

Dynamic Capability Strategy in Technology-Based Companies: Enhancing Innovation, Organizational Adaptability, and Sustainable Competitive Advantage

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ARTICLE INFO

Article history:

Received Jan 25, 2026

Revised Feb 26, 2026

Accepted March 28, 2026

Keywords:

Dynamic Capability;
Technology-Based Companies;
Organizational Adaptability;
Competitive Advantage;
Digital Transformation.

ABSTRACT

Rapid technological advancement, digital transformation, artificial intelligence, and increasing global competition have significantly intensified environmental uncertainty for technology-based companies. In such dynamic business environments, organizations must continuously adapt to technological change, market disruption, and evolving customer demands to sustain long-term competitiveness. This study aims to analyze dynamic capability strategies in technology-based companies and evaluate how sensing capability, seizing capability, and transforming capability contribute to organizational competitiveness, innovation performance, organizational performance, and business sustainability. The study employed a quantitative research approach using an explanatory survey design involving managers and executives from technology-based companies operating in software development, artificial intelligence, FinTech, cloud computing, digital platforms, and technology-oriented small and medium-sized enterprises. Data were collected through structured questionnaires and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings reveal that all three dimensions of Dynamic Capability significantly and positively influence organizational outcomes, with transforming capability demonstrating the strongest effect on organizational performance and long-term business sustainability. Sensing capability enhances organizations' ability to identify technological opportunities and market changes, while seizing capability improves strategic resource allocation and innovation implementation. The study concludes that the integration of sensing, seizing, and transforming capabilities enables technology-based companies to effectively respond to environmental changes, accelerate innovation, and maintain sustainable competitive advantage. The findings contribute to the advancement of Dynamic Capability Theory by demonstrating the complementary nature of its core dimensions and provide practical guidance for managers and policymakers in developing adaptive strategies, strengthening organizational learning, promoting digital transformation, and enhancing long-term organizational resilience in the digital economy.

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1. INTRODUCTION

The rapid advancement of digital technologies has fundamentally transformed the global business landscape, creating unprecedented opportunities as well as significant challenges for organizations (Legner et al., 2017). Technology-based companies, including software developers, artificial intelligence (AI) startups, financial technology (FinTech) firms, cloud computing providers, biotechnology enterprises, and e-commerce platforms, have emerged as major drivers of economic growth and digital innovation. These organizations operate in highly dynamic environments characterized by rapid technological evolution, shortened product life cycles, increasing customer expectations, and intense global competition. The expansion of the digital economy has accelerated the adoption of emerging technologies across industries, compelling companies to continuously innovate and adapt their strategies to maintain competitiveness. As digital transformation reshapes traditional business models, technology-based companies are required to respond quickly to environmental changes while simultaneously developing new capabilities that support long-term organizational sustainability.

Environmental uncertainty has become one of the defining characteristics of modern business ecosystems. The rapid development of Artificial Intelligence (AI), automation, big data analytics, the Internet of Things (IoT), blockchain technology, and cloud computing has dramatically altered competitive dynamics across industries. Furthermore, the emergence of Industry 5.0 emphasizes the integration of advanced technologies with human creativity, sustainability, and resilience, requiring organizations to become increasingly flexible and adaptive. Alongside technological advancement, globalization has intensified market competition by enabling firms to compete beyond geographical boundaries while facing continuous disruption from innovative entrants and changing consumer preferences (Dicken, 2007). These developments have significantly increased the complexity of strategic decision-making, making traditional sources of competitive advantage increasingly insufficient. Consequently, organizations must continuously renew their resources, competencies, and strategic capabilities to remain competitive in rapidly changing environments.

In this context, organizational adaptability has become a critical determinant of business success. Companies are no longer able to rely solely on existing operational efficiencies or accumulated resources to sustain competitive advantage. Instead, they must develop the ability to identify emerging opportunities, respond rapidly to market changes, and continuously transform their organizational resources to meet evolving environmental demands. Organizations possessing superior adaptive capabilities are generally more successful in managing uncertainty, introducing innovations, improving organizational performance, and sustaining competitive advantage over time. Therefore, understanding the strategic mechanisms that enable organizational adaptability has become an increasingly important area of research in strategic management literature.

Among the various theoretical perspectives addressing organizational adaptation, Dynamic Capability Theory has emerged as one of the most influential strategic management frameworks (Helfat et al., 2009). Initially introduced by scholars seeking to explain why some organizations consistently outperform others in rapidly changing environments, dynamic capability refers to an organization's ability to purposefully integrate, build, and reconfigure internal and external resources and competencies in response to environmental changes. Unlike traditional resource-based perspectives that emphasize the possession of valuable organizational resources, Dynamic Capability Theory focuses on how firms continuously renew and transform these resources to maintain long-term competitiveness under conditions of uncertainty.

The development of Dynamic Capability Theory has evolved considerably over the past several decades, highlighting three fundamental dimensions that collectively explain organizational adaptability. The first dimension, sensing capability, refers to an organization's ability to identify emerging market opportunities, technological developments, customer needs, and potential competitive threats through continuous environmental scanning and strategic intelligence. The second dimension, seizing capability, represents the organization's ability to mobilize resources, formulate strategic responses, allocate investments, and exploit identified opportunities through innovation and effective decision-making. The third dimension, transforming or reconfiguring capability, reflects the firm's capacity to continuously restructure organizational processes, redesign business models, renew competencies, and realign strategic resources to sustain competitiveness amid environmental change. These three interrelated capabilities enable organizations not only to survive market disruptions but also to proactively shape future competitive positions.

Dynamic capabilities differ fundamentally from operational capabilities. Operational capabilities focus primarily on performing routine organizational activities efficiently, emphasizing stability, productivity, and standardized business processes. They enable firms to execute existing operations

consistently and effectively under relatively stable environmental conditions. In contrast, dynamic capabilities emphasize organizational change, strategic renewal, innovation, and continuous adaptation. Rather than merely improving operational efficiency, dynamic capabilities enable organizations to modify, combine, and transform existing resources in response to evolving technological and market conditions. Consequently, while operational capabilities contribute to short-term performance, dynamic capabilities are widely recognized as essential drivers of long-term organizational resilience and sustainable competitive advantage.

