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DETERMINANTS OF ORGANIZATIONAL PERFORMANCE AMONG HOME APPLIANCE MANUFACTURING FIRMS IN GUANGZHOU: A CONCEPTUAL PAPER

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Abstract:

Organizational performance among home appliance manufacturing firms (HAMFs) in Guangzhou has emerged as a critical issue amid intensified competition and rapid digital investment. Despite widespread digital transformation initiatives, performance outcomes remain highly uneven, suggesting that technological adoption alone does not guarantee sustained performance improvement. This study aims to develop a theoretically grounded framework to explain the determinants of organizational performance in digitally transforming manufacturing firms. Drawing on the Technology–Organization–Environment (TOE) framework and Dynamic Capability Theory, the paper adopts a conceptual research design to integrate technology capability, dynamic capability, and competitive pressure into a unified explanatory model. The proposed framework positions digital transformation as a central mediating mechanism through which organizational capabilities and environmental pressures are translated into performance outcomes. The analysis suggests that performance improvements are unlikely to arise from direct technological investment alone but depend on firms' ability to implement coherent, organization-wide digital transformation supported by strong dynamic capabilities. The study concludes that integrating contextual and capability-based perspectives provides a clearer explanation of performance heterogeneity and offers strategic implications for managers seeking sustainable competitive advantage in digitally intensive manufacturing environments.

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Competitive Pressure, Digital Transformation, Dynamic Capability, Organizational Performance, Technology Capability, TOE Framework

Introduction

Organizational performance is a central concern for manufacturing firms operating in increasingly competitive and digitally intensive environments. As global manufacturing shifts toward intelligent, data-driven, and service-oriented production systems, firms face pressure to enhance efficiency, responsiveness, and innovation capabilities simultaneously (Vial, 2019). The home appliance manufacturing industry, characterized by high capital intensity, rapid product iteration, and increasing digital integration, exemplifies these challenges. Globally, the industry has experienced steady expansion alongside intensified competition and technological upgrading, requiring firms to continuously reconfigure resources to sustain performance advantages (Yang et al., 2018). In this context, performance is no longer explained solely by scale or cost efficiency but depends on firms' ability to leverage digital technologies and organizational capabilities to create value (Bharadwaj et al., 2013).

China represents one of the world's most important manufacturing bases, and its home appliance industry plays a central role in both domestic economic development and global supply chains. Within China, Guangzhou stands out as a major manufacturing hub embedded in the Guangdong–Hong Kong–Macao Greater Bay Area, hosting a highly concentrated cluster of home appliance manufacturers operating under intense competitive pressure (Guangzhou Statistics Bureau, 2025). While substantial investments have been made in digital infrastructure, smart manufacturing systems, and industrial internet platforms, performance outcomes among firms remain highly uneven. Empirical evidence indicates that despite widespread adoption of digital technologies, many manufacturing enterprises continue to experience stagnating profitability, declining efficiency, and limited innovation returns (Chen et al., 2023; National Bureau of Statistics of China, 2025). This divergence reflects the "digitalization paradox," whereby digital transformation initiatives do not automatically translate into superior organizational performance (Ramzani et al., 2024).

Existing literature suggests that the effectiveness of digital transformation depends not only on technological adoption but also on firms' internal capabilities and external environmental conditions. From a theoretical perspective, the TOE framework emphasizes that technological readiness, organizational conditions, and environmental forces jointly shape digital transformation outcomes (Tornatzky, 1990). At the same time, Dynamic Capability Theory highlights firms' abilities to sense opportunities, seize digital initiatives, and transform organizational resources as critical mechanisms for achieving sustained performance in

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turbulent environments (Teece, 2007). Prior studies argue that technology capability alone is insufficient to generate performance gains unless supported by strong dynamic capabilities that enable effective integration, reconfiguration, and innovation (Warner & Wäger, 2019). Moreover, environmental forces such as competitive pressure play a dual role by motivating digital investment while simultaneously increasing the risk of inefficient or imitative transformation strategies when internal capabilities are weak (Zhu & Kraemer, 2005).

