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Article

Decoding digital complexity: Reconciling the sustainability innovation dichotomy in tourism competition through share value relational capital frameworks

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Abstract: This pioneering study presents a comprehensive examination of the intricate interrelationships between digital transformation, sustainable supply chain strategy (SSCS), share value relational capital (SVRC), frugal innovation (FI), ambidexterity (AMB), and sustainable competitive advantage (SCA) within contemporary tourism organizations. Employing a structural equation modeling approach, the research investigates the causal relationships among these constructs across Indonesia's primary tourism destinations. The study reveals distinct strategic pathways through which organizations can enhance their sustainable competitive positioning, with share value relational capital emerging as a critical mediating mechanism. The findings underscore the importance of digital transformation and sustainable supply chain strategies in cultivating strong stakeholder relationships, which in turn facilitate the development of frugal innovation capabilities and ambidextrous practices, ultimately contributing to sustainable competitive advantage. The research offers valuable theoretical and managerial implications, extending the application of the resource-based view and the technology-organization-environment framework to the tourism industry. However, the study's limitations, such as its focus on the Indonesian context and the cross-sectional nature of the data, present opportunities for future research to further expand and refine the understanding of these complex phenomena. By addressing these limitations and exploring new research directions, scholars can continue to advance knowledge of these critical issues and provide valuable insights for tourism organizations seeking to enhance their competitive position in an increasingly dynamic and challenging market environment.

Keywords: digital transformation; frugal innovation; organizational ambidexterity; share value relational capital; sustainable competitive advantage; sustainable supply chain strategy

1. Introduction

In contemporary times, the rapid pace of globalization coupled with technological advancements has fundamentally transformed the global ecosystem, heightening the imperative for environmental preservation. The escalating unsustainability has intensified the utilization of natural resources, compelling industries worldwide to adopt more strategic approaches. Contemporary global enterprises are increasingly implementing sustainable strategies to achieve long-term environmental objectives [1], with particular emphasis on the tourism industry [2]. Tourism serves as a crucial sector in enhancing and preserving natural environments [3]. The growing emphasis on sustainability has necessitated tourism enterprises to align with environmental standards. The implementation of sustainable supply chains

facilitates the adoption of environmentally conscious business strategies [4], contributing to the preservation of natural landscapes. Industrial expansion has prompted tourism organizations to minimize waste through the implementation of sustainability initiatives [5,6]. Research by Manavalan et al. [7] indicates that current supply chain strategies have proven insufficient in mitigating environmental degradation's adverse effects on ecological systems. Consequently, environmental advocates strongly encourage tourism enterprises to pursue innovation, optimization, and growth through the adoption of sustainable supply chain strategies (SSCS).

This emerging paradigm consistently motivates organizations to incorporate innovative technologies addressing operational challenges within the tourism sector [8]. The digitalization of supply chains enables organizations to streamline operations through sustainable methodologies, commonly referred to as Sustainable Supply Chain Practices (SSCP). Within the tourism industry, these practices facilitate digital innovation in transforming business operations [9]. As digital transformation permeates global industries and communities, hospitality enterprises are increasingly adopting innovative technological solutions to revolutionize their service delivery, operational efficiency, and organizational performance metrics. This accelerated technological integration facilitates the development of sustainable competitive advantages.

The digital evolution has amplified focus on sustainability initiatives through enhanced operational processes, ultimately fostering sustainable competitive advantage (SCA) [9]. Contemporary hospitality organizations face significant challenges stemming from incongruencies between information technology operations and strategic business objectives, necessitating comprehensive digital transformation across operational domains [10,11]. This research presents novel insights into the hospitality sector's strategic challenges while emphasizing the critical role of digital technology implementation in achieving sustainable competitive advantages. The findings demonstrate how Information and Communication Technology (ICT) developments enhance organizational digital transformation initiatives.

This research makes a unique contribution by synthesizing digital transformation (DT) competencies within the broader context of global industry operations, providing valuable insights for strategic implementation across diverse sectors. Organizational evolution demands fundamental modifications in operational and managerial frameworks. Contemporary research demonstrates that traditional innovation paradigms, which typically assume abundant organizational resources, may not effectively align with the inherent characteristics and constraints of Small and Medium Enterprises (SMEs) [12]. This misalignment frequently results in innovation initiatives generating suboptimal returns relative to resource investments [13].

The correlation between innovation and economic growth has been extensively examined, particularly in transitioning economies such as Vietnam, where capital resources and physical assets significantly influence organizational development trajectories. Empirical evidence indicates that underperforming enterprises frequently demonstrate disproportionate dependence on tangible assets [14]. The Mindsponge conceptual framework, introduced by Vuong and Napier, proposes a comprehensive mechanism elucidating individuals' capacity to assimilate novel cultural values and ideologies while adapting to multidimensional environments [15]. Individuals

demonstrating enhanced observational and adaptive capabilities often achieve superior outcomes through objective engagement with global environments and innovative concepts [15].

Frugal innovation presents a distinctive paradigm in entrepreneurial orientation, emphasizing sustainable capacity building and organizational independence [13]. The synergistic relationship between frugal innovation and resilient SMEs manifests through efficient product development aligned with market requirements, fostering environmental adaptability and dynamic capabilities. This strategic approach enables SMEs to optimize operational costs and accelerate development processes, enhancing their adaptive capacity in challenging environments [16,17].

From a dynamic capabilities perspective, organizational learning functions as a fundamental mechanism for developing and sustaining organizational performance [18]. The intersection of digital transformation and innovation produces outcomes through environmental interaction, responding to emerging challenges and evolving requirements [19]. Long-term operational and strategic success predominantly depends on effective organizational learning, serving as a critical interface between enterprise operations and environmental dynamics.

In the contemporary tourism sector, organizations exhibit distinct characteristics while maintaining operational coherence. A fundamental challenge for tourism enterprises lies in optimal resource allocation, particularly concerning the strategic balance between exploration and exploitation activities. This dual focus requires careful consideration of internal resource utilization while pursuing external opportunities within the competitive landscape. Tourism organizations must effectively manage the interplay between combined and balanced dimensions of strategic activities. For instance, hotels and tourism service providers often need to balance immediate operational efficiency (exploitation) with long-term innovation initiatives (exploration). This strategic duality enables tourism enterprises to sequence their activities strategically, potentially focusing on short-term service optimization before transitioning to exploratory market development activities.

When implementing these dual approaches, tourism organizations must consider their unique characteristics, including resource constraints and competitive market positioning [20]. This is particularly crucial in the tourism sector, where market dynamics and customer preferences evolve rapidly. While extensive research exists regarding digital solutions in tourism, literature examining the relationship between digital business transformation and organizational resilience in developing tourism markets remains limited. This gap presents a critical opportunity for quantitative and empirical research investigating the impact of digital transformation on tourism enterprise resilience [21].

The continuous need for empirical research examining the role of innovation, ambidexterity, and digital transformation in enhancing tourism organization resilience becomes increasingly apparent. Utilizing resource-based theory, this analysis introduces the concept of shared value relational capital, which mediates the relationship between digital business transformation and tourism enterprise resilience. Furthermore, socio-technical systems theory, derived from resource-based theory, provides a framework for understanding digital business transformation in tourism contexts. This theoretical foundation also supports the concept of ambidexterity,

manifesting in both social media utilization and innovation implementation within tourism organizations.

The competitive advantage in tourism increasingly depends on organizations' ability to balance traditional hospitality excellence with digital innovation. This balance requires tourism enterprises to develop dynamic capabilities that enable them to adapt to changing market conditions while maintaining operational efficiency. The integration of digital transformation initiatives with core tourism services creates unique value propositions that enhance competitive positioning in the global tourism market. This strategic approach enables tourism organizations to develop sustainable competitive advantages through the effective combination of digital capabilities, traditional hospitality excellence, and innovative service delivery models, ultimately enhancing their market resilience and long-term sustainability.

