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The Impact of Digital Transformation on Sustainability Performance of Enterprise in China: The Role of Competitive Advantage as a Mediator

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Abstract
Purpose: This study aims to explore the impact of digital transformation on corporate sustainability performance in China. It examines key internal factors—digital technology, digital strategy, digital capability, and digital culture—that influence economic, social, and environmental outcomes. By integrating Resource-Based View (RBV) and stakeholder theory, the study provides a comprehensive understanding of how these dimensions collectively enhance corporate sustainability performance and competitive advantage.
Design/methodology/approach: The study employs a conceptual framework to analyse the relationships between digital transformation, competitive advantage, and sustainability performance. It synthesizes existing literature and theoretical perspectives to propose a structured model for future empirical validation.
Findings: This study constructs a conceptual framework illustrating which demotions of digital transformation impacts corporate sustainability performance, highlighting the crucial roles of digital technology, strategy, capability, and culture in enhancing competitive advantage and sustainable development.
Research limitations/implications: The conceptual nature of this study means that empirical validation is required to confirm the proposed relationships and frameworks. Future research should apply this framework in different contexts to generalize the findings.
Practical implications: Understanding these factors helps in assessing the impact of digital transformation on sustainable development goals and outcomes, offering insights for policymakers, businesses, and scholars aiming to promote sustainable development in the digital era.
Originality/value: This study fills a gap by exploring how digital transformation, including digital strategy, capabilities, and culture, impacts sustainability performance, going beyond the narrow focus on digital technologies in existing studies.

Keywords: digital transformation, sustainability performance, competitive advantage, Digital capability, Resource-Based View, China

Classification: Conceptual paper

Introduction

In response to the United Nations' "2030 Agenda for Sustainable Development," China has committed to transitioning from traditional development practices to sustainable production and consumption methods (United Nations, 2015; Weiland et al., 2021). These initiatives necessitate that Chinese enterprises adopt innovative, energy-efficient, and environmentally friendly practices, balancing economic, social, and ecological responsibilities to achieve long-term sustainability performance (Xie et al., 2021).

Despite efforts to expand its clean energy capacity, the growth in energy demand has outpaced these efforts, resulting in an ongoing environmental crisis (IEA, 2024). To maintain economic growth while mitigating its environmental impact, China must adopt a development model that emphasizes both rapid development and high-quality, sustainable growth (Development Research Center of the State Council & World Bank, 2013). This new model requires enterprises to shift from traditional, cost-driven approaches to those that integrate social and environmental considerations (Mahmood et al., 2014; Maiga et al., 2015).

Recent academic studies have increasingly focused on the relationship between digital transformation and sustainability performance. Some research indicates that digital technologies, such as big data analytics and IoT, significantly enhance sustainability outcomes by reducing resource consumption and improving decision-making processes (Dubey et al., 2019) (Nambisan, 2017). However, the findings are not consistent. Certain literature highlights potential risks associated with digital transformation, such as increased energy consumption and data management challenges, which may undermine its positive impact on sustainability (Cohen, 2018). Additionally, industry evidence reveals that only a small percentage of companies achieve the expected benefits from digital technologies, illustrating a "digitalization paradox" where high levels of digitalization do not necessarily lead to improved sustainability performance (Zeng et al., 2022). This underscores the need for a more nuanced understanding of how different dimensions of digital transformation influence sustainability outcomes, considering both technological advancements and associated risks. Thus, the study aims to fill this gap by exploring the multifaceted impacts of digital transformation on sustainability performance, informed by both academic insights and industry data.

