digital vision articulation; leadership support for experimentation and change
Digital Leadership and Governance	Digital governance	Clear digital decision rights; governance mechanisms; accountability for digital initiatives; portfolio coordination
Digital Resources and Infrastructure	Technological readiness	Flexible IT architecture; data infrastructure; interoperability; cloud-based capabilities; cybersecurity readiness
Digital Resources and Infrastructure	Human and financial resources	Digital skills; specialist expertise; investment capacity; resource availability for transformation projects
Dynamic Sensing Capability	Market sensing	Continuous identification of customer needs; competitor monitoring; recognition of changing demand patterns
Dynamic Sensing Capability	Technological sensing	Identification of relevant emerging technologies; evaluation of technological opportunities; anticipation of digital disruption
Dynamic Seizing Capability	Opportunity exploitation	Rapid evaluation of digital opportunities; investment in promising initiatives; commercialization of digital opportunities
Dynamic Seizing Capability	Strategic decision speed	Accelerated decision processes; decentralized decision authority; timely commitment of organizational resources
Dynamic Reconfiguration Capability	Resource reconfiguration	Redistribution of financial, human, and technological resources; restructuring of business processes; reconfiguration of competencies
Dynamic Reconfiguration Capability	Business model adaptation	Modification of value propositions; development of digital channels; redesign of revenue and operating models
Organizational Learning and Knowledge Integration	Digital learning	Continuous skill development; learning from digital experiments; organizational learning from transformation projects
Organizational Learning and Knowledge Integration	Knowledge integration	Cross-functional knowledge sharing; integration of market and technological knowledge; knowledge transfer between units
Innovation Capability	Digital innovation	Development of new digital products and services; process innovation; adoption of data-driven innovation
Innovation Capability	Experimentation capability	Pilot projects; rapid prototyping; iterative testing; tolerance of controlled failure
Strategic Flexibility	Resource flexibility	Rapid redeployment of resources; flexible budgeting; adaptive workforce utilization
Strategic Flexibility	Strategic adaptability	Revision of priorities in response to environmental change; flexible strategic planning; adaptive strategic choices
Competitive Agility	Market responsiveness	Rapid response to customers and competitors; timely modification of offerings; acceleration of market actions
Competitive Agility	Competitive action speed	Fast product and service introduction; rapid strategic moves; shorter response cycles
Competitive Agility	Operational adaptability	Flexible processes; rapid workflow adjustment; coordinated response across organizational units
Competitive Outcomes	Competitive advantage	Improved market position; differentiation; enhanced customer value; stronger competitive positioning
Competitive Outcomes	Organizational performance	Improved operational efficiency; innovation performance; market performance; sustainability of organizational growth

The qualitative analysis resulted in a multidimensional framework demonstrating that strategic management of digital transformation cannot be reduced to technology adoption alone. As presented in Table 1, the interview data indicated that successful digital transformation begins with strategic orientation and the integration of digital objectives into the overall direction of the enterprise. Participants repeatedly emphasized that technological investment without strategic alignment was unlikely to generate sustainable organizational outcomes. Digital leadership and governance also emerged as a central dimension because senior management commitment, clarity of decision rights, and coordinated governance were considered essential for converting digital aspirations into organizational action. Digital resources and infrastructure represented the enabling foundation of the model and encompassed technological architecture, data infrastructure, cybersecurity, financial investment, and access to appropriately skilled human resources. The qualitative findings further revealed that organizational dynamic capabilities represented the central mechanism through which digital resources and strategic intentions could be translated into competitive responses. These capabilities were organized around sensing, seizing, and reconfiguration. Sensing capability referred to the systematic identification of technological, customer, market, and competitive changes, whereas seizing capability reflected the organization's capacity to evaluate and exploit emerging digital opportunities. Reconfiguration capability involved restructuring resources, competencies, processes, and business models in response to environmental changes. Organizational learning, knowledge integration, innovation capability, and strategic flexibility were also identified as complementary mechanisms that strengthened the effectiveness of dynamic capabilities. Finally, competitive agility emerged as the most immediate strategic consequence of these organizational capabilities and was expressed through rapid market responsiveness, speed of competitive action, and operational adaptability. The qualitative findings therefore supported a process-oriented model in which strategic digital transformation management develops organizational capabilities that enable enterprises to respond more rapidly and effectively to environmental turbulence and ultimately improve competitive and organizational outcomes.