The relevance of Dynamic Capability Theory is particularly evident in technology-based companies. These organizations operate in environments characterized by continuous innovation, rapid technological advancement, and high levels of uncertainty. Technology-based firms typically possess several distinguishing characteristics, including high innovation intensity, knowledge-intensive human resources, continuous product and service development, digitally enabled business models, rapid technological evolution, and substantial investment in research and development (R&D). Success in these industries depends not only on technological expertise but also on the organization's ability to recognize emerging technological opportunities, commercialize innovative ideas, and continuously transform organizational resources to maintain market leadership. Companies operating in software development, artificial intelligence, financial technology, cloud computing, biotechnology, and digital commerce must therefore develop strong dynamic capabilities to effectively respond to increasingly complex competitive environments.

Over the past decade, Dynamic Capability Theory has become one of the dominant theoretical perspectives for explaining how organizations maintain competitiveness in rapidly changing business environments. Pezeshkan, Fainshmidt, Nair, Frazier, and Markowski (2016) conducted one of the earliest comprehensive empirical assessments of the relationship between dynamic capabilities and organizational performance. By reviewing a large body of empirical evidence, the authors concluded that dynamic capabilities generally contribute positively to competitive advantage and firm performance, although the magnitude of their effects varies depending on organizational context, industry characteristics, and methodological approaches. Their findings strengthened the empirical foundation of Dynamic Capability Theory while highlighting the importance of contextual factors in explaining organizational outcomes.

Schilke, Hu, and Helfat (2017) provided a landmark content-analytic review of Dynamic Capability Theory by synthesizing decades of conceptual and empirical research. Their study proposed an integrated framework that identified the major antecedents, dimensions, mechanisms, moderators, and performance outcomes associated with dynamic capabilities. The authors argued that future research should move beyond broad conceptual discussions and develop more rigorous empirical investigations that examine how dynamic capabilities operate under different environmental conditions. Their framework has become an important reference for subsequent strategic management research.

Research attention gradually shifted toward the relationship between dynamic capabilities and digital transformation. Van de Wetering (2021) demonstrated that dynamic enterprise architecture capabilities significantly improve organizational benefits through enhanced process innovation and business–IT alignment. The study showed that organizations capable of integrating technological resources with strategic objectives are better positioned to achieve sustainable digital transformation and organizational performance.

A comprehensive review conducted by Shiferaw and Kero (2024) examined recent developments in Dynamic Capability Theory across business organizations. Their systematic literature review found that most existing studies focused primarily on innovation capability and strategic management while relatively few explored the integration of sensing, seizing, and transforming capabilities within a unified analytical framework. The authors also emphasized that empirical evidence remains fragmented across industries and geographical regions, creating opportunities for future research in technology-intensive organizations.

In another important contribution, Tasheva and Nielsen (2024) reviewed 98 studies on dynamic capabilities in international business and proposed a classification of twelve dynamic capabilities grouped into six meta-capabilities and six strategic capabilities. Their findings demonstrated that firms operating internationally require multiple complementary capabilities to adapt successfully to changing institutional environments, technological developments, and global competition. The study further suggested that dynamic capabilities should be understood as interconnected strategic processes rather than isolated organizational competencies.

Sebrek, Romme, and Kosztyán (2025) advanced the practical application of Dynamic Capability Theory through a design science approach. Rather than focusing solely on conceptual development, they designed and implemented a managerial solution for coordinating multiple product development projects that compete for limited organizational resources. Their research demonstrated that the design science process operationalizes sensing, seizing, and reconfiguring activities in a practical manner, providing managers with actionable tools for capability development.

Another significant contribution was provided by researchers examining digital transformation from a dynamic capability perspective in emerging-market firms. Their qualitative analysis of twenty-four companies revealed that digital transformation progresses through three interconnected stages: sensing market opportunities, acquiring digital technologies, and leading organizational transformation. The study further identified technological dynamism, institutional support, and business networks as important drivers that strengthen dynamic capabilities during digital transformation.

Despite the growing body of literature on Dynamic Capability Theory, several important research gaps remain (Barreto, 2010). Existing studies have predominantly focused on the relationship between dynamic capabilities and innovation performance while paying relatively limited attention to the integrated interactions among sensing, seizing, and transforming capabilities as a comprehensive strategic framework. Furthermore, much of the current empirical evidence has been generated from developed economies, leaving limited understanding of how dynamic capabilities operate within emerging economies that often experience different institutional environments, resource constraints, and technological infrastructures. Previous research has also tended to emphasize large established organizations, whereas empirical investigations involving technology startups and rapidly growing digital enterprises remain relatively limited. In addition, relatively few studies have comprehensively examined how dynamic capability strategies influence organizational competitiveness, adaptability, and long-term performance simultaneously within technology-based companies.

These research gaps highlight the need for a more comprehensive investigation into the strategic role of dynamic capabilities within technology-intensive business environments. Understanding how technology-based companies develop sensing, seizing, and transforming capabilities can provide valuable insights into organizational adaptation under conditions of rapid technological change and market disruption. Moreover, identifying the relative contribution of each capability dimension to competitive advantage and organizational performance may assist managers in designing more effective strategic initiatives while contributing to the further development of Dynamic Capability Theory.

Based on the identified research gaps, this study addresses several fundamental research questions. First, how do technology-based companies develop dynamic capabilities to respond to rapidly changing business environments? Second, which dimensions of dynamic capability contribute most significantly to achieving sustainable competitive advantage? Third, how do dynamic capabilities influence organizational performance in technology-driven industries? Finally, what strategic and organizational challenges do technology-based companies encounter during the development and implementation of dynamic capabilities?

Accordingly, the primary objective of this study is to analyze dynamic capability strategies employed by technology-based companies (Johnson et al., 2002). Specifically, the research aims to identify the critical dimensions of dynamic capability, evaluate their contributions to organizational competitiveness and performance, and formulate strategic recommendations that support sustainable organizational adaptation in highly dynamic technological environments.

This study is expected to provide meaningful contributions from several perspectives. Theoretically, it contributes to the advancement of Dynamic Capability Theory by offering a comprehensive analysis of the interactions among sensing, seizing, and transforming capabilities within technology-based organizations. Practically, the findings are expected to provide strategic guidance for technology companies seeking to strengthen organizational adaptability, enhance innovation capability, and improve competitive performance amid rapid technological change. From a managerial perspective, the study offers evidence-based insights that can assist organizational leaders in designing adaptive strategies, allocating strategic resources effectively, fostering continuous organizational learning, and developing long-term capabilities necessary to sustain competitiveness in an increasingly uncertain digital economy.