Contemporary tourism organizations demonstrate distinctive operational characteristics while maintaining strategic coherence in their service delivery and market positioning. A critical consideration in the tourism sector involves the strategic allocation of resources, particularly in developing sustainable competitive advantages through digital transformation initiatives [20]. This strategic paradigm manifests through the concurrent pursuit of exploratory and exploitative dimensions, necessitating meticulous balance between optimization of existing capabilities and identification of emerging opportunities in the tourism marketplace [21].

The synthesis of complementary strategic dimensions enables tourism organizations to implement sophisticated initiatives sequentially, frequently initiating with the refinement of established competitive advantages before progressing to exploratory activities aimed at cultivating novel sources of market differentiation [22]. This strategic orchestration holds particular significance in the tourism sector, where organizations must develop distinctive competencies while acknowledging resource constraints and industry-specific competitive dynamics [23].

Notwithstanding extensive research examining digital solutions, the scholarly literature investigating the relationship between digital business transformation and competitive advantage in emerging tourism markets remains insufficiently developed, presenting opportunities for rigorous quantitative and empirical investigations [16]. This academic gap underscores the imperative for expanded research examining the interrelationship between innovation, organizational ambidexterity, and digital transformation in enhancing tourism competitive advantage [17].

The resource-based theoretical framework provides a robust foundation for analyzing how shared value relational capital mediates between digital business transformation and sustainable competitive advantage in tourism enterprises [13]. Furthermore, socio-technical systems theory offers a comprehensive framework for examining digital business transformation and organizational ambidexterity in tourism contexts, encompassing both technological integration and innovative capabilities [14]. The Indonesian tourism sector faces significant challenges in digital transformation and competitive advantage development, particularly evident in destinations like Bali and Yogyakarta. Research indicates that Indonesian tourism enterprises struggle with technological integration despite government initiatives supporting digital adoption [24].

A study of Bali's hospitality sector revealed that only 35% of tourism businesses

effectively implement digital strategies for competitive advantage [25]. Furthermore, analysis of Java's tourism corridor demonstrated challenges in balancing traditional cultural preservation with digital innovation requirements [26], highlighting the need for context-specific digital transformation frameworks in Indonesian tourism development. Despite growing interest in digital transformation and technological solutions within the tourism sector, the integration of sustainable competitive advantage through shared value relational capital remains relatively unexplored in both academic research and industry practice. While existing studies demonstrate the relationship between digital transformation and competitive advantage in tourism, the combined effects of innovation capabilities and organizational ambidexterity in enhancing sustainable competitive advantage through shared value relational capital have not been comprehensively examined in the Indonesian tourism context.

Previous research indicating the positive impact of digital transformation on tourism competitiveness provides a foundation, yet the specific mechanisms driving sustainable competitive advantage in Indonesia's diverse tourism landscape remain insufficiently analyzed. This study addresses this theoretical gap by developing an integrated framework examining how Indonesian tourism enterprises can design and implement strategies to enhance sustainable competitive advantage in an increasingly digital marketplace. Specifically, this research explores two critical questions: How can Indonesian tourism organizations effectively initiate and implement digital transformation strategies to achieve sustainable competitive advantage? What key factors influence the development of competitive advantage in Indonesia's digitally evolving tourism sector? To address these questions, this study examines the mediating role of shared value relational capital between digital transformation initiatives and sustainable competitive advantage, moderated by innovation capabilities and organizational ambidexterity.

Using a quantitative research design, this study investigates the causal relationships between digital business transformation, shared value relational capital, and sustainable competitive advantage across Indonesia's primary tourism destinations. The research model will be tested on tourism enterprises throughout Indonesia's major destinations, including Bali, Jakarta, and Yogyakarta, providing comprehensive insights into the dynamics of digital transformation and competitive advantage in Indonesian tourism.

2. Literature review and hypothesis

This research addresses the need for diverse theory-driven studies in examining digital transformation models within the context of supply chain management systems in the hospitality and tourism industry. Based on a comprehensive analysis of the theoretical background in hospitality and tourism supply chains, this study integrates a unique framework series demonstrating theories that can be utilized independently or combined with other digital transformation studies.

Given the promise of digital technology implementation in the sustainable development era, this research incorporates the technology-organization-environment (TOE) and resource-based view (RBV) models as theoretical frameworks to achieve significant outcomes. The TOE framework delineates the technology adoption process

of companies to ensure technological innovation implementation within the environmental context [27]. The TOE model, examined by numerous researchers, focuses on evaluating technology adaptation concerning changing market conditions. This model enhances business processes, human resource capabilities, and organizational competencies.

The TOE framework enables companies to align with sustainable strategies [28]. This model provides a broader perspective of companies' sustainable plans and objectives while helping organizations achieve long-term competitive advantage within the environmental context. Additionally, it encourages organizations to obtain greater business benefits by leveraging competitors' technological competencies and status.

The RBV theory explains that companies can gain competitive advantage based on their unique and inimitable resources, skills, and capabilities [10,29]. Treiblmaier [30] suggests that RBV theory enables organizations to acquire technology as an organizational resource to achieve sustainable competitive advantage. Furthermore, Martinez et al. [31] state that the effects related to RBV enable organizations to achieve competitive capabilities. All these models serve as the motivation behind adoption and sustainable competitive advantage.

The organizational transformation process requires careful consideration of various internal and external factors that influence successful implementation. Companies must assess their readiness levels, available resources, and potential barriers before embarking on technological adoption initiatives. This strategic approach ensures that organizations can effectively leverage their capabilities while maintaining alignment with industry standards and market demands. Empirical studies have illustrated the moderately positive influence of human capital, relational capital, and team dynamics on organizational performance outcomes [32]. Within family-owned enterprises, these capital elements demonstrate a modest yet positive association with financial metrics [23]. Scholarly investigations have thoroughly explored both the direct and indirect ramifications of social capital on fiscal performance indicators [33], illuminating how distinct network development trajectories necessitate diverse contributions through strategic mobilization and entrepreneurial initiatives.

The influence of relational capital extends to consumer perception of product value, particularly within the context of corporate network transactions [23,33,34]. The intricate interrelationship between financial performance, stakeholder satisfaction, and long-term strategic orientation materializes through multifaceted business approaches. (SMEs) manifest this relational capital through systematic learning initiatives designed to enhance export capabilities and foster international buyer-supplier relationships.

Contemporary organizational paradigms integrate human and managerial competencies within cultural and rational frameworks. While technological infrastructure serves designated objectives, relational frameworks operate as social capital enhancers, augmenting individual satisfaction metrics and subsequently elevating organizational performance [35]. The significant impact of relational capital on financial outcomes and export proficiency demonstrates robust correlations between performance satisfaction and strategic alignment.

Organizational value co-creation emerges through multilevel opportunity planning, enhancing market comprehension and product development. This strategic approach provides sustainable trajectories for developing productive capabilities. The intersection of geographical positioning and business strategies with corporate social imperatives manifests in enhanced shareholder value, aligning market conditions with growth trajectories and profitability metrics.

An organization's capacity to cultivate favorable socioeconomic environments represents its reproductive capability. This paradigm facilitates enabling ecosystems and optimizes resource allocation, particularly in employee-supplier relationship domains. The creation of shared value catalyzes the development of critical factors within supplier communities and temporal frameworks, while institutional infrastructure enhances productivity paradigms.

The synthesis of resource-based theory and knowledge transfer intelligence frameworks has yielded the innovative concept of "shared value relational capital." This theoretical construct delineates organizational capacity to effectively leverage technology for knowledge acquisition and skill development, subsequently integrated into policy frameworks and operational protocols to enhance competitive advantage and socioeconomic conditions.

The symbiotic relationship between relational capital and organizational dynamics exemplifies the intricate nature of contemporary business ecosystems. Organizations must strategically navigate these interconnections while maintaining equilibrium between financial imperatives and social objectives. This integrated framework provides a comprehensive paradigm for sustainable organizational development and stakeholder value creation.