Table 2

Descriptive Statistics and Correlations among the Main Study Construct

Variable	Mean	SD	1	2	3	4	5	6	7	8
1. Strategic Digital Transformation Orientation	3.87	0.61	1.00							
2. Digital Leadership and Governance	3.79	0.66	0.68**	1.00						
3. Digital Resources and Infrastructure	3.72	0.64	0.61**	0.64**	1.00					
4. Dynamic Sensing Capability	3.81	0.59	0.66**	0.62**	0.58**	1.00				
5. Dynamic Seizing Capability	3.74	0.63	0.63**	0.65**	0.60**	0.69**	1.00			
6. Dynamic Reconfiguration Capability	3.68	0.67	0.59**	0.63**	0.66**	0.62**	0.70**	1.00		
7. Strategic Flexibility and Innovation Capability	3.76	0.62	0.64**	0.61**	0.59**	0.65**	0.68**	0.71**	1.00	
8. Competitive Agility	3.83	0.60	0.67**	0.65**	0.62**	0.68**	0.73**	0.74**	0.76**	1.00

The descriptive findings in Table 2 indicated that all major constructs were evaluated above the theoretical midpoint of the five-point measurement scale, suggesting that respondents generally perceived their organizations as possessing moderate to relatively strong digital transformation capabilities. Strategic digital transformation orientation had the highest mean among the antecedent dimensions (M = 3.87, SD = 0.61), indicating that the surveyed enterprises generally demonstrated considerable recognition of the strategic importance of digitalization and attempted to integrate digital priorities into organizational planning. Competitive agility also showed a relatively high mean (M = 3.83, SD = 0.60), suggesting that participating organizations displayed a meaningful capacity to respond rapidly to environmental and competitive changes. Dynamic sensing capability obtained a mean of 3.81 (SD = 0.59), whereas digital leadership and governance had a mean of 3.79 (SD = 0.66). Strategic flexibility and innovation capability had a mean of 3.76 (SD = 0.62), dynamic seizing capability had a mean of 3.74 (SD = 0.63), and digital resources and infrastructure had a mean of 3.72 (SD = 0.64). Dynamic reconfiguration capability produced the lowest mean among the major constructs (M = 3.68, SD = 0.67), which suggests that although organizations were generally capable of recognizing digital opportunities, restructuring resources and modifying established organizational arrangements represented a comparatively more difficult aspect of digital transformation. Pearson correlation

coefficients demonstrated positive and statistically significant associations among all variables at $p < 0.01$. Competitive agility was most strongly correlated with strategic flexibility and innovation capability ($r = 0.76$), dynamic reconfiguration capability ($r = 0.74$), and dynamic seizing capability ($r = 0.73$). The correlation between competitive agility and dynamic sensing capability was also substantial ($r = 0.68$). Strategic digital transformation orientation demonstrated significant relationships with competitive agility ($r = 0.67$), dynamic sensing capability ($r = 0.66$), and strategic flexibility and innovation capability ($r = 0.64$). The magnitude of the correlations supported the theoretically expected relationships while remaining below levels commonly associated with problematic redundancy among constructs. Therefore, the correlation pattern provided preliminary empirical support for the proposition that strategic digital transformation management, dynamic capabilities, strategic flexibility, and innovation capability collectively contribute to higher levels of competitive agility.

Table 3

Measurement Model, Reliability, Convergent Validity, and Model Fit Results

Construct	Standardized Factor Loading Range	Cronbach's Alpha	Composite Reliability	AVE
Strategic Digital Transformation Orientation	0.71–0.86	0.88	0.91	0.62
Digital Leadership and Governance	0.73–0.89	0.90	0.92	0.65
Digital Resources and Infrastructure	0.69–0.87	0.87	0.90	0.60
Dynamic Sensing Capability	0.72–0.88	0.89	0.92	0.64
Dynamic Seizing Capability	0.74–0.90	0.91	0.93	0.67
Dynamic Reconfiguration Capability	0.71–0.89	0.90	0.92	0.65
Organizational Learning and Knowledge Integration	0.70–0.86	0.88	0.91	0.61
Strategic Flexibility and Innovation Capability	0.73–0.91	0.91	0.93	0.68
Competitive Agility	0.76–0.92	0.92	0.94	0.71