This research explores the influence of digital transformation on corporate sustainability performance in China, with a focus on the economic, social, and environmental aspects. Anchored in the Resource-Based View (RBV), digital transformation is defined as the comprehensive integration of digital technologies across various facets of a business, resulting in significant alterations in operations, strategic approaches, and value generation (Nambisan, 2017). The study conceptualizes digital transformation through four primary dimensions: digital technology, digital strategy, digital capability, and digital culture (Bharadwaj et al., 2013). These dimensions synergistically enhance a firm's potential to secure competitive advantage and elevate sustainability performance (Cassiman et al., 2022). Furthermore, the research investigates the mediating influence of competitive advantage in the relationship between digital transformation and sustainability outcomes (Y. Y. Lee & Falahat, 2019; D. Li & Liu, 2014).

The study aims to fill existing literature gaps by examining how these dimensions collectively enhance corporate sustainability, offering a comprehensive understanding beyond the traditional focus on digital technologies (Nambisan, 2017; Vial, 2019).

The findings highlight the need for integrating digital initiatives into strategic planning to achieve sustainable development and long-term competitive advantage in the digital era.

Literature Review

Sustainability Performance

The concept of sustainable development was introduced by the United Nations at the Stockholm Conference in 1972, emphasizing the equal right of all humans to a healthy environment and the responsibility of every country to maintain it (Handl, 2012). This concept was further defined in 1987 by the United Nations World Commission on Environment and Development (WCED) in the report "Our Common Future," which stated that sustainable development means meeting the needs of the present without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development, 1987). This broadened the focus from purely environmental issues to include economic and social factors as well (Soubbotina, 2004).

Corporate sustainable development was first introduced at the World Conference on Environment Management in Industry in 1984, where it was acknowledged that businesses were significant contributors to environmental problems. The conference stressed the need for businesses to transition from polluting production methods to environmental management to achieve profitability and competitive advantages (Chuang & Huang, 2018). This shift called for integrating environmental protection and social responsibility into business planning and decision-making processes (Schmidheiny, 1992).

Corporate sustainability performance can be measured through the "triple bottom line" theory, which balances economic, environmental, and social benefits (Elkington, 1998). Economic performance involves resource utilization, economic efficiency, and resource allocation, closely linked to both operational and financial outcomes (Gimenez & Tachizawa, 2012; Morioka & de Carvalho, 2016). Environmental performance focuses on reducing resource use and minimizing ecological damage while meeting human needs (Schultze & Trommer, 2012). Social performance includes social issues, corporate social responsibility, and the company's response to these issues (Schultze & Trommer, 2012).
Research on sustainable development performance has primarily focused on factors that enhance an enterprise's performance in this area. Organizational factors, both internal and external, play a significant role. Internal factors include the enterprise's inherent attributes, such as scale, which has been debated regarding its impact on sustainable performance (Perera Aldama et al., 2009; Siebenhüner & Arnold, 2007; Yu & Chen, 2014). External factors involve industry status, structure, and type, with high-polluting industries facing greater legislative pressures . Porter and Kramer (2007) suggested that integrating sustainability and social responsibility can provide competitive advantages, while Baumgartner and Ebner (2010) noted that cost reduction is a result of sustainable development. Innovation is also critical for sustainable development (Baumgartner, 2014), and a good reputation significantly impacts it (Valentine, 2010) (Falkenberg & Brunsæl, 2011).

Leadership traits also influence company operations and sustainable performance (Bamber et al., 2010; Lin et al., 2022). To achieve long-term sustainability, companies need to regularly measure and assess their performance across social, environmental, and economic dimensions. Sustainable development reports can enhance company performance, but their effectiveness depends on aligning external reports with internal decision-making processes (Baumgartner, 2014; KPMG, 2020; Lueg & Radlach, 2016). Companies should integrate sustainability into daily activities and influence organizational practices (Corsi & Arru, 2020; Jollands et al., 2015).

In the digital economy era, companies are actively adopting digital technologies to undergo digital transformation, leading to changes in production methods, management practices, and service delivery (Vial, 2019). Digital technologies reduce communication, coordination, and transaction costs, providing new market opportunities and enhancing organizational efficiency (Andriole, 2018a).