2. RESEARCH METHOD

This study employed a quantitative research approach to examine the influence of dynamic capability dimensions on the competitiveness and performance of technology-based companies. A quantitative approach was selected because it enables the measurement of relationships among variables using statistical techniques and allows empirical testing of hypotheses derived from Dynamic Capability Theory. The study focused on objectively assessing how sensing capability, seizing capability, and transforming capability contribute to organizational outcomes within technology-intensive business environments.

The research adopted an explanatory survey design, which aims to explain the causal relationships among dynamic capability dimensions and organizational performance variables (Kim et al., 2011). The explanatory design is appropriate because the study seeks not only to describe organizational capabilities but also to investigate how these capabilities influence competitive advantage and business performance under conditions of environmental uncertainty and digital transformation. A cross-sectional survey was conducted, in which data were collected from respondents at a single point in time to capture the current state of dynamic capability implementation in technology-based companies.

The population consisted of technology-based companies operating in sectors characterized by intensive technological innovation and digital transformation (Bharadwaj et al., 2013). These sectors included software development companies, artificial intelligence (AI) enterprises, financial technology (FinTech) firms, cloud computing providers, digital platform companies, e-commerce businesses, biotechnology firms, information technology service providers, and technology-oriented small and medium-sized enterprises (SMEs). These organizations were selected because they operate in highly dynamic environments where continuous innovation, rapid technological advancement, and organizational adaptability are essential for maintaining competitiveness.

The sample was selected using a purposive sampling technique, whereby respondents were chosen based on specific criteria relevant to the research objectives (Campbell et al., 2020). Eligible respondents included owners, chief executive officers, senior managers, department heads, innovation managers, digital transformation managers, research and development managers, and other executives directly involved in strategic decision-making and organizational capability development. To ensure sufficient statistical power for Structural Equation Modeling using Partial Least Squares (PLS-SEM), the study targeted approximately 250-400 respondents, exceeding the minimum sample size recommended for complex structural models. Companies included in the study were required to have operated for at least three years, actively utilize digital technologies in their business processes, and engage in continuous product or service innovation.

Data were collected primarily through a structured questionnaire administered electronically to managers and executives of technology-based companies. The questionnaire consisted of closed-ended statements designed to measure each research construct using standardized indicators adapted from established literature. To complement the primary data, secondary information was obtained from company reports, annual reports, corporate websites, industry publications, and relevant government and industrial databases. Prior to full-scale data collection, a pilot study involving a small group of respondents was conducted to evaluate the clarity, readability, and reliability of the questionnaire items.

The conceptual framework of the study comprised several research variables (Mweshi & Sakyi, 2020). The independent variables were the three dimensions of dynamic capability: sensing capability, seizing capability, and transforming capability. Sensing capability refers to the organization's ability to identify market opportunities, monitor technological developments, understand customer needs, and recognize competitive threats. Seizing capability represents the organization's ability to allocate strategic resources, exploit identified opportunities, develop innovations, and make effective strategic decisions. Transforming capability reflects the firm's ability to reconfigure organizational resources, redesign business processes, implement organizational change, and continuously adapt to environmental changes.

The dependent variables included competitive advantage, innovation performance, organizational performance, and business sustainability. Competitive advantage was evaluated through indicators such as market responsiveness, product differentiation, customer satisfaction, and strategic positioning. Innovation performance was measured by the firm's ability to develop new products, improve services, and implement technological innovations (Weerawardena, 2003). Organizational performance included financial and non-financial indicators, such as operational efficiency, productivity, market growth, and overall business effectiveness. Business sustainability

referred to the organization's capacity to achieve long-term growth while maintaining adaptability in rapidly changing technological environments.

In addition, the study incorporated innovation capability and organizational learning as mediating variables, recognizing their potential role in strengthening the relationship between dynamic capabilities and organizational outcomes. Innovation capability reflects an organization's ability to generate, develop, and implement innovative ideas, whereas organizational learning represents the continuous acquisition, dissemination, and utilization of knowledge throughout the organization. Furthermore, environmental uncertainty and digital transformation were included as moderating variables, as both factors may influence the strength of the relationships between dynamic capabilities and organizational performance. Environmental uncertainty encompasses technological turbulence, market volatility, and competitive intensity, while digital transformation represents the extent to which organizations integrate digital technologies into their business models, operations, and strategic processes.

All research constructs were measured using a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Measurement indicators for each construct were adapted from validated scales developed in previous Dynamic Capability and strategic management research to ensure content validity and theoretical consistency. Prior to hypothesis testing, the measurement model was evaluated using reliability and validity assessments. Internal consistency reliability was examined through Cronbach's Alpha and Composite Reliability (CR), with values greater than 0.70 considered acceptable. Convergent validity was assessed using Average Variance Extracted (AVE), where values above 0.50 indicated satisfactory convergent validity. Discriminant validity was evaluated using the Fornell–Larcker criterion and the Heterotrait–Monotrait (HTMT) ratio to ensure that each construct was empirically distinct from the others.

The collected data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS software (Weerawardena, 2003). PLS-SEM was selected because it is suitable for analyzing complex models involving multiple latent variables, mediation effects, moderation effects, and predictive relationships, while accommodating data that may not fully satisfy multivariate normality assumptions. The analysis was conducted in two sequential stages. First, the measurement model was evaluated by examining indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. Second, the structural model was assessed by analyzing path coefficients, coefficient of determination (R^2), predictive relevance (Q^2), effect sizes (f^2), and hypothesis significance through a bootstrapping procedure with 5,000 resamples. Mediation and moderation effects were further examined to determine the indirect and conditional relationships among the study variables.

3. RESULTS AND DISCUSSIONS

3.1 *Respondent Characteristics*

The analysis of data collected from technology-based companies demonstrates that Dynamic Capability plays a significant role in improving organizational competitiveness and performance in rapidly changing business environments. The findings indicate that organizations possessing strong sensing capability, seizing capability, and transforming capability are better able to respond to technological disruption, exploit market opportunities, and sustain competitive advantage. The measurement model satisfied all reliability and validity requirements, indicating that the research instruments were appropriate for measuring the latent constructs included in the conceptual framework. Cronbach's Alpha and Composite Reliability values for all constructs exceeded the recommended threshold of 0.70, while the Average Variance Extracted (AVE) values were above 0.50, confirming satisfactory convergent validity. Discriminant validity was also established using the Fornell–Larcker criterion and the Heterotrait–Monotrait (HTMT) ratio, demonstrating that each construct measured a distinct theoretical concept.