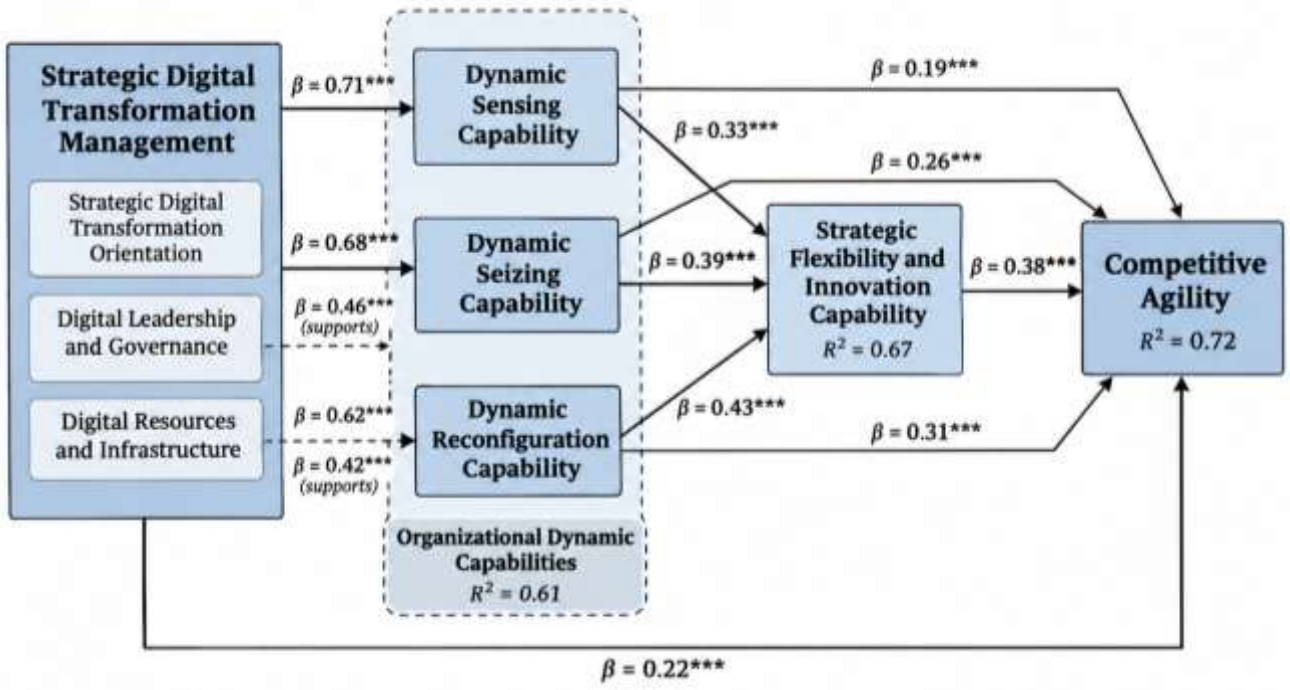
Model Fit Index	Obtained Value	Recommended Criterion
χ^2/df	2.14	< 3.00
RMSEA	0.055	< 0.08
CFI	0.95	> 0.90
TLI	0.94	> 0.90
GFI	0.92	> 0.90
IFI	0.95	> 0.90
NFI	0.93	> 0.90

The measurement model results presented in Table 3 confirmed the adequacy of the measurement properties of the proposed constructs. Standardized factor loadings ranged from 0.69 to 0.92, and all retained indicators loaded substantially on their corresponding latent variables. Digital resources and infrastructure included the lowest observed standardized loading of 0.69, while competitive agility included the highest loading of 0.92. The generally strong loading pattern demonstrated that the observed indicators adequately represented their respective theoretical constructs. Cronbach's alpha coefficients ranged between 0.87 and 0.92, exceeding the conventional minimum threshold of 0.70 and confirming satisfactory internal consistency across all dimensions. Composite reliability coefficients ranged from 0.90 to 0.94 and similarly demonstrated strong construct reliability. The Average Variance Extracted values ranged from 0.60 to 0.71, exceeding the recommended criterion of 0.50 for all constructs and confirming satisfactory convergent validity. Competitive agility demonstrated the highest AVE value of 0.71, followed by strategic flexibility and innovation capability at 0.68 and dynamic seizing capability at 0.67. These findings indicated that a substantial proportion of the variance in the observed measures was accounted for by their corresponding latent constructs rather than measurement error. Examination of the interconstruct relationships and the pattern of shared variance additionally supported discriminant validity, as the constructs retained sufficient empirical distinction despite their theoretically expected correlations. The overall confirmatory factor model also demonstrated satisfactory goodness of fit. The ratio of chi-square to degrees of freedom was 2.14, remaining below the recommended maximum of 3.00. The RMSEA value of 0.055 indicated a close approximation between the observed covariance matrix and the proposed measurement structure. Incremental fit measures were

likewise favorable, with CFI = 0.95, TLI = 0.94, IFI = 0.95, and NFI = 0.93. The GFI value of 0.92 further indicated acceptable absolute fit. Collectively, these findings supported the reliability, convergent validity, discriminant validity, and overall factorial adequacy of the measurement model and justified proceeding to structural model testing.