Empirical studies have shown that digitization significantly improves company performance. For example, Samuel et al. (2021) highlighted that social network updates, high-level digital tool training, and older managers improve performance in knowledge-intensive business services. Li Yanlong et al. (2022) examined digitization's impact on company performance, finding that it promotes performance improvement, particularly in small businesses, northern regions, state-owned enterprises, and highly digitized industries. Qiu Haoran and Xu Hui (2022) used structural equation modeling and text mining to show that digitization enhances agricultural enterprise performance through technological innovation, organizational structure, and environmental factors.

Overall, digital transformation plays a crucial role in improving enterprise sustainability performance. By integrating digital technologies into their operations, companies can achieve better economic, environmental, and social outcomes, thereby advancing sustainable development goals. This integration requires a comprehensive approach that considers technological advancements, strategic planning, organizational capabilities, and cultural shifts within the enterprise.

Digital Transformation

The concept of digital transformation has evolved significantly since Patel and McCarthy (2000) first mentioned it without fully conceptualizing the term. The Ministry of Industry and Information Technology of China divides China's digital transformation into three stages: Information Digitization (1956-2003), Business Digitization (2003-2016), and Digital Transformation (2016-present) (Cheng et al., 2024). Existing research primarily defines digital transformation from two perspectives: the supportive role of digital technology and the organizational changes it brings.

One perspective views digital transformation as an enhanced phase following the information technology revolution, embedding digital technology into internal business models to fundamentally impact enterprise performance (Valdez-de-Leon, 2016). This includes collecting market information intelligently through digital technology to support stakeholder decision-making (Attaran, 2023; Gray & Rumpe, 2017). The other perspective emphasizes the organizational restructuring that digital transformation entails, such as reshaping business models,

organizational structures, and management practices to enhance production efficiency (Fischer et al., 2020; Morakanyane et al., 2017).

This study defines digital transformation as the utilization of new digital technologies to achieve significant business improvements and changes, such as enhancing customer experience, streamlining operations, and establishing new business models (Fitzgerald et al., 2014; Piccinini et al., 2015; Yin, 2023). Digital transformation consists of three main aspects: applying digital technologies to enhance operational efficiency, fundamentally changing production methods and organizational structures, and strategically balancing internal resources with external environments to gain competitive advantage (Bharadwaj et al., 2013; Nambisan, 2017; Verhoef et al., 2021).The research analyzes digital transformation from four dimensions: digital technology, digital strategy, digital capability, and digital culture. These dimensions are interconnected, forming a cohesive whole.

Digital technology involves the aggregation and paradigm formed by intelligent technologies like big data, IoT, AI, and cloud computing, enabling rapid knowledge encoding, storage, and distribution, and enhancing internal information processing capabilities (Ardolino et al., 2018; Cenamor et al., 2019; H. Li et al., 2021; Yoo et al., 2012). Digital platforms built on these technologies facilitate effective information exchange among stakeholders (Matt et al., 2015; Sedera et al., 2016).

Digital strategy is defined as an organizational strategy aimed at achieving differentiation value through the effective utilization of information systems and digital resources. It guides the goals, processes, and control systems of digital transformation, serving as the strategic backbone for all digital initiatives within a company (Bharadwaj et al., 2013; Kane et al., 2015; Martín-Rojas et al., 2021).

Digital capability is the ability to permit, acquire, connect, analyze, and apply digital technologies. It involves obtaining necessary permissions, embedding digital components into existing systems, facilitating real-time interaction with customers, and fully leveraging data to support digital strategies (Lenka et al., 2017; Parise et al., 2016; Ritter & Pedersen, 2020; Vassakis et al., 2018; Vinuesa et al., 2020).

Digital culture refers to the transformation of values and work patterns through the sharing of digital strategies and technologies within organizations. It fosters an organizational culture that accepts and supports digital strategies, encourages risk-taking and autonomy, and aligns the organization's value system with digital strategies (Gobble, 2018b; Martínez-Caro et al., 2020, 2020; Nylén & Holmström, 2015).