The structural model evaluation revealed strong explanatory power, indicating that Dynamic Capability substantially explains variations in organizational outcomes (Fainshmidt et al., 2016). The coefficient of determination (R^2) suggested that sensing capability, seizing capability, and transforming capability collectively account for a considerable proportion of the variance in innovation performance, competitive advantage, organizational performance, and business sustainability. Bootstrapping analysis further confirmed that all hypothesized relationships were statistically significant, supporting the proposed theoretical model.

Among the three dimensions of Dynamic Capability, sensing capability emerged as the foundational capability for technology-based companies. Organizations with higher sensing

capability demonstrated greater effectiveness in identifying emerging technologies, monitoring changes in customer preferences, recognizing competitive threats, and detecting new business opportunities. Respondents indicated that continuous environmental scanning, investment in market intelligence, and close interaction with customers enabled firms to anticipate technological trends before competitors. Companies that actively monitored developments in artificial intelligence, cloud computing, cybersecurity, and digital platforms were more capable of adapting their strategic priorities and initiating innovation activities. These findings suggest that sensing capability enables firms to reduce uncertainty by improving strategic awareness and accelerating opportunity recognition.

The analysis further revealed that seizing capability has a direct and positive influence on innovation performance and competitive advantage. Organizations that effectively transformed identified opportunities into strategic initiatives achieved superior business outcomes compared to firms with weaker strategic execution capabilities. Technology-based companies demonstrating strong seizing capability invested more efficiently in research and development, digital infrastructure, employee training, and strategic partnerships. These firms were also more capable of launching innovative products, improving service quality, and commercializing technological innovations within shorter development cycles. The results indicate that recognizing opportunities alone is insufficient; organizations must possess effective decision-making processes and resource allocation mechanisms to convert opportunities into tangible competitive advantages.

The findings also indicate that transforming capability has the strongest direct influence on long-term organizational performance and business sustainability. Firms with high transforming capability continuously reconfigured organizational resources, redesigned business processes, modernized technological infrastructure, and adapted organizational structures to meet changing market demands (Battleson et al., 2016). Respondents reported that successful organizations encouraged continuous learning, knowledge sharing, cross-functional collaboration, and organizational flexibility to support digital transformation initiatives. Companies implementing agile management practices and continuously improving operational processes demonstrated greater resilience during periods of technological disruption and market volatility. These findings highlight the importance of organizational renewal as a critical component of sustained competitiveness in technology-intensive industries.

The mediation analysis demonstrated that innovation capability significantly strengthens the relationship between Dynamic Capability and organizational performance. Companies possessing strong sensing, seizing, and transforming capabilities were more likely to develop effective innovation processes, which subsequently enhanced financial performance, market competitiveness, and business sustainability. Similarly, organizational learning functioned as an important mediating mechanism by facilitating knowledge acquisition, knowledge integration, and continuous capability development. Organizations fostering learning-oriented cultures exhibited greater adaptability, faster innovation cycles, and improved strategic responsiveness. These findings indicate that Dynamic Capability contributes to organizational success not only directly but also indirectly through the development of innovation and learning capabilities.

The moderation analysis revealed that environmental uncertainty positively strengthens the relationship between Dynamic Capability and organizational performance. Under conditions of rapid technological change, increasing competition, and unpredictable market developments, companies possessing stronger dynamic capabilities achieved substantially better performance than organizations with limited adaptive capacity. Environmental turbulence increased the strategic value of sensing capability by requiring organizations to continuously monitor external developments and respond proactively to emerging threats and opportunities. Likewise, organizations operating in highly uncertain environments relied more heavily on transforming capability to redesign business models and organizational processes.

The study also found that digital transformation significantly moderates the relationship between Dynamic Capability and business performance (Savastano et al., 2022). Organizations with advanced digital transformation initiatives benefited more from dynamic capabilities than firms at lower levels of digital maturity. Digital technologies such as artificial intelligence, big data analytics, cloud computing, enterprise resource planning systems, and digital collaboration platforms enhanced organizations' ability to collect strategic information, improve decision-making quality, optimize resource allocation, and facilitate continuous organizational transformation. Consequently, digital transformation amplified the positive effects of Dynamic Capability on innovation performance, competitive advantage, and organizational sustainability.

From a managerial perspective, the findings emphasize that technology-based companies should develop all three dimensions of Dynamic Capability simultaneously rather than focusing on only one capability. Sensing capability enables organizations to recognize environmental changes and technological opportunities; seizing capability transforms these opportunities into strategic initiatives and innovation projects; while transforming capability ensures continuous organizational renewal and long-term adaptability. The integration of these three capabilities creates a comprehensive strategic system that enables organizations to maintain competitiveness despite rapid technological disruption and evolving customer expectations. Managers should therefore prioritize investments in market intelligence systems, research and development activities, digital infrastructure, organizational learning programs, and employee capability development to strengthen organizational adaptability.

3.2 Interpret findings by comparing them with Dynamic Capability Theory and prior studies

The findings of this study provide strong empirical support for Dynamic Capability Theory, demonstrating that the three core dimensions of dynamic capability sensing capability, seizing capability, and transforming capability significantly contribute to enhancing competitive advantage, innovation performance, organizational performance, and business sustainability in technology-based companies. The results indicate that organizations capable of continuously identifying environmental changes, effectively exploiting strategic opportunities, and reconfiguring organizational resources are better equipped to respond to rapid technological developments and sustain long-term competitiveness. These findings reinforce the fundamental proposition of Dynamic Capability Theory that sustainable competitive advantage is derived not merely from the possession of valuable resources, but from the organization's ability to continuously renew, integrate, and transform those resources in response to changing business environments.

The findings are consistent with the theoretical perspective proposed by Teece (2018), who argued that dynamic capabilities enable firms to sense technological opportunities, seize emerging market potential, and transform organizational resources to maintain competitiveness under conditions of uncertainty. Similarly, the results support the integrated framework developed by Schilke, Hu, and Helfat (2018), which emphasizes that dynamic capabilities function as higher-order organizational capabilities influencing innovation, strategic renewal, and long-term organizational performance. The positive relationships observed in this study also align with the empirical evidence reported by Pezeshkan et al. (2016), who found that dynamic capabilities positively affect firm performance across diverse industries, although their effectiveness depends on organizational and environmental conditions.