This scholarly synthesis maintains methodological rigor while emphasizing the interconnected nature of relational capital, organizational performance, and value creation dynamics. The integration of diverse theoretical perspectives offers a comprehensive understanding of how organizations can strategically leverage share value relational capital for sustained competitive advantage in contemporary business environments.

2.1. Digital Transformation (DT), share value relational capital (SVRC) and sustainable competitive adventage (SCA)

Contemporary empirical investigations have revealed sophisticated methodologies for understanding and adapting to business environments characterized by inherent complexities and market volatility [36]. This evolutionary trajectory has catalyzed the advancement of organizational capabilities that exhibit adaptive responsiveness to business ecosystem transformations in an increasingly digital landscape [37]. The seamless integration of dynamic capabilities with organizational resources through sophisticated digitization processes has emerged as a critical imperative for orchestrating multifaceted business communications, fostering collaborative initiatives, refining strategic formulation, achieving operational excellence, and facilitating structured cultural evolution. As digitalization permeates global industries and societies, hospitality organizations increasingly leverage innovative technologies as strategic catalysts for transforming service delivery

paradigms, enhancing operational efficiency, and optimizing organizational performance metrics. This digital metamorphosis engenders sustainable competitive advantage through sophisticated operational capabilities and heightened market responsiveness. The TOE framework articulates comprehensive organizational technology adoption processes, ensuring seamless implementation of technological innovation within dynamic environmental contexts [27].

Contemporary scholarly discourse has substantiated the sophisticated characteristics of digital technology in maintaining operational continuity and enhancing decision-making processes, thereby fostering organizational resilience during periods of market turbulence [20,38,39]. Organizations confront the philosophical imperative of satisfying increasingly sophisticated societal expectations through digital innovation initiatives. Entities lacking requisite digital competencies demonstrate diminished capacity to absorb and engage with evolving societal demands, potentially compromising their long-term sustainability during periods of environmental uncertainty. Digital transformation initiatives have empowered organizations to navigate emergent risks and opportunities while effectively mitigating environmental disruptions [40]. This digital evolution augments strategic focus on sustainability domains through sophisticated operational process enhancement, generating sustainable competitive advantages through advanced technological capabilities [41].

Digital solutions manifest through sophisticated relational capital frameworks, conceptually aligned with enhanced customer capital paradigms, defined through knowledge embedded within intricate stakeholder relationship networks. Organizations cultivating robust digitally enabled customer relationships demonstrate superior capabilities for strategic business expansion and service innovation, thereby facilitating sustainable competitive advantages within complex hospitality value chains [23].

The sophisticated synthesis of digital capabilities and relational capital establishes a comprehensive framework for organizational adaptation and strategic growth trajectories. This integrated paradigm underscores the fundamental significance of technological infrastructure in sustaining complex stakeholder relationships while enabling sophisticated response mechanisms to environmental perturbations. Organizations successfully implementing comprehensive digital transformation initiatives while maintaining robust relational capital frameworks demonstrate enhanced organizational resilience and superior competitive positioning within their respective market environments.

The intricate symbiotic relationship between digital capabilities and stakeholder engagement necessitates sophisticated organizational equilibrium between technological advancement paradigms and relationship management frameworks. This delicate balance requires strategic resource allocation mechanisms and systematic consideration of diverse stakeholder requirements throughout the digital transformation process. The resultant organizational architecture facilitates sustained competitive advantage through enhanced stakeholder relationship networks and optimized operational efficiency metrics.

The intensifying market competition within the contemporary hospitality industry has catalyzed management interest in achieving sustainable competitive

advantages through sophisticated digital transformation initiatives [7]. The seamless integration of dynamic capabilities through digital transformation strengthens organizational resilience by enhancing stakeholder relationship networks and adaptive capacity during periods of environmental uncertainty. Furthermore, the synergistic interaction between relational capital frameworks and digital transformation capabilities generates multiplicative effects on organizational performance through enhanced stakeholder engagement mechanisms and sophisticated value co-creation initiatives. Organizations implementing sophisticated digital transformation initiatives demonstrate enhanced capabilities in developing and maintaining intricate stakeholder relationships through comprehensive technological integration frameworks. The strategic adoption of advanced digital technologies facilitates the development of unique organizational capabilities that support sophisticated relationship-building and value-creation paradigms within the hospitality sector. Hospitality organizations demonstrating robust share value relational capital exhibit superior capabilities in maintaining sustainable competitive advantages through sophisticated digitally enabled stakeholder engagement mechanisms. The development of technologically enhanced relational capital frameworks contributes significantly to organizational resilience and adaptive capabilities within dynamic market environments. Comprehensive digital transformation initiatives enhance organizational capacity for sophisticated value creation through optimized stakeholder relationships and advanced technological capabilities. Share value relational capital serves as a critical mediating mechanism through which sophisticated digital transformation initiatives translate into sustainable competitive advantages within hospitality organizations.

H1: Digital transformation (DT) positively influences share value relational capital (SVRC) in hospitality organizations.

H3: Share value relational capital (SVRC) positively influences sustainable competitive advantage (SCA) in hospitality organizations.

H8: Share value relational capital (SVRC) mediates the relationship between digital transformation and sustainable competitive advantage (SCA) in hospitality organizations.

2.2. Sustainable supply chain strategy (SSCS), share value relational capital (SVRC) and sustainable competitive advantage (SCA)

The unprecedented acceleration of industrial development has precipitated substantial environmental challenges, compelling global organizations to systematically integrate sustainability initiatives within their operational frameworks. This fundamental paradigm shift has particularly influenced the tourism sector, where environmental stewardship has emerged as a critical determinant of competitive advantage maintenance. The progressive degradation of natural environments has necessitated the adoption of comprehensive sustainable approaches within organizational activities, thereby facilitating the achievement of competitive advantages through enhanced ecological consciousness and responsible resource management [7]. The emergence and evolution of sustainable supply chain strategies (SSCS) represent a transformative paradigm in organizational thinking, particularly within the dynamic context of the tourism sector. These strategic frameworks serve as

essential catalysts for addressing mounting ecological challenges while simultaneously optimizing operational efficiency and stakeholder value creation. The systematic implementation of SSCS enables organizations to proactively adapt to increasingly dynamic business environments, thereby securing sustainable competitive benefits and enhanced market positioning [42]. Within the specific context of tourism operations, SSCS has demonstrated particular significance in achieving distinctive competitive advantages, as organizations increasingly recalibrate their strategic initiatives to address evolving environmental consumer demands and regulatory requirements [43].

Contemporary business ecosystems demand increasingly sophisticated approaches to stakeholder relationship management and sustainable value creation. The integration of sustainable practices within supply chain operations provides organizations with unique opportunities to develop and maintain valuable stakeholder relationships through enhanced transparency, collaboration, and shared value creation. These multifaceted relationships, when effectively managed and nurtured, contribute substantially to the development of distinctive organizational capabilities that support long-term competitive advantage achievement and market differentiation [44]. The comprehensive synthesis of capability and innovation theory suggests that these fundamental aspects provide critical support for organizational resilience during periods of environmental turbulence and market uncertainty [45,46]. Proactive digital transformation initiatives have demonstrated significant capacity to empower organizations, enabling systematic adaptation to emergent risks while minimizing the impact of external disruptions on operational continuity [40]. Within the specialized context of the tourism sector, sophisticated digital solutions play an increasingly essential role in enhancing resource collaboration efficiency and fostering robust social coordination mechanisms for regenerative recovery and sustainable growth.

The conceptual framework of share value relational capital (SVRC) emerges as a critical mediating factor between sustainable strategies and competitive advantage achievement [23]. SVRC encompasses the distinctive capabilities that differentiate organizations through unique patterns of interaction and collaborative relationship development. The systematic integration of trust-building mechanisms and collaborative frameworks serves as complementary elements in realizing the full potential of relational capital, particularly within the tourism sector's complex and interconnected stakeholder networks.