However, a significant research gap persists. Although prior studies document the relationship between digital transformation and firm performance, most adopt linear models that assume homogeneous effects across firms (Vial, 2019). This presents a critical limitation in current literature, leaving it unable to explain why comparable levels of digital investment yield markedly different performance outcomes, particularly in mature manufacturing industries (Brynjolfsson & Hitt, 2000). Existing research often treats digital transformation either as a direct predictor of performance or as a broad organizational outcome, without clarifying the process mechanisms through which technological readiness and environmental pressures are translated into sustained value creation. As a result, the literature lacks a mechanism-based explanation for performance heterogeneity. Furthermore, while the TOE framework highlights contextual drivers of digital adoption (Tornatzky, 1990) and Dynamic Capability Theory emphasizes firms' adaptive capacities (Teece, 2007), these perspectives are rarely integrated to explain how structural conditions and capability-driven processes jointly shape digital transformation outcomes.

To address these limitations, this study develops a theoretically grounded integrative framework that combines the TOE framework with Dynamic Capability Theory and formulates a set of hypotheses explaining how technology capability, dynamic capability, and competitive pressure influence firm performance through digital transformation.

Theoretical Foundations Literature Review

TOE Framework

The TOE framework, proposed by Tornatzky (1990), provides a comprehensive perspective for understanding how firms adopt and utilize technological innovations. The framework posits that organizational outcomes are shaped by three contextual dimensions: technological conditions, organizational characteristics, and environmental forces. Rather than focusing solely on technological availability, TOE emphasizes that successful technology-related outcomes depend on the interaction between internal capabilities and external pressures.

In manufacturing contexts, the TOE framework has been widely applied to explain firms' adoption of digital technologies, information systems, and innovation-related practices (Oliveira & Martins, 2011). Technological factors capture firms' internal technological readiness and infrastructure, organizational factors reflect managerial support and structural flexibility, while environmental factors include competitive pressure, industry dynamics, and regulatory conditions. Collectively, these dimensions provide a structured lens for analyzing why firms operating in similar industries may exhibit divergent performance outcomes.

However, while TOE is effective in explaining the conditions under which technologies are adopted, it offers limited insight into how technological and organizational resources are transformed into sustained performance advantages. This limitation has prompted scholars to complement TOE with capability-based perspectives.

Dynamic Capability Theory

Dynamic capability theory addresses the limitations of static resource-based explanations by focusing on how firms adapt, integrate, and reconfigure resources in response to environmental change (Teece et al., 1997). Dynamic capabilities are commonly conceptualized as higher-order capabilities that enable firms to sense emerging opportunities and threats, seize strategic opportunities, and transform organizational resources accordingly (Teece, 2007).

In rapidly evolving manufacturing environments, dynamic capability is central to enabling firms to respond to technological disruption, shifting customer demands, and intensified competition (Helfat et al., 2007). Unlike operational capabilities, which support routine activities, dynamic capabilities emphasize strategic renewal and continuous adaptation. Empirical studies increasingly demonstrate that firms with strong dynamic capabilities are better positioned to leverage digital technologies and sustain superior performance over time (Teece, 2018).

Nevertheless, dynamic capability theory alone does not fully explain the structural and technological context in which capability deployment occurs. As such, integrating dynamic capability theory with contextual frameworks such as TOE allows for a more comprehensive understanding of organizational performance in digitalized manufacturing settings.

Integrative Perspective: TOE, Dynamic Capability, and Digitalization

While the TOE framework explains the structural conditions under which digital transformation occurs, it does not specify how firms convert technological readiness and environmental pressure into sustained performance outcomes (Tornatzky, 1990). The framework focuses on contextual drivers such as technological capability and competitive pressure yet provides limited insight into the organizational processes through which these drivers are mobilized and translated into transformation outcomes.