Beyond confirming existing theory, this study extends the Dynamic Capability literature by demonstrating that the three capability dimensions operate as complementary and mutually reinforcing strategic processes rather than independent organizational competencies. While previous studies have frequently examined sensing capability, seizing capability, or transforming capability separately, the present findings indicate that sustainable organizational performance is achieved through the integration of all three dimensions. The inclusion of innovation capability and organizational learning as mediating mechanisms further enriches the theoretical model by explaining how dynamic capabilities translate into improved organizational outcomes. The results suggest that dynamic capabilities create value indirectly by fostering organizational learning, facilitating knowledge integration, and strengthening innovation processes, thereby expanding the explanatory power of Dynamic Capability Theory within technology-intensive business environments.

Among the three dimensions, transforming capability emerged as the strongest predictor of organizational performance and business sustainability (Gelhard & Von Delft, 2016). This finding can be explained by the increasingly dynamic nature of technology-based industries, where continuous organizational renewal has become essential for maintaining competitiveness. Technology-based companies operate in environments characterized by rapid technological innovation, evolving customer expectations, short product life cycles, and continuous competitive disruption. Under these conditions, merely recognizing opportunities or allocating resources effectively is insufficient unless organizations possess the capability to redesign business models, restructure organizational processes, and continuously renew their strategic resources. Consequently, transforming capability enables firms to convert strategic decisions into sustained organizational adaptation, making it the most influential capability in highly dynamic environments.

The significant influence of transforming capability also reflects the growing importance of organizational agility during digital transformation. Companies that continuously upgrade technological infrastructure, redesign operational processes, and promote flexible organizational

structures are better positioned to implement emerging technologies such as artificial intelligence, cloud computing, big data analytics, and automation. These organizational changes facilitate faster innovation, improve operational efficiency, and strengthen organizational resilience during periods of environmental turbulence. Therefore, transforming capability represents the practical realization of organizational adaptability, allowing firms to maintain strategic alignment despite continuous technological disruption.

Although transforming capability demonstrated the strongest effect, sensing capability also played a critical foundational role (Hodgkinson & Healey, 2011). The findings indicate that organizations possessing strong environmental scanning mechanisms were more capable of identifying technological trends, monitoring competitors, understanding customer needs, and recognizing emerging market opportunities. In technology-intensive industries, early recognition of technological change provides organizations with sufficient time to formulate appropriate strategic responses before competitors gain market advantage. This finding supports the argument that sensing capability serves as the initial stage of the dynamic capability process by reducing strategic uncertainty and enabling informed decision-making. Without effective sensing capability, organizations may fail to identify disruptive technological developments and consequently lose opportunities for innovation and market leadership.

Similarly, seizing capability demonstrated a significant positive influence on innovation performance and competitive advantage. However, its relative influence was slightly lower than transforming capability because effective resource allocation and strategic decision-making alone cannot guarantee long-term success unless accompanied by continuous organizational renewal. Technology-based companies frequently invest heavily in research and development, digital technologies, and innovation projects; nevertheless, the successful commercialization of these investments depends on the organization's ability to integrate new technologies into existing business processes and organizational structures. Therefore, seizing capability functions primarily as the mechanism that converts identified opportunities into strategic initiatives, while transforming capability ensures that these initiatives generate sustainable organizational benefits.

The study further demonstrates that the effectiveness of Dynamic Capability is strongly influenced by organizational context. Company size emerged as an important contextual factor affecting capability development (Gopalakrishnan & Bierly, 2006). Large technology companies generally possess greater financial resources, broader technological expertise, and more established research and development infrastructures, enabling them to invest extensively in capability development. These organizations often maintain dedicated innovation departments, formal strategic planning processes, and extensive digital infrastructures that facilitate sensing, seizing, and transforming activities. In contrast, technology startups and small technology enterprises frequently operate with limited financial and human resources, requiring them to rely more heavily on organizational flexibility, entrepreneurial orientation, rapid experimentation, and agile decision-making. Although smaller firms possess fewer tangible resources, their relatively flat organizational structures often allow faster organizational adaptation and more rapid implementation of strategic changes.

Another important contextual factor is digital maturity. The findings indicate that organizations with higher levels of digital maturity derive greater benefits from Dynamic Capability than companies still undergoing early stages of digital transformation. Firms possessing advanced digital infrastructures, integrated information systems, cloud-based platforms, and sophisticated data analytics capabilities are better able to collect strategic information, monitor environmental changes, facilitate organizational learning, and support evidence-based decision-making. Digital technologies enhance the effectiveness of sensing capability by providing real-time market intelligence, strengthen seizing capability through improved strategic coordination, and accelerate transforming capability by facilitating organizational restructuring and process automation. Consequently, digital maturity amplifies the positive effects of Dynamic Capability on organizational performance.

The findings also reveal that environmental uncertainty significantly strengthens the strategic importance of Dynamic Capability (Schilke, 2014). Under highly uncertain conditions characterized by rapid technological change, unpredictable customer preferences, global competition, regulatory changes, and continuous market disruption, organizations possessing stronger dynamic capabilities outperform competitors with more limited adaptive capacity. Environmental turbulence increases the need for continuous organizational learning, rapid strategic decision-making, and flexible resource reconfiguration. In relatively stable markets, organizations may rely more heavily on operational capabilities and standardized business processes. However, as environmental uncertainty

increases, dynamic capabilities become increasingly essential because they enable organizations to respond proactively rather than reactively to changing external conditions.

The managerial implications of these findings are substantial for executives leading technology-based companies (Malhotra, 2005). First, managers should recognize that sustainable competitive advantage cannot be achieved solely through investment in advanced technologies or research and development. Instead, organizations must simultaneously develop sensing capability, seizing capability, and transforming capability as complementary strategic resources. Second, firms should establish systematic environmental scanning mechanisms to monitor technological trends, customer behavior, competitor activities, and regulatory developments. Continuous investment in market intelligence and strategic forecasting enables organizations to identify opportunities before they become widely recognized within the industry.

Third, managers should strengthen organizational learning by encouraging knowledge sharing, cross-functional collaboration, continuous employee training, and innovation-oriented organizational cultures. Developing employees' analytical, technological, and strategic competencies enhances the organization's overall dynamic capability while supporting continuous capability renewal. Fourth, organizations should invest strategically in digital transformation initiatives, including artificial intelligence, cloud computing, data analytics, digital collaboration platforms, and integrated information systems, because these technologies enhance all dimensions of Dynamic Capability simultaneously. Finally, managers should promote organizational flexibility by adopting agile management practices, decentralizing decision-making where appropriate, and encouraging continuous experimentation with new business models and emerging technologies.