Existing research on digital transformation primarily focuses on the influencing factors and economic consequences for enterprises. External drivers of digital transformation include infrastructure construction, tax incentives, and smart city initiatives, while internal drivers include executive cognitive structures, academic backgrounds, and organizational change (Cai et al., 2023; Ivančić et al., 2019; Parviainen et al., 2017; Wang et al., 2020; Zhang et al., 2022). Successful digital transformation requires organizations to have the ability to change, operational excellence

in integrating external digital technologies, and leadership support to promote cultural change and innovation (Nadkarni & Prügl, 2021).

As digital transformation deepens, enterprises evolve from empowerment to enablement, significantly improving performance levels, risk-taking levels, environmental performance, audit quality, and the comparability of accounting information (Chen et al., 2022; Zhai et al.,).

In conclusion, digital transformation is multifaceted, involving the integration of digital technologies, strategic planning, organizational capabilities, and cultural shifts. These elements collectively enhance enterprise performance and sustainability, positioning companies to better navigate and thrive in a rapidly evolving digital economy.

Competitive Advantage

Enterprises derive their competitive advantage from their ability to generate market value and wealth through unique, rare, and non-substitutable resources, as posited by the resource-based view. Strategic perspectives highlight that core competitive advantage stems from the gradual accumulation of unique resources, knowledge, and technologies, which enable effective business process management and reengineering (Prahalad & Hamel, 1990). Enhancing strategic planning and insight capabilities is crucial for sustainable development and profitability, emphasizing the importance of both business capabilities and corporate culture (Cassiman et al., 2022; Okorie et al., 2023). Core capabilities, involving resource acquisition, integration, reconfiguration, and transfer, are essential for adapting to environmental and customer demands, thus driving competitive advantage (Erlany et al., 2023; Shan et al., 2019; Sheth et al., 2020, 2020).

Culturally, a strong corporate culture permeates the organization, fostering a sustained competitive edge. Resource-based perspectives view enterprises as collections of tangible and intangible resources, with resource heterogeneity playing a key role in meeting customer needs and creating value (J. B. Barney, 2000). Proper resource structure planning is fundamental to economic growth and core competitive advantage (Okorie et al., 2023).

In summary, the multifaceted nature of competitive advantage underscores the importance of integrating strategic, knowledge-based, cultural, and resource-based perspectives for sustainable enterprise development.

Conceptual Framework

The resource-based view (RBV) was initially proposed by Wernerfelt (1984) and later elaborated by Barney(1991), who argued that a firm's ability to gain excess returns and competitive advantage stems from the accumulation of unique, rare, inimitable, and non-substitutable resources. These resources are critical determinants of a firm's survival and development. RBV categorizes firm resources into organizational, human, and physical capital, with the VRIN framework identifying resources as valuable, rare, inimitable, and non-substitutable, which are essential for sustaining competitive advantage (J. B. Barney, 2000).

Stakeholder Theory, proposed by Freeman (1984), suggests that businesses should generate value for all stakeholders, including those who can influence or be influenced by the business (Freeman,

2010). The theory has evolved through several stages, from focusing on shareholder value to emphasizing the interests of all stakeholders, including employees, customers, suppliers, and communities (Carroll, 1991; Eccles et al., 2014). The theory posits that aligning stakeholder interests creates mutual benefits and highlights the ethical implications of business decisions, advocating for the integration of ethical considerations into business practices (Hörisch et al., 2020). This study applies Stakeholder Theory to evaluate the impact of digital transformation on sustainable development performance, considering economic, social, and financial aspects.

Based on these two theories, the conceptual framework is illustrated in figure1.