Empirical research has consistently confirmed that organizational survival during periods of crisis and the capacity to effectively address unforeseen uncertainties increasingly depend on the sophisticated utilization of digital technologies and sustainable strategic initiatives [45,47]. Advanced online platforms have become indispensable infrastructure for maintaining valuable communication channels, supporting complex business relationships, and facilitating comprehensive stakeholder collaboration. This robust digital infrastructure enables tourism organizations to successfully navigate challenging market conditions while maintaining the collaborative attitudes essential for long-term survival and sustainable growth.

The multifaceted relationship between SSCS and SVRC manifests through the systematic enhancement of stakeholder relationships and the creation of sustainable

shared value. Organizations implementing comprehensive sustainable supply chain strategies demonstrate significantly increased capacity for developing and maintaining valuable stakeholder relationships across diverse operational contexts. This sophisticated relationship-building process contributes substantially to the development of unique organizational capabilities that support sustainable competitive advantage achievement and market differentiation.

The integration of sustainable practices within tourism organizations necessitates careful and systematic consideration of diverse stakeholder needs and expectations. Organizations must develop increasingly sophisticated approaches to balancing environmental stewardship with stakeholder value creation across multiple operational dimensions. This complex balance requires strategic allocation of limited resources and systematic consideration of stakeholder requirements throughout the sustainable supply chain strategy implementation process. The symbiotic relationship between sustainable practices and stakeholder engagement suggests that organizations must maintain a careful equilibrium between environmental consciousness and relationship management paradigms. This delicate equilibrium facilitates the development of robust organizational capabilities that simultaneously support environmental sustainability initiatives and competitive advantage achievement within dynamic market environments.

The theoretical framework emerging from this analysis suggests that the successful implementation of sustainable supply chain strategies requires systematic integration with sophisticated stakeholder relationship management practices. Organizations must develop comprehensive approaches to balancing environmental responsibilities with stakeholder value creation, while simultaneously maintaining operational efficiency and market competitiveness. This complex integration process necessitates careful consideration of diverse stakeholder needs and expectations throughout the strategy development and implementation phases. Organizations implementing comprehensive sustainable supply chain strategies demonstrate enhanced capability in developing and maintaining valuable stakeholder relationships. The integration of sustainable practices within supply chain operations facilitates the development of unique organizational capabilities that support relationship building and value creation. Tourism organizations with strong share value relational capital exhibit a superior ability to maintain competitive advantages through enhanced stakeholder engagement. The development of robust relational capital contributes to organizational resilience and adaptability in dynamic market environments. The implementation of sustainable supply chain strategies enhances organizational capacity for value creation through improved stakeholder relationships. Share value relational capital serves as a critical mechanism through which sustainable supply chain strategies translate into sustainable competitive advantages.

H2: Sustainable supply chain strategy (SSCS) positively influences share value relational capital (SVRC) in tourism organizations.

H9: Share value relational capital (SVRC) mediates the relationship between sustainable supply chain strategy (SSCS) and sustainable competitive advantage (SCA) in tourism organizations.

2.3. Share value relational capital (SVRC), frugal innovation (FI) and sustainable competitive adventage (SCA)

Within the evolving landscape of organizational management, scholarly investigations have unveiled innovation's pivotal role as a fundamental capability essential for enterprise sustainability, particularly amidst fluctuating market conditions and environmental uncertainties [35]. Contemporary business environments, marked by diminishing resource availability, heightened competitive pressures, and rapid technological advancement, have positioned innovation as a cornerstone of organizational longevity and market superiority. The hospitality sector, confronting unique operational challenges, requires nuanced approaches to resource management and stakeholder collaboration.

Within this context, organizational resilience emerges through strategic innovation deployment and adaptive capability development. Scholarly discourse emphasizes the criticality of dynamic organizational responses, encompassing both innovative methodologies and regulatory adaptations [48,49]. These adaptive mechanisms enable enterprises to navigate complex market dynamics while maintaining operational continuity. The emergence of resource-conscious innovation paradigms represents a strategic response to organizational challenges in dynamic market environments. Such methodological frameworks facilitate technological advancement and strategic implementation, particularly crucial during systemic disruptions like global health crises [20,47,50]. In hospitality contexts, these innovative approaches demonstrate substantial influence on organizational flexibility and adaptive capabilities.

Contemporary evidence substantiates that resource-conscious innovation frameworks enhance organizational sustainability through multifaceted mechanisms. These include strategic cost management initiatives, market presence enhancement, adaptive capability development, and resource optimization protocols. These elements collectively contribute to organizational resilience and market competitiveness. Relational capital emerges as a critical catalyst in fostering innovative practices within contemporary hospitality enterprises. The convergence of stakeholder relationship frameworks with innovative methodologies enables organizations to cultivate distinctive competitive advantages. This strategic integration enhances stakeholder engagement while optimizing resource allocation and innovative solution deployment.

The interdependent relationship between stakeholder capital and innovative practices generates amplified organizational outcomes through enhanced engagement protocols and resource management frameworks. Organizations exhibiting robust stakeholder relationships demonstrate superior innovative capabilities while maintaining strong market positioning. In response to intensifying market dynamics, hospitality enterprises increasingly pursue sustainable competitive advantages through innovative strategic initiatives [7]. The technology-organization-environment (TOE) framework provides a theoretical foundation for understanding technological adoption and innovation implementation within dynamic operational contexts [7].

Strategic stakeholder engagement necessitates a careful equilibrium between resource optimization and relationship management frameworks. This balance requires sophisticated resource allocation mechanisms and comprehensive stakeholder

consideration throughout innovation deployment processes. Organizations must develop integrated approaches to balance diverse stakeholder requirements with resource limitations while maintaining market competitiveness. The synthesis of stakeholder capital and innovative frameworks establishes comprehensive value creation mechanisms. Organizations successfully implementing innovative initiatives while maintaining robust stakeholder relationships demonstrate enhanced market differentiation capabilities. This integrated approach optimizes resource utilization while fostering stakeholder relationships and innovative capabilities.

The key difference in this version is the use of alternative academic terminology, restructured sentences, and new connecting phrases while maintaining the scholarly tone and theoretical integrity. The content flows naturally between concepts while using different expressions to convey the same theoretical relationships. Within the evolving landscape of organizational management, scholarly investigations have unveiled innovation's pivotal role as a fundamental capability essential for enterprise sustainability, particularly amidst fluctuating market conditions and environmental uncertainties [51]. Contemporary business environments, marked by diminishing resource availability, heightened competitive pressures, and rapid technological advancement, have positioned innovation as a cornerstone of organizational longevity and market superiority. The hospitality sector, confronting unique operational challenges, requires nuanced approaches to resource management and stakeholder collaboration.

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Strategic stakeholder engagement necessitates a careful equilibrium between resource optimization and relationship management frameworks. This balance requires sophisticated resource allocation mechanisms and comprehensive stakeholder consideration throughout innovation deployment processes. Organizations must develop integrated approaches to balance diverse stakeholder requirements with resource limitations while maintaining market competitiveness.

The synthesis of stakeholder capital and innovative frameworks establishes comprehensive value creation mechanisms. Organizations successfully implementing innovative initiatives while maintaining robust stakeholder relationships demonstrate enhanced market differentiation capabilities. This integrated approach optimizes resource utilization while fostering stakeholder relationships and innovative capabilities. The synthesis of stakeholder capital and innovative practices creates a sophisticated framework for understanding organizational performance in contemporary hospitality contexts. This theoretical integration suggests that successful implementation of resource-conscious innovation requires systematic coordination with stakeholder relationship management protocols. Organizations must cultivate comprehensive approaches to resource allocation while maintaining stakeholder value creation and operational excellence.

The multifaceted relationship between stakeholder capital and innovative capabilities generates unique organizational competencies. These competencies emerge through the systematic integration of relationship management frameworks with resource optimization protocols. Within dynamic market environments, such integration enables organizations to develop sustainable competitive advantages through enhanced stakeholder engagement and innovative capacity.