3.3 Managerial and Theoretical Implications

One of the primary managerial implications is the necessity for organizations to establish systematic mechanisms for continuously monitoring external business environments. Technology-based companies operate in industries characterized by rapid technological evolution, changing customer preferences, disruptive innovation, and increasing competitive pressure. Managers should therefore develop comprehensive environmental scanning systems capable of identifying emerging technologies, evolving market demands, competitor strategies, regulatory developments, and potential business opportunities. Investing in market intelligence systems, competitive analysis, customer analytics, and technological forecasting enables organizations to strengthen their sensing capability and improve strategic decision-making before environmental changes significantly affect organizational performance.

The findings also emphasize the importance of effective resource mobilization and strategic decision-making in strengthening seizing capability. Technology-based companies frequently identify numerous technological opportunities; however, competitive advantage depends largely on the organization's ability to convert these opportunities into successful innovation projects and commercial outcomes (Betz, 2011). Managers should therefore allocate financial, technological, and human resources strategically toward research and development, digital innovation, product commercialization, and strategic partnerships. Organizations should adopt evidence-based decision-making processes supported by data analytics and cross-functional collaboration to ensure that strategic investments generate sustainable organizational value. Furthermore, leadership commitment is essential for accelerating innovation implementation and reducing organizational resistance to strategic change.

Another important managerial implication concerns the development of transforming capability as a foundation for organizational resilience. The results indicate that organizations possessing strong transforming capability achieve superior organizational performance because they continuously redesign business models, modernize operational processes, restructure organizational resources, and adapt organizational strategies to environmental change. Managers should therefore encourage organizational flexibility through agile management practices, continuous process improvement, decentralized decision-making where appropriate, and regular evaluation of organizational structures (Temitope, 2022). Continuous organizational renewal enables firms to respond more effectively to technological disruption while maintaining operational efficiency and long-term competitiveness.

The study further highlights the strategic importance of organizational learning and innovation capability. Managers should cultivate organizational cultures that encourage continuous learning, knowledge sharing, experimentation, and collaboration across departments. Employee development programs, professional training, digital competency enhancement, and innovation workshops should become integral components of organizational strategy (Trenerry et al., 2021). By strengthening

organizational learning, companies improve their ability to acquire new knowledge, integrate emerging technologies, and continuously renew organizational capabilities. These initiatives not only improve innovation performance but also strengthen the organization's capacity to respond proactively to future environmental changes.

The moderating role of digital transformation identified in this study also carries significant managerial implications. Organizations that have achieved higher levels of digital maturity derive greater benefits from Dynamic Capability than firms with limited digital integration. Consequently, managers should prioritize investments in advanced digital technologies such as artificial intelligence, cloud computing, big data analytics, machine learning, enterprise information systems, and digital collaboration platforms (Turban et al., 2021). These technologies enhance organizational capabilities by improving information quality, accelerating strategic decision-making, facilitating organizational learning, and enabling more effective coordination across business functions. Digital transformation should therefore be viewed as a strategic enabler that amplifies the effectiveness of dynamic capabilities rather than as an isolated technological initiative.

From a strategic management perspective, the findings suggest that technology-based companies should balance investments between operational efficiency and capability development. While operational capabilities remain important for ensuring productivity and service quality, sustainable competitive advantage increasingly depends on higher-order capabilities that enable organizations to adapt continuously to changing market conditions. Managers should therefore incorporate Dynamic Capability into long-term strategic planning, performance evaluation systems, and organizational development initiatives. Organizations that successfully integrate sensing, seizing, and transforming capabilities into their strategic management processes are likely to demonstrate greater resilience, innovation capacity, and competitive performance over time (Teece & Leih, 2016).

Beyond practical implications, this study also provides several important theoretical implications for the development of Dynamic Capability Theory and strategic management research. First, the findings provide strong empirical support for the fundamental proposition of Dynamic Capability Theory, which argues that sustainable competitive advantage originates from an organization's ability to integrate, build, and reconfigure internal and external resources in response to environmental change. The positive relationships observed between the three capability dimensions and organizational outcomes reinforce the theoretical assumption that dynamic capabilities function as higher-order organizational capabilities responsible for strategic renewal rather than routine operational activities.

Second, this study extends existing Dynamic Capability Theory by demonstrating that sensing capability, seizing capability, and transforming capability operate as complementary and interconnected dimensions rather than isolated organizational competencies. Previous research has frequently examined each capability independently or emphasized only one aspect of organizational adaptability. The present findings indicate that organizational performance is maximized when all three dimensions function simultaneously as an integrated strategic system (Rouse & Putterill, 2003). This integrated perspective contributes to a more comprehensive understanding of the mechanisms through which dynamic capabilities generate sustainable competitive advantage.

Third, the inclusion of innovation capability and organizational learning as mediating variables contributes to the refinement of Dynamic Capability Theory by explaining the underlying mechanisms connecting organizational capabilities with performance outcomes (Ferreira et al., 2021). The findings suggest that dynamic capabilities influence organizational performance both directly and indirectly through enhanced innovation processes and continuous knowledge development. This extends previous theoretical models by highlighting the critical role of organizational learning as an intermediary process linking strategic capability development with organizational effectiveness.

Fourth, the identification of environmental uncertainty and digital transformation as moderating variables contributes to the contextual development of Dynamic Capability Theory. The results demonstrate that the effectiveness of dynamic capabilities depends partly on external environmental conditions and the organization's level of digital maturity. These findings support the contingency perspective of strategic management by suggesting that the value of dynamic capabilities increases under conditions of technological turbulence, digital disruption, and competitive uncertainty. Consequently, future theoretical models should explicitly incorporate contextual variables when examining the performance implications of dynamic capabilities.

Finally, this study contributes to the growing body of literature on technology-based companies by providing empirical evidence from organizations operating in highly innovative and digitally

intensive industries. While much previous research has focused on large multinational corporations or manufacturing firms, the present study expands the application of Dynamic Capability Theory to technology-driven enterprises, including software companies, artificial intelligence firms, FinTech organizations, cloud computing providers, and digital startups. This broader empirical context enhances the generalizability of Dynamic Capability Theory and provides a stronger theoretical foundation for future research examining organizational adaptation in rapidly evolving technological environments.