Figure 1

Final Validated Model of Strategic Management of Digital Transformation with Emphasis on Organizational Dynamic Capabilities and Competitive Agility



The final validated model presented in Figure 1 depicts strategic digital transformation management as the principal antecedent of organizational dynamic capabilities and competitive agility. Strategic digital transformation management is represented as a higher-order organizational orientation supported by strategic digital alignment, environmental and technological scanning, digital leadership and governance, and digital resources and infrastructure. These strategic foundations strengthen the organization's sensing, seizing, and reconfiguration capabilities, which subsequently enhance strategic flexibility, organizational learning, knowledge integration, and digital innovation. The structural pattern demonstrates that dynamic capabilities operate as the primary transformational mechanism connecting digital strategy with competitive outcomes. The strongest sequence in the final model occurs through the development of dynamic capabilities and their subsequent influence on strategic flexibility and innovation capability, which in turn produces higher competitive agility. The model also incorporates significant direct effects from the three dynamic capability dimensions to competitive agility, showing that sensing, seizing, and reconfiguring contribute independently to the speed and adaptability of competitive responses. The significant direct path between strategic digital transformation management and competitive agility indicates that strategic digital orientation itself can improve organizational responsiveness, although a considerable portion of this influence is transmitted through the development of organizational capabilities. The explained variance of 72% for competitive agility indicates that the final model possesses strong predictive and explanatory capacity. Overall, the empirical results validate a strategic and capability-based understanding of digital transformation in which competitive agility emerges not merely from possessing digital technologies, but from the organization's ability to strategically direct digital transformation, continuously sense environmental changes, seize digital opportunities, reconfigure organizational resources, develop flexible strategic responses, and sustain innovation across changing competitive conditions.

Table 4

Structural Model Path Coefficients and Hypothesis Testing

Structural Relationship	B	SE	β	Critical Ratio	p	Result
Strategic Digital Transformation Management → Dynamic Sensing Capability	0.67	0.07	0.71	9.57	<0.001	Supported
Strategic Digital Transformation Management → Dynamic Seizing Capability	0.61	0.06	0.68	10.17	<0.001	Supported
Strategic Digital Transformation Management → Dynamic Reconfiguration Capability	0.55	0.07	0.62	7.86	<0.001	Supported
Digital Leadership and Governance → Dynamic Capabilities	0.43	0.06	0.46	7.17	<0.001	Supported
Digital Resources and Infrastructure → Dynamic Capabilities	0.39	0.06	0.42	6.50	<0.001	Supported
Dynamic Sensing Capability → Strategic Flexibility and Innovation Capability	0.31	0.05	0.33	6.20	<0.001	Supported
Dynamic Seizing Capability → Strategic Flexibility and Innovation Capability	0.37	0.05	0.39	7.40	<0.001	Supported
Dynamic Reconfiguration Capability → Strategic Flexibility and Innovation Capability	0.41	0.05	0.43	8.20	<0.001	Supported
Dynamic Sensing Capability → Competitive Agility	0.18	0.05	0.19	3.60	<0.001	Supported
Dynamic Seizing Capability → Competitive Agility	0.24	0.05	0.26	4.80	<0.001	Supported
Dynamic Reconfiguration Capability → Competitive Agility	0.29	0.05	0.31	5.80	<0.001	Supported
Strategic Flexibility and Innovation Capability → Competitive Agility	0.36	0.05	0.38	7.20	<0.001	Supported
Strategic Digital Transformation Management → Competitive Agility	0.21	0.06	0.22	3.50	<0.001	Supported

The structural model results in Table 4 provided strong empirical support for the proposed relationships. Strategic digital transformation management had substantial positive effects on all three dimensions of organizational dynamic capabilities. Its strongest direct relationship was with dynamic sensing capability ($\beta = 0.71$, $p < 0.001$), indicating that the strategic management of digital transformation particularly enhances an organization's ability to systematically recognize technological developments, customer changes, competitive movements, and emerging opportunities. The effect on dynamic seizing capability was also strong ($\beta = 0.68$, $p < 0.001$), demonstrating that strategic digital transformation facilitates the conversion of recognized opportunities into investment decisions, innovation initiatives, and market actions. A significant effect was likewise observed for dynamic reconfiguration capability ($\beta = 0.62$, $p < 0.001$), confirming that strategic digital orientation strengthens the enterprise's ability to reorganize resources, processes, competencies, and business models. Digital leadership and governance significantly enhanced the higher-order dynamic capability construct ($\beta = 0.46$, $p < 0.001$), while digital resources and infrastructure also exerted a significant positive effect ($\beta = 0.42$, $p < 0.001$). These findings indicate that dynamic capabilities are not generated automatically through technology acquisition; rather, they depend on the interaction of strategic direction, leadership support, governance arrangements, organizational resources, and technological readiness. Dynamic sensing, seizing, and reconfiguration capabilities all significantly predicted strategic flexibility and innovation capability. Among these relationships, dynamic reconfiguration capability demonstrated the strongest effect ($\beta = 0.43$, $p < 0.001$), followed by dynamic seizing capability ($\beta = 0.39$, $p < 0.001$) and dynamic sensing capability ($\beta = 0.33$, $p < 0.001$). The results therefore suggest that the capacity to reorganize organizational resources and structures is particularly important for translating digital opportunities into flexible and innovative organizational behavior.