Dynamic Capability Theory complements this limitation by focusing on the process mechanisms through which firms sense digital opportunities, seize strategic initiatives, and reconfigure resources in response to environmental change (Teece et al., 1997; Teece, 2007). Explicitly, both theories complement each other by addressing different facets of the transformation process. TOE identifies what structural conditions and external pressures exist, whereas Dynamic Capability Theory explains how firms act upon those conditions to drive change.

Integrating these perspectives enables a multi-level explanation of digital transformation and performance heterogeneity. Contextual conditions shape digital imperatives, while dynamic capabilities determine how effectively firms translate those conditions into coherent organization-wide transformation (Vial, 2019; Warner & Wäger, 2019). This integrative logic provides a clearer theoretical foundation for explaining why firms operating under similar

technological and environmental contexts may nevertheless experience divergent performance outcomes.

Within this integrative perspective, digital transformation is positioned as a central organizational process through which contextual conditions and internal capabilities are translated into performance outcomes. Digital transformation represents an organization-wide reconfiguration of business strategies, structures, and processes enabled by digital technologies, reflecting how firms embed digital technologies into core operations and governance arrangements (Verhoef et al., 2021). While digital innovation is frequently discussed in the digitalization literature as a related phenomenon, this study focuses explicitly on digital transformation as the primary mechanism for explaining performance heterogeneity at the organizational level.

Accordingly, the integration of the TOE framework and Dynamic Capability Theory provides a robust theoretical foundation for examining how technology capability, dynamic capability, and competitive pressure jointly shape organization-wide digital transformation and, ultimately, organizational performance in manufacturing industries.

Determinants of Organizational Performance

Firm performance in manufacturing contexts is a multidimensional construct that reflects a firm's ability to achieve strategic objectives, sustain competitiveness, and generate superior outcomes relative to industry peers. Prior studies emphasize that performance is not determined by a single factor but rather emerges from the interaction of internal capabilities and external environmental conditions (Richard et al., 2009). In the context of increasing digitalization, scholars argue that traditional efficiency-based explanations are insufficient to explain performance heterogeneity among manufacturing firms (Vial, 2019).

Drawing on the TOE framework and dynamic capability theory, this study conceptualizes organizational performance as the outcome of three key determinants: technology capability, dynamic capability, and competitive pressure. These determinants capture firms' technological readiness, adaptive capacity, and environmental constraints, respectively. Together, they provide a comprehensive explanation of why firms operating within the same industry and region may experience divergent performance outcomes.

Technology Capability

Technology capability refers to a firm's ability to acquire, deploy, and utilize technological resources to support operational and strategic activities (Zahra & Covin, 1993). In manufacturing contexts, technology capability typically encompasses digital infrastructure, information systems, data analytics competence, and technological expertise embedded within organizational processes. Such capabilities form the technological foundation upon which digital initiatives and innovation activities are built.

Existing research suggests that technological capability is a necessary but not sufficient condition for superior organizational performance. While investments in digital technologies can improve efficiency, quality, and responsiveness, their direct impact on performance is often inconsistent across firms (Brynjolfsson & Hitt, 2000). This inconsistency, commonly referred

to as the "IT productivity paradox," highlights that technological resources alone do not automatically translate into performance gains.

Recent studies argue that technology capability primarily contributes to performance indirectly by enabling higher-order organizational processes, particularly organization-wide digital transformation (Vial, 2019). Firms with strong technology capability are better positioned to experiment with new digital applications, integrate technologies into core operations, and support strategic renewal. However, without complementary organizational capabilities, technological investments may remain underutilized or fail to generate sustained performance advantages.