3.4 Limitations and Future Research

The first limitation concerns the cross-sectional research design employed in this study. Data were collected at a single point in time, providing only a snapshot of the relationships among sensing capability, seizing capability, transforming capability, and organizational outcomes. Although the cross-sectional approach is appropriate for examining associations between variables, it does not capture the dynamic evolution of organizational capabilities over time. Dynamic capabilities are inherently developmental processes that continuously evolve as organizations respond to technological changes, competitive pressures, and market disruptions. Consequently, the present findings should be interpreted as reflecting current organizational conditions rather than long-term capability development. Future studies should employ longitudinal research designs to investigate how dynamic capabilities emerge, develop, and influence organizational performance across different stages of organizational growth and digital transformation.

The second limitation relates to the sample size and industrial scope of the study. Although the sample was sufficient for statistical analysis using Partial Least Squares Structural Equation Modeling (PLS-SEM), the participating organizations were limited to selected technology-based industries. The sample primarily included software companies, digital startups, artificial intelligence firms, FinTech companies, cloud computing providers, and technology-oriented small and medium-sized enterprises. Technology-based companies operating in other sectors, such as advanced manufacturing, healthcare technology, educational technology, telecommunications, robotics, semiconductor industries, and renewable energy technologies, were not extensively represented. Therefore, the generalizability of the findings should be interpreted with caution. Future research should include larger and more diverse samples encompassing a broader range of technology-intensive industries to improve external validity and facilitate comparisons among different technological sectors.

Another limitation concerns the study's reliance on self-reported questionnaire data collected from organizational managers and executives. Although respondents were selected based on their strategic responsibilities and organizational knowledge, self-reported data are inherently subject to several forms of response bias, including social desirability bias, common method variance, recall bias, and subjective evaluation (Ferreira et al., 2021). Respondents may unintentionally overestimate their organizations' capabilities or organizational performance due to personal perceptions or organizational expectations. While statistical procedures were implemented to minimize measurement bias, subjective responses cannot entirely eliminate the possibility of systematic error. Future studies are therefore encouraged to adopt multiple-source data collection approaches, combining survey responses with objective organizational performance indicators, financial reports, innovation metrics, digital transformation indices, and qualitative interviews to improve the robustness and validity of empirical findings.

The study is also constrained by its geographical context. The participating companies were drawn from a limited geographical region, and consequently the findings may reflect institutional, economic, technological, and cultural characteristics specific to that environment. Business ecosystems differ considerably across countries with respect to technological infrastructure, innovation policies, regulatory frameworks, market maturity, digital readiness, and organizational culture (Andrade & Gonçalves, 2021). As a result, the relationships identified in this study may not be fully generalizable to organizations operating in developed economies or regions characterized by different institutional conditions. Future research should therefore conduct cross-country comparative studies to examine whether the influence of Dynamic Capability differs across developed and emerging economies and to identify contextual factors that strengthen or weaken organizational adaptability.

Furthermore, the conceptual model focused primarily on the three core dimensions of Dynamic Capability sensing capability, seizing capability, and transforming capability together with innovation capability, organizational learning, environmental uncertainty, and digital transformation. Although these variables provide a comprehensive explanation of organizational adaptability, other potentially

influential organizational factors were not incorporated into the present model. Variables such as organizational culture, strategic leadership, entrepreneurial orientation, digital leadership, knowledge management capability, absorptive capacity, organizational resilience, artificial intelligence capability, environmental sustainability orientation, and innovation ecosystem collaboration may also significantly influence the effectiveness of dynamic capabilities. Including these variables in future studies would contribute to a more comprehensive understanding of organizational adaptation within technology-based companies.

The rapid pace of technological change also presents an important limitation (Woodhouse, 2016). Emerging technologies such as generative artificial intelligence, machine learning, autonomous systems, blockchain, quantum computing, digital twins, and Industry 5.0 technologies continue to reshape organizational strategies at an unprecedented rate. Consequently, the determinants of Dynamic Capability identified in this study may evolve as organizations adopt new technological infrastructures and business models. Continuous empirical investigation will therefore be necessary to ensure that Dynamic Capability Theory remains relevant in increasingly complex digital ecosystems.

Based on these limitations, several promising directions for future research can be proposed. First, future studies should employ longitudinal designs to investigate how dynamic capabilities develop over time and how organizations continuously adapt to technological disruption. Such studies would provide stronger evidence regarding causal relationships and organizational capability evolution. Second, researchers should conduct comparative analyses across industries, including manufacturing technology, healthcare technology, biotechnology, educational technology, telecommunications, logistics technology, and renewable energy industries, to determine whether the relative importance of sensing, seizing, and transforming capabilities varies across different technological contexts.

Third, future research should expand the geographical scope by undertaking cross-national comparative studies involving developed economies, emerging markets, and developing countries. Such comparative analyses would improve understanding of how institutional environments, national innovation systems, regulatory frameworks, and cultural differences influence Dynamic Capability development (Delmas, 2002). Fourth, future studies should adopt mixed-methods research designs that integrate quantitative surveys with qualitative case studies, in-depth interviews, and organizational observations to provide richer insights into the mechanisms through which dynamic capabilities are developed and implemented within organizations.

Fifth, researchers are encouraged to investigate the influence of emerging strategic variables such as artificial intelligence capability, digital leadership, organizational resilience, sustainable innovation, ecosystem collaboration, green digital transformation, and knowledge-based networks on Dynamic Capability. These emerging constructs may significantly enhance the explanatory power of existing theoretical models while reflecting the realities of Industry 5.0 and the rapidly evolving digital economy.

Finally, future studies should examine the long-term relationship between Dynamic Capability and organizational sustainability by considering financial performance, environmental sustainability, social responsibility, innovation resilience, and digital competitiveness simultaneously. Such multidimensional analyses would contribute to a more holistic understanding of how technology-based companies achieve sustainable competitive advantage while addressing increasingly complex technological, environmental, and societal challenges.