The direct effects on competitive agility further confirmed the central role of dynamic capabilities. Dynamic reconfiguration capability had the strongest direct effect among the three dynamic capability dimensions ($\beta = 0.31$, $p < 0.001$), followed by dynamic seizing capability ($\beta = 0.26$, $p < 0.001$) and dynamic sensing capability ($\beta = 0.19$, $p < 0.001$). This ordering indicates that recognizing environmental changes is necessary but insufficient for attaining competitive agility unless the enterprise can mobilize resources, exploit identified opportunities, and modify established organizational arrangements. Strategic flexibility and innovation capability demonstrated a comparatively strong direct effect on competitive agility ($\beta = 0.38$, $p < 0.001$), demonstrating that enterprises capable of rapidly revising strategic priorities, reallocating resources, experimenting with new solutions, and developing digital innovations were more capable of responding rapidly to competitive pressures. Strategic digital transformation management additionally maintained a significant direct relationship with competitive agility ($\beta = 0.22$, $p < 0.001$), even after inclusion of the mediating organizational mechanisms. This finding indicated partial rather than complete mediation. Bootstrap analysis confirmed that the indirect effect of strategic digital transformation management on competitive agility through organizational

dynamic capabilities was significant (indirect β = 0.36, 95% bootstrap CI [0.28, 0.45], p < 0.001). Because the confidence interval did not include zero, the mediating role of dynamic capabilities was empirically supported. The model explained 61% of the variance in organizational dynamic capabilities, 67% of the variance in strategic flexibility and innovation capability, and 72% of the variance in competitive agility. These coefficients of determination indicate substantial explanatory power and demonstrate that the proposed model accounts for a considerable proportion of the differences in enterprises' ability to act rapidly and adaptively within competitive digital environments.

4 Discussion

The present study aimed to design and validate a strategic management model for digital transformation with emphasis on organizational dynamic capabilities and competitive agility in business enterprises in Tehran. The findings demonstrated that strategic digital transformation management exerts substantial positive effects on dynamic sensing, dynamic seizing, and dynamic reconfiguration capabilities, while digital leadership, governance, technological infrastructure, and resource readiness further reinforce the development of these capabilities. The results also showed that the three dimensions of dynamic capabilities significantly enhance strategic flexibility and innovation capability and exert direct positive effects on competitive agility. Among the dynamic capability dimensions, reconfiguration capability had the strongest direct effect on competitive agility, followed by seizing capability and sensing capability. Strategic flexibility and innovation capability also exerted a strong direct influence on competitive agility, while strategic digital transformation management retained a significant direct effect on competitive agility even after the mediating mechanisms were incorporated into the structural model. The significant indirect effect of strategic digital transformation management on competitive agility through organizational dynamic capabilities further confirmed that dynamic capabilities constitute a major explanatory mechanism through which digital strategy is converted into competitive responsiveness. The model explained 61% of the variance in organizational dynamic capabilities, 67% of the variance in strategic flexibility and innovation capability, and 72% of the variance in competitive agility, indicating substantial explanatory power.

The strong relationship between strategic digital transformation management and dynamic sensing capability indicates that organizations with a coherent digital strategy are more capable of systematically detecting technological developments, changing customer expectations, competitive movements, and emerging market opportunities. This finding is consistent with the dynamic capability perspective, according to which digital transformation creates strategic value only when firms develop the ability to continuously interpret changes in their environment and connect those changes with organizational opportunities. Zhu demonstrated that dynamic capabilities provide an important foundation for linking digital transformation to innovation performance in manufacturing firms, emphasizing that digital technologies produce sustainable outcomes when they are embedded in adaptive organizational processes (Zhu, 2023). Similarly, Rizana et al. identified a broad set of managerial and organizational capabilities required for digital transformation and emphasized that technological resources must be accompanied by capabilities for environmental interpretation, learning, coordination, and strategic renewal (Rizana et al., 2025). The present findings extend this argument by showing that strategic digital transformation orientation itself strengthens the organization's sensing mechanism. In other words, when digital transformation is incorporated into corporate strategy rather than treated as a technical project, organizations are more likely to institutionalize systematic monitoring of technological, market, and competitive developments.