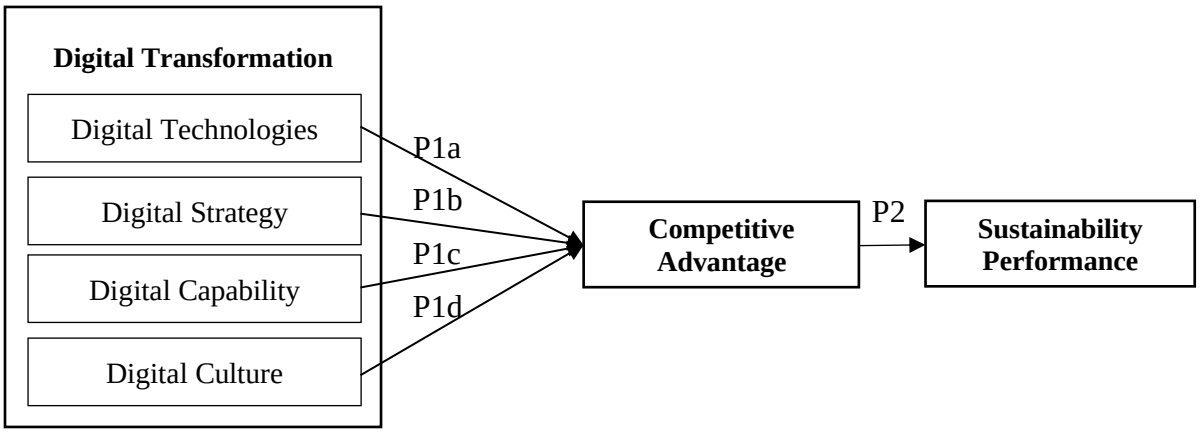

Figure 1: Conceptual Framework among digital transformation, competitive advantage and sustainability performance

Propositions

Digital Transformation and Competitive Advantage

Digital transformation can impact several decisive factors of a company's competitive advantage. From the perspective of technological accumulation, the technological accumulation brought about by digital transformation is an important source of a company's core competitiveness and has a significant impact on its competitive advantage (Guo et al., 2024). When undertaking international outsourcing, companies can build their knowledge system by introducing and learning advanced technologies, ultimately building their core competitiveness through technological accumulation (Dąbrowska et al., 2022). From the perspective of optimizing employee structure or upgrading human capital, the sophistication of employee structure is the foundation for enhancing a company's competitiveness (Chatterjee, 2017). Accumulation of human capital is an important means for companies to maintain their competitiveness under the conditions of the digital economy (Teixeira & Queirós, 2016). When facing management constraints, companies tend to increase specific human capital inputs to maintain their competitiveness (Sima et al., 2020). From the perspective of cost savings, digital transformation can enhance the competitiveness of product exports by reducing various costs incurred in the production, operation, and transportation processes of enterprises(Heilig et al., 2017). Several scholars have identified the impact paths of competitive advantage from the perspectives of contract costs, transportation costs, and transaction costs (Leonidou et al., 2017; Llopis-Albert et al., 2021; Matarazzo et al., 2021). From the perspective of efficiency improvement, optimizing the

business environment can improve market efficiency, thereby enhancing a company's competitiveness(Chiarini et al., 2020). Production efficiency and research and development efficiency are important influencing factors of a company's competitive advantage(Bashar et al., 2024). Robots themselves imply high efficiency and can also enhance the competitiveness of the manufacturing industry by empowering the integration of advanced manufacturing and modern service industries(Javaid et al., 2021).

Based on the discussion, the proposition below is proposed:

Proposition 1: Digital transformation has a positive impact on competitive advantage..