Dynamic Capability

Dynamic capability theory provides a process-oriented explanation of how firms adapt to changing environments and convert resources into competitive advantage (Teece et al., 1997). Dynamic capability is commonly defined as the firm's ability to sense opportunities and threats, seize strategic opportunities, and reconfigure resources in response to environmental change (Teece, 2007). In turbulent manufacturing environments characterized by rapid technological change, such capabilities are critical for maintaining performance over time.

Empirical research consistently demonstrates that dynamic capability shapes firms' innovation outcomes and long-term performance (Helfat & Peteraf, 2015). Firms with strong dynamic capabilities are more adept at aligning technological resources with strategic objectives, reallocating resources across projects, and adjusting organizational structures to support new business models. As a result, dynamic capability enhances firms' resilience and adaptability in the face of digital disruption.

Importantly, dynamic capability does not operate in isolation. Its performance effects often materialize through organizational processes such as innovation and transformation. Scholars increasingly argue that dynamic capability enables firms to orchestrate digital resources, coordinate cross-functional activities, and embed digital technologies into value-creating processes, thereby influencing organizational performance indirectly rather than through direct effects alone (Teece, 2018).

Competitive Pressure

Competitive pressure represents a key environmental determinant influencing organizational behavior and performance. It reflects the intensity of rivalry, the pace of innovation among competitors, and the threat of losing market share in dynamic markets (Porter & Heppelmann, 2014). Within the TOE framework, competitive pressure is viewed as a critical external force that shapes firms' strategic responses and resource allocation decisions.

In manufacturing industries, heightened competitive pressure often acts as a catalyst for technological adoption and organizational change. Firms facing intense competition are more likely to invest in digital technologies, pursue innovative initiatives, and reconfigure operational processes to maintain competitiveness (Zhu et al., 2006). As such, competitive pressure can positively influence organizational performance by stimulating proactive strategic behavior.

The performance implications of competitive pressure are not uniformly positive. Excessive pressure may strain organizational resources, increase uncertainty, and lead to suboptimal decision-making, particularly for firms lacking sufficient technological or adaptive capabilities (Porter & Heppelmann, 2014). This dual nature indicates that competitive pressure interacts with internal capabilities in shaping performance outcomes, rather than exerting a simple direct effect.

Collectively, technology capability, dynamic capability, and competitive pressure constitute critical determinants of organizational performance. However, their effects are unlikely to be purely direct. Increasingly, scholars argue that these determinants influence performance through intermediate mechanisms that translate capabilities and environmental pressures into tangible organizational outcomes. In digitalized manufacturing contexts, digital transformation is examined in this study as the central mediating mechanism through which these determinants affect organizational performance.

Mediating Role of Digital Transformation

Although prior studies have established that organizational capabilities and environmental pressures influence firm performance, increasing evidence suggests that these effects are rarely direct. Instead, performance outcomes are often realized through intermediate digital processes that translate resources and external pressures into value-creating outcomes (Vial, 2019). In the context of manufacturing firms undergoing digitalization, digital transformation functions as a central organizational mechanism through which technological, organizational, and environmental factors are converted into sustained performance improvements (Warner & Wäger, 2019).

While existing literature has discussed both digital innovation and digital transformation as important outcomes of digitalization, this study focuses explicitly on digital transformation as the core mediating process. Digital innovation typically refers to the development of specific digitally enabled products, services, or processes, whereas digital transformation captures a broader, organization-wide reconfiguration of structures, routines, and strategic orientations enabled by digital technologies (Vial, 2019). Given the objective of explaining heterogeneous performance outcomes at the firm level, digital transformation provides a more appropriate analytical lens, as it reflects how digital technologies are embedded into core organizational processes rather than remaining isolated initiatives.

Digital transformation refers to the organization-wide reconfiguration of business processes, decision-making routines, governance structures, and strategic orientations through the pervasive use of digital technologies (Vial, 2019). Rather than representing a collection of discrete digital projects, it reflects a fundamental shift in how firms operate and compete in digitally intensive environments. Achieving such transformation requires not only technological readiness but also coordinated organizational change and managerial commitment.