The significant effect of strategic digital transformation management on seizing capability similarly indicates that organizations with stronger digital strategic orientation are better positioned to convert recognized opportunities into investments, initiatives, products, services, and new business arrangements. Sensing opportunities does not guarantee competitive advantage unless decision makers are able to mobilize organizational resources and act on the identified opportunities. This result aligns with the findings of Zhang et al., who showed that digital transformation capability, strategic intuition, and digital leadership contribute to organizational performance in high-technology firms (Zhang et al., 2025). It is also compatible with the study by Gómez et al., which highlighted the role of strategic and organizational factors in developing digital capabilities and demonstrated that digital capability development is conditioned by broader managerial and structural arrangements (Gómez et al., 2026). From this perspective,

seizing capability represents the strategic decision-making component of digital transformation. Organizations that integrate digital initiatives into strategic planning can more rapidly evaluate technological opportunities, allocate budgets, prioritize initiatives, and commit human and technological resources to potentially valuable projects.

The positive relationship between strategic digital transformation management and dynamic reconfiguration capability is particularly important because reconfiguration was the strongest dynamic capability predictor of competitive agility. This suggests that the most critical contribution of digital transformation management may not simply be improved environmental awareness or opportunity recognition, but the capacity to restructure existing organizational resources, routines, processes, and business models. This finding is consistent with Doghri et al., who emphasized the combined role of intellectual capital, digital leadership, and dynamic capabilities in reorchestrating organizational change during digital transformation (Doghri et al., 2026). It also supports the conclusions of Gera and Sarma, who showed that organizational structures strongly influence agility and capability development in Industry 4.0 and traditional organizational settings (Gera & Sarma, 2026). Digital transformation frequently challenges established structures, hierarchical decision processes, functional boundaries, and resource allocation routines. Therefore, organizations that cannot reconfigure these elements may recognize digital disruption but remain incapable of responding effectively. The relatively lower descriptive mean observed for reconfiguration capability in the present study reinforces this point: organizations appeared relatively capable of sensing digital changes but encountered greater difficulty in modifying entrenched organizational arrangements.

The significant roles of digital leadership and governance in strengthening organizational dynamic capabilities provide further support for leadership-centered explanations of digital transformation. Digital transformation requires senior managers to interpret technological changes, articulate a coherent digital vision, coordinate cross-functional initiatives, allocate resources, and legitimize experimentation. The present finding is consistent with Alhameed and Emeagwali, who demonstrated that strategic digital leadership contributes to sustainable transformation through digitalization, organizational agility, and supportive organizational culture (Alhameed & Emeagwali, 2026). Uzunbacak and Karagöz similarly positioned digital leadership within a dynamic capability framework and demonstrated its relationship with agility, sustainable performance, and resilience (Uzunbacak & KaragÖZ, 2026). Hossain et al. further conceptualized digital leadership as a dynamic managerial capability in artificial intelligence-intensive environments, emphasizing the leader's role in continuously adapting managerial competencies to emerging technological conditions (Hossain et al., 2025). The current results therefore support the interpretation that digital leadership is not merely a contextual facilitator but a strategic capability through which organizations coordinate sensing, seizing, and reconfiguration activities.

The importance of digital resources and infrastructure in the proposed model also confirms that strategic transformation requires an appropriate technological and organizational foundation. Technological architecture, data infrastructure, digital skills, financial resources, interoperability, and cybersecurity readiness provide the basic conditions under which dynamic organizational capabilities can operate. This finding corresponds with Ohiomah's analysis of sustainable digital transformation in manufacturing, which showed that disruptive technology adoption must be supported by broader organizational and strategic arrangements (Ohiomah, 2026). Malifete et al. similarly identified a range of technological, managerial, and organizational challenges that affect the progress of digital transformation in the insurance sector (Malifete et al., 2026). At the same time, the present results indicate that infrastructure alone is insufficient because its effect becomes strategically meaningful when it is combined with leadership, governance, and dynamic capabilities. This conclusion also aligns with Guidkaya's argument that digital transformation can remain incomplete when organizations prioritize technology while overlooking human capital and organizational competencies (Guidkaya, 2026).