Digital Technologies and Competitive Advantage

Research has found that data-driven approaches have a positive impact on various aspects of enterprise competitive advantage, financial outcomes, and capital performance. Firstly, digitalization can directly influence a company's competitive advantage by reducing operational costs, improving efficiency, and expanding global markets (J. B. Barney, 2000). Secondly, digitalization can indirectly affect a company's competitive advantage by facilitating innovation (Distanont & Khongmalai, 2018), learning (Y. Y. Lee & Falahat, 2019), and marketing activities. Additionally, the application of digital technology can help companies reduce internal management costs and enhance management and execution efficiency(Haseeb et al., 2019). Digital transformation enables timely and effective communication and sharing of information within the company, optimizing collaboration and coordination in the value chain activities, reducing coordination costs in production and operation processes, and thereby improving decision-making efficiency in enterprise management (Awan et al., 2021; Saeidi et al., 2019).
Based on the discussion, the proposition below is proposed:
Proposition 1a: Digital technology has a positive impact on competitive advantage.

Digital Strategy and Competitive Advantage

Digital strategy plays a vital role in today's digital economy, redefining the concept of competitive advantage and how it is achieved (Gobble, 2018a). First, a digital strategy can help companies re-examine their competitive advantage drivers in the digital age to achieve better performance (Distanont & Khongmalai, 2018). Competitive advantage in the digital age comes not only from the application of technology, but also from the redefinition and execution of corporate strategy. A digital strategy can help businesses discover new sources of competitive advantage and achieve sustained competitive advantage through flexible strategic alignment (Koch & Windsperger, 2017). Secondly, the competitive advantage in the digital age is also closely related to the information system and technology strategy of the enterprise. By establishing an effective digital strategy, businesses can make better use of information systems and technology to create a competitive advantage. This includes the importance of strategic management and the critical role of information systems and technology in enhancing the competitiveness of enterprises (Mithas et al., 2013). In addition, digitalization has an important impact on companies gaining a competitive advantage in international markets. Digital platforms make it easier for companies to promote their products and services, reduce costs and save time. Digitalization, as one of the determinants of competitive advantage, also has a significant impact on the competitive position of small and medium-sized enterprises (Cassiman et al., 2022).

Based on the discussion, the proposition below is proposed:

Proposition 1b: Digital strategy has a positive impact on competitive advantage.

Digital Capability and Competitive Advantage

Stakeholder theory posits that various stakeholders contribute to a business's competitive advantage from the beginning by providing resources and advanced combinations of those resources, such as capabilities. The value of these capabilities, which include technological expertise, marketing skills, and different forms of tacit knowledge, is determined by their potential to generate economic returns (Ketokivi & Mahoney, 2016). Digital capabilities are particularly crucial in the digital transformation of businesses, enabling them to develop and sustain the necessary digital competencies to achieve a competitive edge (Sousa-Zomer et al., 2020). Moreover, digital capabilities significantly influence a company's innovation performance. For instance, within the context of digital platforms, strong digital leadership can positively affect innovation outcomes (Benitez et al., 2022). Additionally, digital capabilities impact overall firm performance by enhancing technical capabilities, especially in the "new normal," where their mediating role in firm performance has been thoroughly examined and elucidated (Shan et al., 2019).

Based on the discussion, the proposition below is proposed:

Proposition 1c: Digital capability has a positive impact on enterprise competitive advantage.

Digital Culture and Competitive Advantage

Digital culture plays a crucial role in shaping a firm's competitive advantage in the digital age. Studies have shown that instilling a digital culture within an organization is essential for achieving sustainable competitive advantages and staying ahead of the competition (Martínez-Caro et al., 2020). A strong digital culture supports the adoption of digital technologies and processes, which in turn can lead to improved firm performance and competitive positioning (Proksch et al., 2024).Furthermore, research suggests that digital culture is not only a key component of an organizational culture but also a source of competitive advantage for companies operating in the information economy (Erlany et al., 2023). By fostering a digital culture that embraces innovation, knowledge sharing, and organizational transformation, companies can expand their competitive advantage and drive organizational success (Khin & Ho, 2018)

Based on the discussion, the proposition below is proposed:

Proposition 1d: Digital culture has a positive impact on enterprise competitive advantage.