From a theoretical perspective, digital transformation constitutes a higher-order organizational response to technological opportunities and environmental pressures. Dynamic capability theory suggests that firms must possess sensing, seizing, and reconfiguring capabilities to realign resources, redesign processes, and embed digital technologies into core organizational functions (Teece, 2007, 2018). In this sense, digital transformation represents the mechanism

through which dynamic capabilities are operationalized at the organizational level, enabling firms to systematically reconfigure assets and routines in response to digitalization challenges. In addition, within the TOE framework, digital transformation reflects the combined influence of technological readiness and environmental forces. Technology capability provides the foundational infrastructure and expertise necessary for large-scale digital integration, while competitive pressure intensifies the need for firms to adopt comprehensive transformation strategies rather than incremental or fragmented digital initiatives (Zhu et al., 2006). However, the effectiveness of digital transformation depends critically on firms' internal adaptive capacities, particularly their ability to coordinate cross-functional change and align digital technologies with strategic objectives.

Accordingly, digital transformation is conceptualized in this study as a central mediating mechanism linking technology capability, dynamic capability, and competitive pressure to organizational performance. By embedding digital technologies into organizational processes, governance structures, and strategic configurations, digital transformation enables coherence, scalability, and sustainability of performance improvements (Warner & Wäger, 2019). This perspective helps explain why firms facing similar competitive environments or possessing comparable technological resources may nonetheless experience divergent performance outcomes, depending on their ability to implement coherent and organization-wide digital transformation initiatives.

Conceptual Framework

Building on the TOE framework and Dynamic Capability Theory, this study develops an integrative conceptual framework to explain how organizational capabilities and environmental pressures jointly influence organizational performance in digitally transforming manufacturing firms. Consistent with prior research, the framework assumes that investments in digital technologies and organizational capabilities do not automatically translate into superior performance outcomes; rather, performance effects are contingent upon the organizational processes through which such resources and pressures are mobilized, integrated, and transformed (Brynjolfsson & Hitt, 2000; Zahra & Covin, 1993).

From the TOE perspective, technology capability represents a key technological condition that enables firms to adopt, deploy, and integrate digital technologies, while competitive pressure constitutes an important environmental force that shapes firms' strategic responses to digitalization (Tornatzky, 1990). However, the presence of technological resources and external pressure alone is insufficient to explain performance heterogeneity among firms operating in similar industrial contexts. Dynamic Capability Theory complements this view by emphasizing firms' abilities to sense digital opportunities, seize strategic initiatives, and reconfigure organizational resources in response to environmental change (Teece et al., 1997; Teece, 2007). Together, these perspectives suggest that organizational performance depends not only on what resources firms possess or what pressures they face, but also on how effectively they convert these conditions into value-creating organizational processes.

Within this integrated framework, digital transformation is conceptualized as the central mediating mechanism linking technology capability, dynamic capability, and competitive pressure to organizational performance. Digital transformation refers to the organization-wide reconfiguration of business processes, organizational structures, decision-making routines, and strategic orientations enabled by digital technologies (Vial, 2019). Rather than reflecting

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isolated digital initiatives, it captures a fundamental shift in how firms embed digital technologies into their core operations and governance arrangements.

Dynamic capabilities play a critical role in enabling digital transformation by orchestrating the alignment between digital technologies, organizational structures, and strategic objectives. Firms with strong sensing, seizing, and reconfiguring capabilities are better positioned to coordinate cross-functional change, redesign operational processes, and integrate digital technologies in a coherent and scalable manner, particularly under conditions of intense competitive pressure (Teece, 2018; Warner & Wäger, 2019). At the same time, technology capability provides the foundational infrastructure and expertise necessary for large-scale digital integration, while competitive pressure reinforces the urgency for firms to pursue comprehensive transformation strategies rather than incremental or fragmented digital initiatives.