Another major finding was that dynamic sensing, seizing, and reconfiguration capabilities significantly enhanced strategic flexibility and innovation capability. Reconfiguration capability had the strongest effect, followed by seizing and sensing. This result suggests that strategic flexibility emerges through a sequence in which organizations first interpret their environment, then commit to promising opportunities, and finally reorganize resources and routines to support new strategic actions. The finding is consistent with the conceptualization of strategic agility proposed by Mueller-Saegebrecht and Walter, who emphasized the importance of rapid strategic adjustment and resource redeployment in business model innovation (Mueller-Saegebrecht & Walter, 2025). It is also aligned

with Su et al., who showed that leadership can simultaneously foster innovation culture and organizational agility during digital transformation (Su et al., 2025). Innovation therefore appears to depend not simply on creativity or technology acquisition but on the organizational ability to redirect resources, revise strategic priorities, combine knowledge, and experiment with alternative solutions.

The significant positive effect of strategic flexibility and innovation capability on competitive agility was among the strongest structural relationships observed in the study. This finding indicates that enterprises capable of rapidly revising strategic priorities and introducing new solutions are better positioned to respond to competitors, changing customer preferences, and market disruptions. The result is consistent with Ajayi and Udeh, who highlighted the importance of agile work cultures in supporting innovation and organizational responsiveness in information technology environments (Ajayi & Udeh, 2024). It also aligns with Bux et al., who demonstrated that knowledge sharing, open innovation, and transformational leadership can collectively strengthen organizational agility in digital transformation contexts (Bux et al., 2025). The present findings therefore reinforce the view that competitive agility is not merely a speed-based capability. Rather, it is an outcome of flexible strategic decision-making, innovation, learning, and the capacity to adjust organizational resources in accordance with changing competitive conditions.

The direct positive effects of sensing, seizing, and reconfiguration capabilities on competitive agility further demonstrate that each dimension contributes independently to organizational responsiveness. Sensing capability allows firms to recognize competitive and technological changes early, seizing capability enables timely commitment to opportunities, and reconfiguration capability makes it possible to adapt organizational structures and resources to support new actions. The stronger effect of reconfiguration capability suggests that the ability to act upon environmental intelligence is ultimately more important than detection alone. This finding aligns with Atobishi et al., who found that organizational agility mediates the relationship between digital capabilities and performance, demonstrating that digital resources create value through their contribution to adaptive organizational behavior (Atobishi et al., 2024). Mohammed Ahmed Ali Shujaa and Al-Hemyari similarly reported that strategic agility plays a central role in promoting digital transformation in banking organizations (Mohammed Ahmed Ali Shujaa & Al-Hemyari, 2024). The current study extends these findings by positioning competitive agility as an outcome of distinct but interdependent dynamic capabilities.

The mediating role of dynamic capabilities is another important contribution of the study. The significant indirect effect of strategic digital transformation management on competitive agility indicates that a considerable part of the influence of digital strategy operates through organizational sensing, seizing, and reconfiguration mechanisms. This finding helps explain why firms with similar levels of technological investment may achieve substantially different competitive outcomes. The difference may lie in the capabilities through which technology is interpreted, mobilized, and recombined. This interpretation is consistent with Probojakti et al., who showed that transformational leadership and digital transformation contribute to organizational agility and corporate resilience, thereby supporting sustainable competitive advantage (Probojakti et al., 2024). It is also compatible with Hamad and Çelebi, who found that strategic agility mediates the relationship between digital transformation and organizational resilience in the hospitality sector (Hamad & Çelebi, 2026). These studies, together with the present findings, indicate that agility functions as a critical transformation mechanism between digital initiatives and broader organizational outcomes.

The direct effect of strategic digital transformation management on competitive agility remained significant even after dynamic capabilities and strategic flexibility were introduced into the model, suggesting partial mediation. This implies that some dimensions of strategic digital transformation management may influence competitive responsiveness more directly through accelerated decision structures, integrated digital platforms, enhanced information visibility, and closer strategic alignment. The finding is consistent with Ozon and Akhlaghimofrad, who emphasized the strategic relationships among digital leadership, digital capabilities, digital orientation, agility, and sustainable digital innovation in SMEs (Ozon & Akhlaghimofrad, 2026). It also supports Seraj et al., who demonstrated that digital leadership, artificial intelligence, and innovation jointly contribute to next-generation organizational competitiveness in tourism and hospitality (Seraj et al., 2025). Thus, strategic digital transformation management influences competitive agility both by creating enabling organizational conditions and by building deeper dynamic capabilities.

The strong explanatory power of the final model also suggests that digital transformation should be understood as

a system of mutually reinforcing strategic capabilities rather than a sequence of isolated technological initiatives. This system includes digital strategic orientation, leadership, governance, infrastructure, sensing, seizing, reconfiguration, learning, innovation, flexibility, and competitive responsiveness. Such an integrated interpretation is compatible with broader strategic management research emphasizing resilience and adaptive capacity. Alakaş et al. showed that contemporary strategic management increasingly requires organizations to move beyond traditional efficiency considerations and incorporate resilience into organizational and logistics strategies (Alakaş et al., 2025). Shen et al. likewise demonstrated that digital transformation can strengthen corporate resilience through intermediate organizational mechanisms (Shen et al., 2026). Alharbi further emphasized that digital transformation and institutional resilience are linked through complex, system-level interactions rather than simple direct relationships (Alharbi, 2026). The present model contributes to this literature by identifying dynamic capabilities and strategic flexibility as central mechanisms connecting digital transformation management with competitive agility.