Competitive Advantage and Sustainability Performance

Competitive advantage plays a pivotal role in driving sustainability performance across various dimensions. Barney (2000) posits in the resource-based view (RBV) that valuable, rare, inimitable, and non-substitutable (VRIN) resources are crucial for maintaining a competitive edge. Bhandari et al. (2022)extend this theory by emphasizing the importance of integrating Environmental, Social, and Governance factors into a firm's resource base, suggesting that ESG-friendly resources

are essential for achieving sustainable competitive advantage. Similarly, Hart (2011) highlights that a natural resource-based view contributes to competitive advantage through environmentally sound strategies, which in turn enhance sustainability outcomes. Eccles et al. (2014) further demonstrate that firms integrating digital transformation with Corporate Social Responsibility (CSR) initiatives not only improve operational efficiency but also significantly enhance their sustainability performance.

Based on the discussion, the proposition below is proposed:

Proposition 2: Competitive Advantage has a positive impact on Sustainability Performance.

Competitive Advantage between Digital Transformation and Sustainability Performance

As China's economy transitions from high-speed growth to high-quality development, enterprises face the practical need to assume more social responsibilities. Digital transformation, by empowering productivity and enhancing innovation capabilities, can efficiently meet the development needs of enterprises and promote better fulfillment of corporate social responsibilities(K. Wu & Lu, 2023). Firstly, from the perspective of fulfilling social responsibilities, digital transformation helps enhance the willingness of enterprises to fulfill their responsibilities (Coelho et al., 2023). Stakeholder theory suggests that enterprises are composed of different stakeholders who "bind" together, and while enterprises acquire economic resources, they need to return benefits to stakeholders, becoming platforms for multi-party collaboration and sharing (MacDonald et al., 2022). Especially for consumers, the application of digital technology helps reduce information asymmetry (Niemand et al., 2021), enhance the level of enterprise operation and financial management (Rejeb et al., 2020), demonstrate transparency in social activities, encourage enterprises to pay more attention to user needs, and strengthen customer-centric values (Qiao et al., 2024; Rabby et al., 2022). At the same time, through the establishment of brand communities and interaction with community leaders, consumer identification with brand values and corporate philosophies is strengthened(S. Y. Lee et al., 2021). A positive corporate image is conducive to consumer acceptance of its products and services(Abid et al., 2020), enhancing their willingness to purchase , and this positive feedback will further motivate enterprises to fulfill their social responsibilities (Baskentli et al., 2019). Secondly, the convenience and comprehensiveness brought about by digital transformation enable enterprises to have stronger competitiveness, attract high-quality resources, provide more business opportunities for enterprises, and help them establish competitive advantages, then improve sustainability performance(Y. Wu et al., 2023).

Based on the discussion, the proposition below is proposed:

Proposition 3: Competitive Advantage mediates the relationship between Digital Transformation and enterprise Sustainability Performance.

Competitive Advantage between Digital Technologies and Sustainability Performance

Digital technology can enhance enterprise performance, primarily manifested in the following aspects. Firstly, digital technology empowers the intelligent transformation and development of existing products or services (Cenamor et al., 2019), enabling efficient integration and allocation of existing resources (Dubey et al., 2019), thus providing momentum for improving product development and production efficiency. Secondly, digital technology enables enterprises to break through temporal boundaries (Sung, 2018), effectively collecting vast amounts of product and

market information, and achieving product optimization and more accurate demand forecasting through real-time interaction with customers (Dalenogare et al., 2018), in response to dynamic market changes. Thirdly, digital technology helps optimize enterprise operations, shortening product development cycles, and accelerating innovation while improving production efficiency (Mubarak & Petraite, 2020). Lastly, the use of digital technology reduces information and communication costs, replacing labor costs with artificial intelligence or remote work (Fossen & Sorgner, 2021), enhancing the flexibility and agility of work, significantly reducing costs, and greatly increasing business efficiency, thereby enhancing enterprise sustainability performance.
Based on the discussion, the proposition below is proposed:

Proposition 3a: Competitive Advantage mediates the relationship between Digital Technology and enterprise Sustainability Performance.