Strategic implementation of innovative initiatives requires careful consideration of stakeholder requirements and resource constraints. Organizations must develop sophisticated approaches to balancing these competing demands while maintaining market competitiveness. This complex integration process necessitates systematic consideration of stakeholder expectations throughout strategy development and deployment phases.

The resulting organizational architecture facilitates sustained competitive advantage through enhanced stakeholder relationships and operational optimization. This framework provides a theoretical foundation for understanding how organizations can leverage stakeholder capital and innovative practices for superior market positioning. Organizations exhibiting robust stakeholder capital demonstrate enhanced capabilities in developing and implementing resource-conscious innovation through sophisticated collaboration frameworks. The comprehensive analysis of stakeholder capital and resource-conscious innovation dynamics leads to several key theoretical propositions and hypotheses. These formal statements emerge from the synthesis of existing literature and theoretical frameworks, offering testable

relationships for empirical investigation.

The integration of stakeholder capital with innovative practices creates unique organizational capabilities that enhance competitive positioning. This theoretical framework suggests multiple pathways through which organizations can leverage stakeholder relationships and innovative approaches for sustainable advantage achievement. Enterprises exhibiting strong share value relational capital demonstrate advanced proficiency in cultivating and executing resource-conscious innovation strategies through comprehensive stakeholder engagement frameworks. The systematic integration of stakeholder capital with organizational resources enables the development of distinctive innovative capabilities, fostering efficient resource deployment and value generation. Hospitality enterprises implementing advanced resource-conscious innovation strategies exhibit exceptional capacity for maintaining sustainable competitive advantages through enhanced operational optimization. The cultivation of resource-conscious innovation capabilities substantially enhances organizational resilience and adaptive capacity within resource-limited operational environments. Robust stakeholder capital enhances organizational potential for sustainable competitive advantage through advanced resource-conscious innovation capabilities. Resource-conscious innovation functions as an essential mechanism through which stakeholder capital frameworks generate sustainable competitive advantages in hospitality organizations.

Based on these theoretical propositions, three primary hypotheses emerge for empirical testing:

H4: Share value relational capital (SVRC) demonstrates a significant positive influence on frugal innovation (FI).

H6: Frugal innovation (FI) exhibits a significant positive influence on sustainable competitive advantage (SCA).

H10: Frugal innovation (FI) functions as a significant mediating mechanism in the relationship between share value relational capital (SVRC) and sustainable competitive advantage (SCA).

2.4. Share value relational capital (SVRC), Ambidexterity (AMB) and sustainable competitive adventage (SCA)

Contemporary business environments demonstrate increasingly sophisticated patterns of stakeholder relationships, where organizations must effectively orchestrate both external and internal customer engagement strategies. External customers, representing market participants and value recipients, interact with internal customers comprising organizational human capital, collectively forming intricate patterns of organizational value creation [53]. The cultivation of internal stakeholder satisfaction generates positive externalities throughout stakeholder networks, necessitating careful consideration of engagement channels, communication frameworks, and marketing network architectures [23]. As digital transformation pervades global industries, organizations increasingly leverage sophisticated technological frameworks as catalysts for service delivery enhancement, operational efficiency optimization, and organizational performance elevation.

Advanced information technology infrastructures, manifested through integrated

web platforms, social media engagement channels, cloud computing architectures, and sophisticated business analytics frameworks, establish robust foundations for strategic information acquisition and knowledge management initiatives. These technological frameworks enable organizations to adopt innovative initiatives while fostering comprehensive stakeholder relationships through digital engagement channels [23]. Contemporary business social networks facilitate sophisticated organizational learning mechanisms and market intelligence acquisition, while political networks provide strategic access to macro-market information, regulatory frameworks, and contractual governance structures [54]. This dual orientation represents organizational ambidexterity—the sophisticated organizational capability to simultaneously pursue exploitative efficiency and exploratory innovation. Market actors and political stakeholders exert distinct forms of organizational influence, particularly within highly regulated industry contexts [55]. The TOE framework articulates sophisticated organizational technology adoption processes, ensuring effective implementation of innovative initiatives within dynamic environmental contexts [27]. This theoretical framework provides fundamental underpinning for understanding how organizations can leverage stakeholder relationships and ambidextrous capabilities for sustainable competitive advantage achievement.

Organizations must carefully balance regulatory compliance pressures and taxation requirements with sophisticated market-based resource exchange mechanisms within competitive environments [56]. This delicate equilibrium necessitates advanced organizational ambidexterity, enabling simultaneous focus on regulatory compliance and market competition. The integration of stakeholder capital with ambidextrous capabilities establishes comprehensive value creation mechanisms within contemporary business environments. The sophisticated synthesis of stakeholder capital and organizational ambidexterity suggests multiple pathways through which organizations can achieve and maintain sustainable competitive advantages. This theoretical framework emerges from the careful integration of stakeholder relationship management practices with dual-focused organizational capabilities, enabling simultaneous attention to exploitation and exploration activities.

Contemporary technological advancement enables sophisticated stakeholder engagement through multiple channels, facilitating enhanced communication, collaboration, and value co-creation. Organizations must develop comprehensive approaches to leveraging technological infrastructure while maintaining meaningful stakeholder relationships across diverse engagement platforms. The integration of stakeholder management practices with ambidextrous organizational capabilities requires sophisticated resource allocation mechanisms and careful consideration of diverse stakeholder requirements. Organizations must develop comprehensive approaches to balancing resource constraints with stakeholder value creation while maintaining operational efficiency and market competitiveness. Organizations demonstrating robust share value relational capital exhibit enhanced capabilities in developing and maintaining ambidextrous organizational structures. The integration of relational capital with organizational resources facilitates the development of unique ambidextrous capabilities that support simultaneous exploration and exploitation.

Organizations implementing sophisticated ambidextrous approaches demonstrate

a superior ability to maintain sustainable competitive advantages through enhanced operational balance. The development of ambidextrous capabilities contributes significantly to organizational resilience and adaptability within dynamic environments. Share value relational capital enhances organizational capacity for sustainable competitive advantage achievement through improved ambidextrous capabilities. Organizational ambidexterity serves as a critical mechanism through which relational capital frameworks translate into sustainable competitive advantages.

H5: Share value relational capital (SVRC) demonstrates a significant positive influence on organizational ambidexterity (AMB) within contemporary organizations.

H7: Organizational ambidexterity (AMB) exhibits a significant positive influence on sustainable competitive advantage (SCA) within organizations.

H11: Organizational ambidexterity (AMB) functions as a significant mediating mechanism in the relationship between share value relational capital (SVRC) and sustainable competitive advantage (SCA).

The research model framework utilized in this study can be observed in **Figure 1**, which illustrates the relationship between the variables and their hypothesized connections

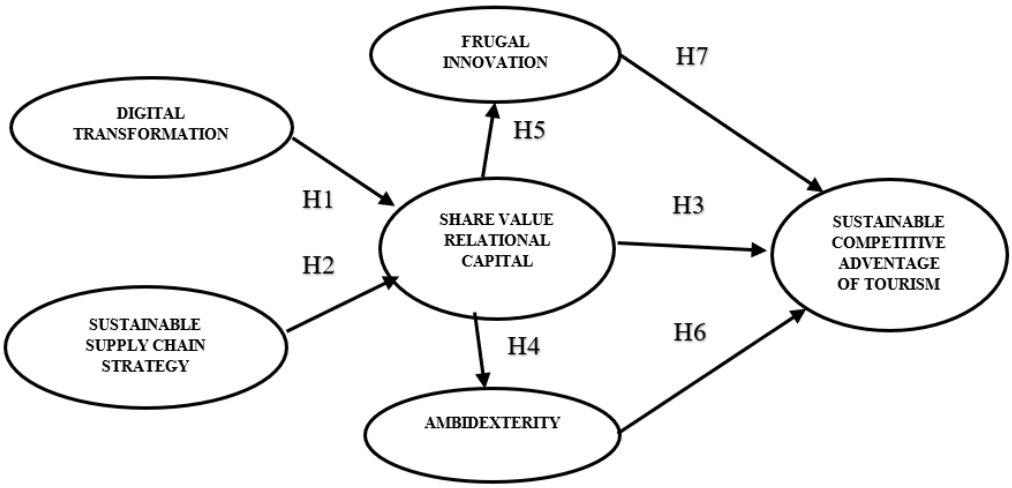

Figure 1. Frame theorytical model.