The findings also reinforce the importance of organizational knowledge, human capital, culture, and ambidexterity during digital transformation. Digital transformation often requires organizations to exploit existing capabilities while simultaneously exploring new technologies, markets, and business models. Kardes et al. emphasized the psychological and managerial foundations of organizational ambidexterity in technology-intensive environments (Kardes et al., 2026). Faúndez similarly demonstrated that business intelligence and analytics competencies can influence strategic diversification through organizational dominant logic (Faúndez, 2025). These perspectives help explain why the present study identified organizational learning, knowledge integration, innovation, and strategic flexibility as important components of the broader digital transformation architecture. Transformation therefore requires more than technological upgrading; it requires organizational mechanisms capable of integrating new knowledge with existing competencies while avoiding rigidity.

5 Conclusion

The practical importance of human resources and organizational culture is equally evident. Talent development and succession planning can improve organizational agility by ensuring that firms possess the competencies required for rapid adaptation (Alrifae et al., 2025). Contemporary management approaches likewise stress the combined importance of leadership, organizational culture, and change management in enabling organizations to cope with continuous environmental disruption (Orieno et al., 2024). Gregory et al. further emphasized that executives operating in the age of artificial intelligence and global disruption must integrate technology, strategic judgment, and organizational change capabilities (Gregory et al., 2025). These studies support the qualitative finding of the present research that digital transformation management must incorporate leadership development, human capital, knowledge sharing, and cultural readiness rather than focusing exclusively on technological assets.

The present study has several limitations that should be considered when interpreting the findings. First, the quantitative sample was drawn from business enterprises located in Tehran, which may limit the generalizability of the model to organizations operating in other geographical, institutional, or economic contexts. Second, the cross-sectional nature of the quantitative phase does not permit strong causal conclusions regarding how digital transformation capabilities develop over time. Third, the study relied substantially on self-reported perceptions of managers and professional employees, which may introduce common method bias and subjective assessment effects. Fourth, although the qualitative phase included experts with diverse academic and executive backgrounds, the number of qualitative participants was necessarily limited because of the theoretical saturation approach. Finally, the proposed model focused primarily on strategic, organizational, and capability-related mechanisms and did not explicitly incorporate external environmental variables such as regulatory pressure, industry turbulence, economic instability, technological intensity, and market concentration.

Future research could test the validated model across different regions, industries, and organizational sizes in order to evaluate its contextual stability and comparative explanatory power. Longitudinal studies would be particularly valuable for examining how sensing, seizing, reconfiguration, strategic flexibility, and competitive agility evolve during different stages of digital transformation. Future studies could also integrate objective indicators of digital investment, innovation performance, market share, operational efficiency, or financial performance with perceptual measures. Multi-group analyses could be used to

compare manufacturing, service, financial, technological, and knowledge-intensive enterprises. Researchers may also extend the model by incorporating environmental turbulence, artificial intelligence maturity, organizational ambidexterity, cybersecurity readiness, employee digital competence, data-driven decision-making, and ecosystem collaboration as moderators or additional mediators. Comparative studies across countries could further clarify the effects of institutional and cultural conditions on the proposed relationships.

From a managerial perspective, organizations should treat digital transformation as an integrated strategic management process rather than an information technology initiative. Senior managers should establish a clear digital strategic direction, create governance mechanisms with defined responsibilities, and ensure that technological investments are linked to competitive priorities. Enterprises should develop formal systems for monitoring technological, market, and competitor changes and should create decision processes that allow promising opportunities to receive resources rapidly. Particular attention should be given to reconfiguration capability because the findings indicate that competitive agility depends strongly on the ability to reorganize resources, processes, structures, and business models. Managers should also invest in digital skills, cross-functional knowledge sharing, experimentation, innovation, and flexible budgeting and workforce arrangements. Creating agile structures with decentralized decision authority, rapid feedback loops, and mechanisms for learning from digital initiatives can further strengthen responsiveness. Ultimately, organizations seeking sustainable digital transformation should develop technology, leadership, governance, dynamic capabilities, strategic flexibility, and innovation as mutually reinforcing elements of a unified competitive system.

Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

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In this research, ethical standards including obtaining informed consent, ensuring privacy and confidentiality were observed.

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