Competitive Advantage between Digital Strategy and Sustainability Performance

The strategic positioning of an enterprise significantly influences its performance (Hernández-Linares et al., 2021). Companies that implement digital strategies often display specific performance characteristics. Firstly, businesses that prioritize digital strategies are more likely to integrate digital technologies across all aspects of their operations (Verhoef et al., 2021), linking previously unrelated product areas through these technologies (Henfridsson et al., 2018). tThis integration leads to the creation of new product combinations and expands profit sources. Secondly, adopting digital strategies enables companies to manage scarce resources, such as new skills and knowledge, more effectively (Nambisan, 2017; Nambisan et al., 2019). This management improves internal processes (Sebastian et al., 2020), drives innovation in products or services, and positively influences the company's sustainability performance. Lastly, companies pursuing digital strategies often exhibit a high tolerance for risk and an openness to change (Proksch et al., 2024), which aids in exploring potential digital opportunities and enhances their innovation capabilities.
Based on the discussion, the proposition below is proposed:

Proposition 3b: Competitive Advantage mediates the relationship between Digital Strategy and enterprise Sustainability Performance.

Competitive Advantage between Digital Capability and Sustainability Performance

The full utilization and management of digital capabilities contribute to integrating and leveraging digital technologies to accelerate enterprise performance improvement (Khin & Ho, 2018). On one hand, digital capabilities support information exchange and electronic interconnection within the enterprise and with its partners (Zhu et al., 2015), prompting the integration and effective restructuring of internal and external data (Jun et al., 2021), thereby providing support for improving enterprise management and decision-making efficiency based on data operations; on the other hand, digital capabilities support the management of skills, talent, and professional knowledge related to digital technologies within the enterprise (Nambisan et al., 2019), which can be flexibly adjusted according to different fields and specific needs, emphasizing the use of underutilized resources to explore new potential demands, thereby achieving new product combinations and breakthroughs(Joensuu-Salo & Matalamäki, 2023).
Based on the discussion, the proposition below is proposed:

Proposition 3c: Competitive Advantage mediates the relationship between Digital Capabilities and enterprise Sustainability Performance.

Competitive Advantage between Digital Culture and Sustainability Performance

Ei Sawy et al. (2020) pointed out that a digital culture within companies facilitates the full exploration of digital potential, seeking new opportunities for performance improvement. On one hand, digital culture fosters the sharing of digital strategic visions among organizational participants(Martínez-Caro et al., 2020), guiding the fundamental values and beliefs of the organization, helping to coordinate organizational interests, and improve strategic execution processes (Niemand et al., 2021), facilitating organizational flattening and decentralized decision-making, and providing space for innovation(Fok et al., 2022). On the other hand, digital culture encourages companies to be more inclusive in response to behavioral changes resulting from the use of digital technologies (Sawy et al., 2020), including flexible and agile working styles, and skills that allow for adaptation to failure (Nylén & Holmström, 2015), motivating companies to explore new combinations of existing resources or develop new products/services, thereby enhancing business sustainability performance.

Based on the discussion, the proposition below is proposed:

Proposition 3d: Competitive Advantage mediates the relationship between Digital Culture and enterprise Sustainability Performance.

Conclusion

This paper proposes a conceptual framework exploring the impact of digital transformation on sustainability performance, with competitive advantage as a mediating factor. From the Resource-Based View, digital technology, digital strategy, digital capability, and digital culture are identified as critical dimensions that influence enterprise sustainability performance. Competitive advantage mediates the relationship between these digital transformation dimensions and sustainability performance, enhancing resource utilization, fostering innovation, and improving overall business efficiency. This study fills a gap in the literature by integrating these aspects into a comprehensive model, offering valuable insights for policymakers, businesses, and scholars aiming to promote sustainable development in the digital era. Future empirical research is necessary to validate these propositions and examine the framework's applicability across different contexts.

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