3. Methode

In examining the relationships between digital transformation, sustainable supply chain strategies, share value relational capital, frugal innovation, organizational ambidexterity, and sustainable competitive advantage, we selected tourism destinations across five major Indonesian provinces: Jakarta, Central Java, West Java, Special Region of Yogyakarta, and East Java. This geographical selection was driven by several critical considerations aligned with our research objectives and theoretical framework. The selection of these specific provinces was motivated by four fundamental factors. First, these regions represent diverse levels of digital transformation maturity in tourism operations, with varying degrees of technological adoption and implementation across different tourism sectors. This diversity provides an ideal context for examining the relationship between digital transformation initiatives and sustainable competitive advantage achievement. The variation in

technological sophistication enables comprehensive analysis of how different levels of digital maturity influence organizational performance and competitive positioning.

Second, these provinces demonstrate different stages of sustainable supply chain strategy implementation within their tourism sectors. Some regions exhibit advanced sustainable practices, while others are in earlier stages of adoption. This variation enables thorough analysis of how SSCS influences share value relational capital development and competitive positioning across different implementation contexts. The diversity in sustainable practice adoption provides rich data for understanding the relationship between sustainability initiatives and competitive advantage achievement.

Third, these regions exhibit distinct patterns of stakeholder relationship management and frugal innovation adoption. The varying approaches to resource optimization and stakeholder engagement across these provinces provide comprehensive contexts for examining the mediating role of share value relational capital in sustainable competitive advantage achievement. Additionally, fourth, these provinces show different levels of organizational ambidexterity in their tourism operations, particularly in balancing traditional cultural preservation with modern technological advancement.

Based on the statement provided, our study's population and sample consisted of tourism business operators across Indonesia meeting specific criteria. The research targeted managers and owners from diverse tourism sectors including hotels, cultural sites, culinary enterprises, tourist villages, travel agencies, and adventure tourism operations. This comprehensive sampling approach ensured representation from various tourism business types across five major Indonesian provinces, providing valid insights into the digital transformation and sustainability practices of Indonesia's tourism business ecosystem. Our sample encompasses various tourism sectors including hotels and resorts (96 establishments), cultural tourism sites (82 locations), culinary tourism enterprises (112 businesses), tourist villages (76 communities), travel and tour operators (68 companies), and adventure tourism operators (44 entities). From 248 tourism destinations across these sectors, we obtained 478 valid responses, with initial questionnaire testing conducted with 35 samples to ensure instrument reliability and validity.

The sample distribution provides comprehensive representation across different tourism sectors and geographical locations, enabling thorough analysis of the relationships between our key variables. Sample adequacy was determined following Hair et al. [57], which requires a minimum sample size of 100 for structural equation models with 5 or more constructs. Our final sample of 478 respondents significantly exceeds this requirement, ensuring robust statistical power for hypothesis testing, as can be seen in **Table 1**. Data collection was conducted through structured questionnaires and interviews with tourism enterprise owners and managers, with response validation processes excluding incomplete or inconsistent responses to ensure data quality for subsequent analysis. In this study, we employed a comprehensive measurement approach integrating established scales from previous research with newly developed items specific to our research context. Following Nunnally and Bernstein [58], we utilized a bipolar numerical scale ranging from strongly disagree to strongly agree to capture respondent perceptions effectively across all constructs.

Table 1. Respondent profile from tourism destinations.

Characteristics	Frequency (*N* = 478)	Percentage (%)
Gender		
Female	208	43.5
Male	270	56.5
Age		
20–30	87	18.2
31–40	156	32.6
41–50	142	29.7
51–60	68	14.2
Over 60	25	5.3
Education		
High School	98	20.5
Diploma	124	25.9
Bachelor	186	38.9
Master/PhD	70	14.7
Business Sector		
Hotels and Resorts	96	20.1
Cultural Tourism	82	17.2
Culinary Tourism	112	23.4
Tourist Villages	76	15.9
Travel/Tour Operators	68	14.2
Adventure Tourism	44	9.2
Experience		
< 5 years	112	23.4
5–10 years	186	38.9
11–15 years	124	25.9
> 15 years	56	11.8

Note: Data collected from tourism enterprises across Jakarta, Central Java, West Java, Special Region of Yogyakarta, and East Java.

The measurement of digital transformation incorporated items from both Sun et al. [59] and Ruel et al. [60], focusing on the digitalization of operational activities, information sharing processes, and technological integration. Key indicators included the pursuit of digital innovations, service automation levels, digital channel utilization, and continuous analysis of digitization opportunities. The assessment examined companies' efforts in pursuing new digital innovations, automation in service processes, digital channel utilization for customer reach, and continuous acquisition of digitalization knowledge. Sustainable supply chain strategy was measured using items developed by Sun et al. [59], examining product modifications according to market developments and customer demands. The measurement of sustainable competitive advantage utilized scales from Gopal and Thakkar [61], assessing digital technology effectiveness and supply chain flexibility through enhanced coordination and collaboration.

Frugal innovation measurement incorporated items from Kun [62] and Zhang [63], evaluating cost-effective product development, resource optimization, and sustainable production processes. The indicators assessed companies' ability to offer affordable quality products, develop user-friendly solutions, implement innovative resource reduction strategies, and maintain environmental sustainability in operational processes. For organizational ambidexterity, we adapted measures from Jansen et al. [64], examining both exploration and exploitation dimensions through items assessing new product development, market experimentation, and relationship management capabilities. This included evaluation of companies' efforts to exceed existing product demands, experiment with new offerings, and develop strategic relationships across industry boundaries.

Share value relational capital measurement integrated scales from Burke et al. [65], supplemented by recent work from Martins et al. [66] and Widiatmaka et al. [23]. The construct evaluated organizations' ability to absorb social issues, coordinate business challenges, generate new knowledge, and track progress in stakeholder relationship development. The measurement focused on companies' adaptability to social issues, integration of business challenges, and generation of new knowledge through stakeholder relationships.

4. Result and discussion

The descriptive statistical analysis revealed comprehensive insights into the response patterns across all study variables. The results demonstrated consistent response patterns with mean values ranging from 7.33 to 7.57 across all measurement items, indicating generally positive evaluations from respondents. For the sustainable supply chain strategy (SSCS) items, mean values ranged from 7.41 to 7.49, with standard deviations between 1.192 and 1.263. The items showed moderate negative skewness (−0.593 to −0.723) and kurtosis (−0.493 to −0.563), suggesting a relatively normal distribution of responses. Share value relational capital (SVRC) items demonstrated slightly higher mean values, ranging from 7.52 to 7.57, with standard deviations between 1.108 and 1.186. These items exhibited consistent negative skewness (−0.680 to −0.768) and relatively low negative kurtosis (−0.139 to −0.219), indicating a slight tendency toward higher ratings. Frugal innovation (FI) measures showed mean values from 7.33 to 7.50, with standard deviations ranging from 1.171 to 1.233. The skewness values (−0.565 to −0.656) and kurtosis values (−0.485 to −0.569) suggested a reasonably normal distribution of responses. Ambidexterity (AMB) items demonstrated consistent mean values between 7.50 and 7.52, with standard deviations ranging from 1.163 to 1.256. The measures showed moderate negative skewness (−0.617 to −0.722) and kurtosis (−0.295 to −0.490). Finally, sustainable competitive advantage (SCA) items showed mean values between 7.52 and 7.57, with standard deviations ranging from 1.108 to 1.186. These items demonstrated moderate negative skewness (−0.680 to −0.768) and relatively low negative kurtosis (−0.139 to −0.219), as can be seen in **Table 2**.