Accordingly, the conceptual framework posits that technology capability, dynamic capability, and competitive pressure influence organizational performance indirectly through digital transformation, rather than through direct effects alone. As illustrated in Figure 1, digital transformation serves as the key process-based mechanism through which organizational capabilities and environmental forces are converted into heterogeneous performance outcomes among HAMFs.

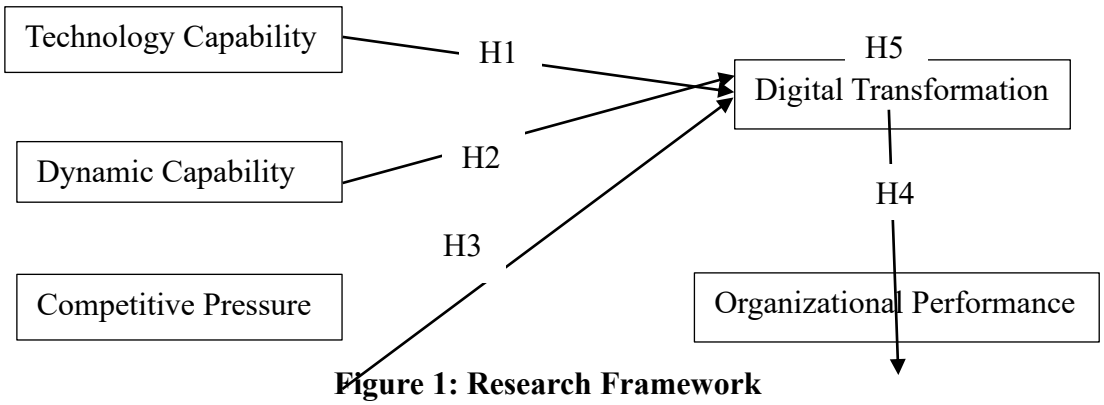

Figure 1: Research Framework

Hypotheses Development

Building on the integrated conceptual framework, this study develops hypotheses to explain how technology capability, dynamic capability, and competitive pressure influence organizational performance through the mediating mechanisms of digital transformation. Consistent with the TOE framework and Dynamic Capability Theory, the hypotheses emphasize that performance outcomes in digitally transforming manufacturing firms are largely realized through indirect, process-based pathways rather than direct effects alone.

Technology Capability and Digital Transformation

Technology capability refers to a firm's ability to acquire, deploy, and integrate digital technologies to support organizational activities and strategic objectives. In the context of digital transformation, technology capability constitutes a foundational condition that enables firms to move beyond isolated digital initiatives toward organization-wide transformation. Effective digital transformation requires not only the adoption of advanced digital technologies

but also their integration across functional units, core processes, and decision-making structures.

Prior studies indicate that technology capability facilitates digital transformation by enabling system interoperability, data integration, and the reconfiguration of organizational routines (Bharadwaj et al., 2013). Firms with strong technological foundations are better positioned to implement enterprise-wide digital infrastructures and embed digital technologies into core operations, whereas insufficient capability often constrains transformation efforts to fragmented or localized applications.

Moreover, technology capability supports the scalability and institutionalization of digital transformation initiatives. Vial (2019) and Warner & Wäger (2019) emphasize that robust technological foundations allow firms to integrate digital technologies into organizational routines and strategic processes, thereby enabling continuous and organization-wide transformation. In mature manufacturing industries, such as the home appliance sector, technology capability is therefore critical for achieving higher levels of digital transformation.
H1: Technology capability positively influences digital transformation.

Dynamic Capability and Digital Transformation

Dynamic capability refers to a firm's higher-order ability to sense environmental changes, seize emerging opportunities, and reconfigure organizational resources in response to dynamic conditions (Teece et al., 1997; Teece, 2007). In the context of digitalization, dynamic capability plays a central role in enabling digital transformation by guiding how firms strategically deploy and embed digital technologies into organizational structures and routines.