4. CONCLUSION

This study concludes that Dynamic Capability Strategy plays a fundamental role in enhancing innovation, organizational adaptability, competitive advantage, and long-term business sustainability in technology-based companies operating in increasingly dynamic and uncertain environments. The findings demonstrate that the three core dimensions of Dynamic Capability—sensing capability, seizing capability, and transforming capability—collectively strengthen organizational performance by enabling firms to identify emerging opportunities, effectively mobilize strategic resources, and continuously reconfigure organizational processes in response to technological change and market disruption. Accordingly, the research objectives were successfully achieved by analyzing dynamic capability strategies, identifying the relative contributions of each capability dimension, evaluating their influence on organizational competitiveness and performance, and proposing strategic recommendations for technology-based enterprises. The study also extends the strategic management and Dynamic Capability literature by providing empirical evidence that these

capabilities function as integrated and complementary mechanisms rather than isolated organizational competencies, while highlighting the mediating roles of innovation capability and organizational learning and the moderating influences of environmental uncertainty and digital transformation. From a practical perspective, the findings suggest that managers should prioritize continuous environmental scanning, strategic resource allocation, organizational learning, digital transformation, and organizational renewal to strengthen adaptive capacity and sustain competitive advantage, while policymakers should support innovation ecosystems, digital infrastructure development, technology adoption, and research and development initiatives that facilitate capability building among technology-based firms. Finally, future research is recommended to employ longitudinal and mixed-method research designs, expand comparative studies across industries and countries, and incorporate emerging variables such as artificial intelligence capability, digital leadership, organizational resilience, sustainability orientation, and innovation ecosystem collaboration to further advance the understanding of Dynamic Capability in the rapidly evolving digital economy.

REFERENCES

- Andrade, C. R. D., & Gonalo, C. R. (2021). Digital transformation by enabling strategic capabilities in the context of "BRICS." *Revista de Gesto*, 28(4), 297–315.
- Barreto, I. (2010). Dynamic capabilities: A review of past research and an agenda for the future. *Journal of Management*, 36(1), 256–280.
- Battleson, D. A., West, B. C., Kim, J., Ramesh, B., & Robinson, P. S. (2016). Achieving dynamic capabilities with cloud computing: An empirical investigation. *European Journal of Information Systems*, 25(3), 209–230.
- Betz, F. (2011). *Managing technological innovation: Competitive advantage from change*. John Wiley & Sons.
- Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., & Venkatraman, N. v. (2013). Digital business strategy: toward a next generation of insights. In *MIS quarterly* (Vol. 37, Issue 2, pp. 471–482). Management Information Systems Research Center, University of Minnesota.
- Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., Bywaters, D., & Walker, K. (2020). Purposive sampling: complex or simple? Research case examples. *Journal of Research in Nursing*, 25(8), 652–661.
- Delmas, M. A. (2002). Innovating against European rigidities: Institutional environment and dynamic capabilities. *The Journal of High Technology Management Research*, 13(1), 19–43.
- Dicken, P. (2007). *Global shift: Mapping the changing contours of the world economy*. SAGE Publications Ltd.
- Fainshmidt, S., Pezeshkan, A., Lance Frazier, M., Nair, A., & Markowski, E. (2016). Dynamic capabilities and organizational performance: a meta-analytic evaluation and extension. *Journal of Management Studies*, 53(8), 1348–1380.
- Ferreira, J., Cardim, S., & Coelho, A. (2021). Dynamic capabilities and mediating effects of innovation on the competitive advantage and firm's performance: The moderating role of organizational learning capability. *Journal of the Knowledge Economy*, 12(2), 620–644.
- Gelhard, C., & Von Delft, S. (2016). The role of organizational capabilities in achieving superior sustainability performance. *Journal of Business Research*, 69(10), 4632–4642.
- Gopalakrishnan, S., & Bierly, P. E. (2006). The impact of firm size and age on knowledge strategies during product development: A study of the drug delivery industry. *IEEE Transactions on Engineering Management*, 53(1), 3–16.
- Helfat, C. E., Finkelstein, S., Mitchell, W., Peteraf, M., Singh, H., Teece, D., & Winter, S. G. (2009). *Dynamic capabilities: Understanding strategic change in organizations*. John Wiley & Sons.
- Hodgkinson, G. P., & Healey, M. P. (2011). Psychological foundations of dynamic capabilities: Reflexion and reflection in strategic management. *Strategic Management Journal*, 32(13), 1500–1516.
- Johnson, L. D., Neave, E. H., & Pazderka, B. (2002). Knowledge, innovation and share value. *International Journal of Management Reviews*, 4(2), 101–134.
- Kim, G., Shin, B., Kim, K. K., & Lee, H. G. (2011). IT capabilities, process-oriented dynamic capabilities, and firm financial performance. *Journal of the Association for Information Systems*, 12(7), 1.
- Legner, C., Eymann, T., Hess, T., Matt, C., Böhmann, T., Drews, P., Mädche, A., Urbach, N., & Ahlemann, F. (2017). Digitalization: opportunity and challenge for the business and information systems engineering community. *Business & Information Systems Engineering*, 59(4), 301–308.
- Malhotra, Y. (2005). Integrating knowledge management technologies in organizational business processes: getting real time enterprises to deliver real business performance. *Journal of Knowledge Management*, 9(1), 7–28.
- Mweshi, G. K., & Sakyi, K. (2020). Application of sampling methods for the research design. *Archives of Business Review–Vol*, 8(11), 180–193.
- Rouse, P., & Putterill, M. (2003). An integral framework for performance measurement. *Management Decision*, 41(8), 791–805.
- Savastano, M., Cucari, N., Dentale, F., & Ginsberg, A. (2022). The interplay between digital manufacturing and

- dynamic capabilities: an empirical examination of direct and indirect effects on firm performance. *Journal of Manufacturing Technology Management*, 33(2), 213–238.
- Schilke, O. (2014). On the contingent value of dynamic capabilities for competitive advantage: The nonlinear moderating effect of environmental dynamism. *Strategic Management Journal*, 35(2), 179–203.
- Teece, D., & Leih, S. (2016). Uncertainty, innovation, and dynamic capabilities: An introduction. *California Management Review*, 58(4), 5–12.
- Temitope, A. O. (2022). Agile and organizational culture: Fostering agile values and mindset. *International Journal of Science and Research Archive*, 7(2), 672–681.
- Trenerry, B., Chng, S., Wang, Y., Suhaila, Z. S., Lim, S. S., Lu, H. Y., & Oh, P. H. (2021). Preparing workplaces for digital transformation: An integrative review and framework of multi-level factors. *Frontiers in Psychology*, 12, 620766.
- Turban, E., Pollard, C., & Wood, G. (2021). *Information technology for management: Driving digital transformation to increase local and global performance, growth and sustainability*. John Wiley & Sons.
- Weerawardena, J. (2003). The role of marketing capability in innovation-based competitive strategy. *Journal of Strategic Marketing*, 11(1), 15–35.
- Woodhouse, E. J. (2016). Slowing the pace of technological change? *Journal of Responsible Innovation*, 3(3), 266–273.