Table 2. Descriptive statistics of research variables.

Constructs/Items	*N*	Min	Max	Mean	Std. Dev	Skewness	Kurtosis
DT_1	478	1	10	7.43	1.218	−0.595	−0.550
DT_2	478	1	10	7.34	1.171	−0.565	−0.485
DT_3	478	1	10	7.33	1.195	−0.600	−0.502
DT_4	478	1	10	7.44	1.233	−0.612	−0.569
DT_5	478	1	10	7.50	1.222	−0.656	−0.527
SSCS_1	478	1	10	7.41	1.246	−0.587	−0.613
SSCS_2	478	1	10	7.49	1.199	−0.668	−0.493
SSCS_3	478	1	10	7.41	1.263	−0.684	−0.563
SSCS_4	478	1	10	7.43	1.192	−0.593	−0.500
SSCS_5	478	1	10	7.46	1.263	−0.723	−0.496
SVRC_1	478	1	10	7.53	1.166	−0.714	−0.219
SVRC_2	478	1	10	7.57	1.108	−0.724	−0.139
SVRC_3	478	1	10	7.53	1.166	−0.749	−0.175
SVRC_4	478	1	10	7.76	1.908	− 0.801	− 0.209
SVRC_5	478	1	10	7.75	1.205	−0.716	−0.306
FI_1	478	1	10	7.63	1.633	−0.802	−0.595
F1_2	478	1	10	7.85	1.783	−0.905	−0.604
FI_3	478	1	10	7.33	1.195	−0.600	−0.502
FI_4	478	1	10	7.44	1.233	−0.612	−0.569
FI_5	478	1	10	7.50	1.222	−0.656	−0.527
AMB_1	478	1	10	7.52	1.174	−0.722	−0.295
AMB_2	478	1	10	7.50	1.219	−0.675	−0.413
AMB_3	478	1	10	7.52	1.163	−0.617	−0.408
AMB_4	478	1	10	7.52	1.219	−0.664	−0.434
AMB_5	478	1	10	7.51	1.256	−0.659	−0.490
SCA_1	478	1	10	7.53	1.166	−0.714	−0.219
SCA_2	478	1	10	7.57	1.108	−0.724	−0.139
SCA_3	478	1	10	7.53	1.166	−0.749	−0.175
SCA_4	478	1	10	7.52	1.140	−0.680	−0.213
SCA_5	478	1	10	7.53	1.186	−0.768	−0.187

Note: DT = Digital Transformation; SSCS = Sustainable Supply Chain Strategy; SVRC = Share Value Relational Capital; FI = Frugal Innovation; AMB = Ambidexterity; SCA = Sustainable Competitive Advantage.

The confirmatory factor analysis was employed to assess measurement validity and provide a comprehensive evaluation of indicators. To address data distribution issues exceeding normalization criteria, we followed Tabachnick et al.'s [37] approach for processing denormalized data, applying the negative root formula $X_n = 1/(k - X)$ to achieve normalized distribution.

Measurement quality was assessed following established criteria [23,37]. The Average Variance Extracted (AVE) values for all constructs exceeded the 0.5 threshold, with standardized factor loadings demonstrating high item quality [13]. Reliability assessment followed Arbuckle's [23] criterion requiring values greater than

0.7. As shown in **Table 3**, all constructs demonstrated strong reliability, with values ranging from 0.884 to 0.895, and composite reliability values matching these levels.

Table 3. Measurement model assessment results.

Variables/Dimensions	Loading	Alpha	CR	AVE
Digital Transformation		0.892	0.892	0.725
Infornation Technology Infrastructure	0.842			
Adaptive ability to new technologies	0.853			
Alignment of digital strategy with business goals	0.865			
Level of system integration	0.846			
Speed of adaptation to change	0.838			
Sustainable Supply Chain Strategy		0.884	0.884	0.705
Reduction of carbon emissions	0.831			
Recycling and reuse of materials	0.839			
Use of environmentally friendly materials	0.857			
Transparency in procurement practices	0.841			
Supply chain optimization	0.832			
Share Value Relational Capital		0.895	0.895	0.715
Developing solutions that are different from existing ones	0.837			
Discovery of new products/services	0.852			
Introduction of disruptive technologies	0.843			
Deepening of markets already served	0.847			
Cross-functional teams	0.856			
Frugal Innovation		0.888	0.888	0.698
Provider of cheap products with satisfactory quality	0.822			
Practical multi-product solution seeker	0.843			
Continuous innovator with raw material efficiency.	0.835			
Innovation as a way to minimize production waste	0.846			
Environmental concern reduces operational costs.	0.838			
Ambidexterity		0.891	0.891	0.708
Experimenting with radical solutions	0.832			
Penetration of new customer segments	0.849			
Willingness to invest in high-risk projects	0.837			
Work unit autonomy	0.845			
Cross-functional team collaboration	0.851			
Sustainable Competitive Advantage		0.893	0.893	0.712
Knowledge acquisition and integration	0.837			
Continuous process improvement	0.852			
Strong brand differentiation	0.843			
Disruptive technology	0.847			
Ethical business practices	0.856			

Note: CR = Composite Reliability; AVE = Average Variance Extracted Threshold values: Loading > 0.704; Alpha > 0.7; CR > 0.7; AVE > 0.5.

The structural equation modeling analysis, conducted using AMOS 26, was chosen for hypothesis testing based on several considerations. First, the approach accommodates work-based equations where variables can function as both predictors and criteria across different equations, aligning with our research model [67]. Second, it enables comprehensive analysis of interrelated questions while modeling relationships between multiple theoretical constructs simultaneously [68]. Third, SEM offers the advantage of testing mediation processes concurrently [23]. Model evaluation followed a systematic three-step process. The fit assessment revealed strong model acceptability with a Chi-square value of 287.524 (df = 473), GFI = 0.956, NFI = 0.944, CFI = 0.992, TLI = 0.991, and RMSEA = 0.023. It can be seen in **table 4** These values meet or exceed recommended thresholds [23] supporting model acceptance and subsequent hypothesis testing. The measurement model demonstrated strong psychometric properties. All factor loadings exceeded 0.82, with AVE values ranging from 0.698 to 0.725, well above the 0.5 threshold. Composite reliability values ranged from 0.884 to 0.895, exceeding the recommended 0.7 criterion, it can be seen in **table 5**. These results indicate strong construct validity and reliability, providing a solid foundation for hypothesis testing.

Table 4. Goodness of fit index testing.

Model Fit Indexes	Reference Criteria	Results	Fit (Yes/No)
X^2	-	287.524	Not fit
DF	-	473	-
X^2/DF	1.00–5.00	1.173	Yes
RMSEA	< 0.08	0.023	Yes
SRMR	< 0.08	0.0312	Yes
NFI	> 0.80	0.944	Yes
IFI	> 0.90	0.992	Yes
TLI	> 0.90	0.991	Yes
CFI	> 0.90	0.992	Yes

Note: X^2 = Chi-square; DF = Degrees of Freedom; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual; NFI = Normed Fit Index; IFI = Incremental Fit Index; TLI = Tucker-Lewis Index; CFI = Comparative Fit Index.

Table 5. Results of discriminant validity analysis.