Digital transformation involves organization-wide changes that require continuous alignment between digital technologies, business objectives, and organizational processes (Vial, 2019). Dynamic capabilities support this alignment by enabling firms to identify digital transformation opportunities, mobilize resources, and reconfigure existing systems and routines. Prior research shows that firms with strong dynamic capabilities are better able to orchestrate digital initiatives through iterative processes of sensing, seizing, and transforming, thereby achieving more coherent and sustained digital transformation (Warner & Wäger, 2019). In mature manufacturing industries, such as the home appliance sector, digital transformation depends less on the introduction of new technologies and more on the reconfiguration of existing assets and organizational arrangements. Dynamic capability helps firms overcome organizational inertia and integrate digital technologies into core operational and managerial processes. Accordingly, firms with stronger dynamic capabilities are more likely to achieve higher levels of digital transformation.
H2: Dynamic capability positively influences digital transformation.

Competitive Pressure and Digital Transformation

Competitive pressure represents an important environmental force that shapes firms' strategic responses to digitalization. Within the TOE framework, competitive pressure functions as an external trigger that increases the urgency for organizational change and strategic renewal. When competitive intensity rises, firms are more likely to reassess existing operating models and pursue organization-wide digital transformation rather than incremental or isolated digital initiatives.

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Digital transformation involves the integration of digital technologies into core business processes, coordination mechanisms, and managerial systems, resulting in structural and strategic reconfiguration (Vial, 2019). Heightened competitive pressure encourages firms to embed digital technologies across functional units and align digital initiatives with long-term strategic objectives to improve efficiency, responsiveness, and coordination. Empirical evidence indicates that firms under stronger competitive pressure are more likely to assimilate digital technologies at a broader organizational scope, thereby promoting comprehensive digital transformation. (Zhu & Kraemer, 2005).

In mature manufacturing industries such as the home appliance sector, intense price competition and rapidly changing customer expectations further amplify the need for organization-wide digital transformation. Under such conditions, competitive pressure motivates firms to restructure core operational and managerial systems through digital technologies. Accordingly, firms experiencing stronger competitive pressure are more likely to achieve higher levels of digital transformation.
H3: Competitive pressure positively influences digital transformation.

Digital Transformation and Organisational Performance

Digital transformation represents an organization-wide strategic process through which firms reconfigure business strategies, organizational structures, and operational processes using digital technologies (Vial, 2019). By embedding digital technologies into core activities, digital transformation reshapes how firms create value, coordinate operations, and respond to market demands.

Prior research suggests that effective digital transformation enhances organizational performance by improving operational efficiency, strategic flexibility, and organizational agility (Riviere & Bass, 2019). In manufacturing contexts, digital transformation supports smart manufacturing, end-to-end supply chain integration, and data-driven decision-making, which contribute to improved productivity, quality, and responsiveness. Moreover, when digital initiatives are aligned with overall business objectives, digital transformation enables firms to optimize resource utilization and reduce coordination costs, thereby strengthening performance outcomes (Cao & Le, 2024).

In competitive manufacturing environments such as the home appliance sector, digital transformation therefore functions as a key driver of performance improvement. Accordingly, this study proposes that digital transformation has a positive effect on organizational performance.
H4: Digital transformation positively influences organizational performance.

Mediating Role of Digital Transformation

Organizational performance improvement in the digital era depends not only on firms' technological resources, dynamic capabilities, or exposure to competitive pressure, but also on whether these antecedent conditions are translated into organization-wide digital transformation. Digital transformation represents a comprehensive strategic and operational renewal process in which digital technologies are embedded into business strategies, organizational structures, core processes, and managerial routines, thereby reshaping how firms create value and operate (Vial, 2019). This suggests that firms may possess strong capabilities

or face intense competitive pressure yet fail to achieve superior performance if digital transformation remains fragmented, superficial, or misaligned with strategic objectives.

Accordingly, digital transformation is conceptualized as a central mediating mechanism that explains how technology capability, dynamic capability, and competitive pressure are converted into sustained organizational performance outcomes. Technological foundations and dynamic capabilities provide the necessary conditions for digital transformation, while competitive pressure increases the urgency for organization-wide change. However, performance gains are realized primarily when these factors are integrated through coherent and effective digital transformation initiatives rather than isolated digital actions.

Based on these arguments, this study proposes the following mediating hypotheses:
H5a: Digital transformation mediates the relationship between technology capability and organizational performance.
H5b: Digital transformation mediates the relationship between dynamic capability and organizational performance.
H5c: Digital transformation mediates the relationship between competitive pressure and organizational performance.

Conclusion

This study examines a central puzzle in digital transformation research: why substantial investments in digital technologies do not consistently translate into superior firm performance among manufacturing firms. Focusing on GHAFs, this conceptual paper develops an integrated framework that explains how technology capability, dynamic capability, and competitive pressure influence organizational performance through the mediating role of digital transformation. By synthesizing the TOE framework with Dynamic Capability Theory, the study offers a process-oriented explanation for performance heterogeneity in digitally transforming manufacturing firms.

The central argument of this study is that performance improvements in the digital era are rarely the result of direct effects from technological resources or environmental pressures alone. Instead, performance outcomes depend on firms' ability to translate these antecedent conditions into coherent, organization-wide digital transformation. Digital transformation operates as a central organizational mechanism by embedding digital technologies into business strategies, operational processes, governance structures, and decision-making routines, thereby enabling scalability, coordination, and sustained performance improvement.

This study makes three theoretical contributions. First, it advances digital transformation research by moving beyond linear assumptions that equate digital investment with performance improvement. By explicitly positioning digital transformation as a mediating mechanism between organizational capabilities, environmental pressure, and performance outcomes, the study clarifies the "black box" through which digital resources and competitive forces are converted into value-creating outcomes. This perspective clarifies the mechanism through which digital resources and competitive forces are converted into value-creating outcomes.

Second, the integration of the TOE framework and Dynamic Capability Theory offers a complementary theoretical lens that captures both external contextual drives and internal adaptive mechanisms. While the TOE framework explains how technology capability and

competitive pressure shape firms' digitalization environments, Dynamic Capability Theory elucidates how firms respond through sensing, seizing, and reconfiguring processes that enable organization-wide transformation. By treating competitive pressure as an active antecedent rather than a background condition, the study enriches existing explanations of digital transformation outcomes.

Third, this study contributes context-specific theoretical understanding from a mature manufacturing cluster. By focusing on Guangzhou's home appliance manufacturing industry, characterized by high digital investment intensity, market saturation, and intense competition, the framework extends digital transformation research to traditional manufacturing contexts experiencing structural upgrading and digital renewal.

From a managerial perspective, the framework implies that investing in digital technologies alone is insufficient to guarantee performance improvement. Managers should prioritize the development of dynamic capabilities that enable coherent and organization-wide digital transformation, rather than pursuing fragmented or reactive digital initiatives. Moreover, under intense competitive pressure, firms should leverage environmental challenges as catalysts for strategic renewal rather than responding through short-term or imitative digitalization strategies.

Despite its contributions, this study has limitations that point to directions for future research. As a conceptual paper, the proposed framework has not been empirically tested. Future studies could validate the model using longitudinal or multi-industry data to capture the dynamic evolution of digital transformation processes. Additionally, incorporating moderating factors such as organizational culture, leadership, or institutional support may further refine understanding of how digital transformation influences performance outcomes.

In conclusion, this study shows that firm performance in digitally transforming manufacturing contexts depends not on digital investment alone, but on how organizational capabilities and competitive pressure are translated into coherent digital transformation. By clarifying the mediating role of digital transformation, this research provides theoretical clarity and a foundation for future empirical inquiry into sustainable performance in the digital era.

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