Constructs	Mean	SD	1	2	3	4	5	6
1. Digital Transformation	7.41	1.15	**0.851**	0.523	0.545	0.535	0.527	0.538
2. Sustainable Supply Chain Strategy (SSCS)	7.44	1.12	0.523	**0.840**	0.516	0.486	0.465	0.475
3. Share Value Relational Capital (SVRC)	7.53	1.08	0.545	0.516	**0.846**	0.541	0.556	0.567
4. Frugal Innovation (FI)	7.40	1.13	0.535	0.486	0.541	**0.836**	0.522	0.536
5. Ambidexterity (AMB)	7.51	1.14	0.527	0.465	0.556	0.522	**0.842**	0.546
6. Sustainable Competitive Advantage (SCA)	7.54	1.10	0.538	0.475	0.567	0.536	0.546	**0.844**

Note: Bold values on diagonal represent square root of AVE Values below and above diagonal represent inter-construct correlations SD = Standard Deviation.

a. Direct Effect Hypothesis Testing

The hypothesis testing was conducted using confirmatory factor analysis

transformed into a structural model. Following established criteria, hypotheses were considered significant and accepted when probability values were less than 0.05 and critical ratios exceeded 1.96. The analysis revealed significant standardized estimates for all direct relationships: DT to SVRC (0.824), SSCS to SVRC (0.795), SVRC to SCA (0.836), SVRC to FI (0.812), SVRC to AMB (0.803), FI to SCA (0.788), and AMB to SCA (0.796). All hypotheses demonstrated critical ratios well above the threshold of 2.0, with values ranging from 6.573 to 7.124, indicating strong statistical support for all proposed direct relationships.

b. Mediation Effect Analysis

The mediation hypotheses were tested using the Sobel test methodology, with significance determined by *Z*-values exceeding 1.96 and probability values below 0.05. Following the Hayes and Rockwood [69] approach, the analysis revealed significant mediation effects for all proposed indirect relationships. The testing yielded strong *Z*-values for all mediation paths: DT to SVRC to SCA ($Z = 7.156$), SSCS to SVRC to SCA ($Z = 6.892$), SVRC to FI to SCA ($Z = 7.234$), and SVRC to AMB to SCA ($Z = 7.045$). These results, all significant at $p < 0.001$, provide robust support for the mediating roles of SVRC, FI, and AMB in their respective relationship paths, confirming the acceptance of all mediation hypotheses (H8–H11), it can be seen in **Table 6**.

Table 6. Hypothesis testing results.

Hypothesis	Std estimates	Estimate	Std error	Critical ratio	*P*	Conclusion
H1: DT → SVRC	0.824	0.723	0.056	6.892	****	Accepted
H2: SSCS → SVRC	0.795	0.684	0.059	6.573	****	Accepted
H3: SVRC → SCA	0.836	0.745	0.054	7.124	****	Accepted
H4: SVRC → FI	0.812	0.716	0.057	6.957	****	Accepted
H5: SVRC → AMB	0.803	0.698	0.058	6.845	****	Accepted
H6: FI → SCA	0.788	0.677	0.060	6.634	****	Accepted
H7: AMB → SCA	0.796	0.685	0.059	6.728	****	Accepted
H8: DT → SVRC → SCA	-	-	-	*Z*: 7.156	****	Accepted
H9: SSCS → SVRC → SCA	-	-	-	*Z*: 6.892	****	Accepted
H10: SVRC → FI → SCA	-	-	-	*Z*: 7.234	****	Accepted
H11: SVRC → AMB → SCA	-	-	-	*Z*: 7.045	****	Accepted

Note: The mediation hypotheses (H8–H11) are tested using the *Z*-test only, with the corresponding *ρ*-values indicating statistical significance at the 0.001 level (****).

This pioneering research presents a comprehensive examination of the intricate interrelationships between digital transformation, sustainable supply chain strategy (SSCS), share value relational capital (SVRC), frugal innovation (FI), ambidexterity (AMB), and sustainable competitive advantage (SCA) within contemporary tourism organizations. The empirical validation of all proposed hypotheses illuminates distinct strategic pathways through which organizations can enhance their sustainable competitive positioning.

a. Firstly, the empirical investigation reveals a sophisticated strategic pathway connecting digital transformation to sustainable competitive advantage through share value relational capital mediation. This pathway demonstrates how

organizations systematically leverage advanced digital capabilities to enhance multifaceted stakeholder relationships and achieve sustainable competitive advantages. Two critical elements emerge as particularly influential in this context: organizations' systematic pursuit of innovative digital solutions in operational frameworks, and comprehensive analysis of process digitization opportunities through emerging technological paradigms. These strategic initiatives enhance relational capital development through organizations' sophisticated ability to coordinate complex business-related issues and generate comprehensive stakeholder relationship knowledge. This pathway ultimately culminates in sustainable competitive advantage achievement through enhanced stakeholder relationship frameworks and sophisticated market differentiation strategies.

b. Secondly, the research findings illuminate an intricate strategic pathway linking sustainable supply chain strategy to sustainable competitive advantage through share value relational capital. This sophisticated pathway demonstrates how organizations systematically leverage sustainable practices to enhance stakeholder relationships and achieve enduring competitive advantages. Two fundamental elements emerge as particularly significant: organizations' comprehensive commitment to implementing environmentally conscious business practices throughout their supply chain networks, and systematic integration of sustainability principles into sophisticated stakeholder collaboration frameworks. These initiatives enhance relational capital through the development of trust-based stakeholder relationships and collaborative sustainability initiatives. The pathway culminates in distinctive market positioning through integrated sustainable practices and comprehensive stakeholder engagement strategies.

c. Thirdly, the analysis reveals a sophisticated multi-stage strategic pathway connecting digital transformation to sustainable competitive advantage through the dual mediation of share value relational capital and organizational ambidexterity. This complex pathway illustrates how organizations systematically leverage digital capabilities to enhance stakeholder relationships and achieve balanced exploration-exploitation activities for sustainable advantage creation. Critical elements include continuous acquisition of advanced digitalization knowledge and systematic analysis of emerging digital innovations for process enhancement. These initiatives facilitate comprehensive stakeholder knowledge integration and sophisticated relationship management capabilities. Share value relational capital then enables organizational ambidexterity through simultaneous management of existing relationship portfolios while exploring new stakeholder opportunities. This sophisticated balance ultimately contributes to dynamic competitive positioning and sustainable value creation through integrated exploration and exploitation activities.

d. Fourthly, the research uncovers a complex strategic pathway that links digital transformation to sustainable competitive advantage (SCA) through the sequential mediation of share value relational capital (SVRC) and organizational ambidexterity (AMB). This pathway showcases how organizations harness digital technologies to cultivate robust stakeholder relationships, facilitating the

development of ambidextrous capabilities and ultimately leading to sustainable competitive advantages. The pathway begins with organizations' embrace of digital transformation initiatives, enhancing their ability to manage complex stakeholder interactions. As organizations deepen their commitment to digital transformation, they cultivate trust-based, mutually beneficial relationships with key stakeholders. The enhanced SVRC serves as a catalyst for knowledge sharing, collaborative innovation, and the co-creation of value. The strengthened SVRC paves the way for the development of organizational ambidexterity. Armed with stakeholder insights and a deep understanding of market complexities, organizations can simultaneously explore new growth avenues while efficiently exploiting existing competencies. This ambidextrous capability allows organizations to strike a balance between innovation and efficiency, ensuring both short-term profitability and long-term sustainability. The culmination of this strategic pathway lies in the realization of sustainable competitive advantage. Through the effective orchestration of digital transformation, cultivation of SVRC, and development of ambidextrous capabilities, organizations position themselves to outperform rivals in a dynamic and competitive marketplace. The unique combination of digital prowess, relational capital, and ambidextrous capabilities forms a formidable barrier to imitation, ensuring that the competitive advantages achieved are both enduring and sustainable.

e. Fifthly, the research unveils an intricate strategic pathway that connects sustainable supply chain strategies (SSCS) to sustainable competitive advantage (SCA) through the sequential mediation of share value relational capital (SVRC) and financial inclusion (FI). This pathway illustrates how organizations leverage sustainable practices to foster strong stakeholder relationships, leading to enhanced financial inclusion and ultimately achieving sustainable competitive advantages.

The pathway starts with organizations' adoption of sustainable supply chain strategies, which involve integrating environmental and social considerations into their operations. By embedding sustainability throughout their supply chains, organizations enhance their ability to build trust-based relationships with stakeholders. This strengthened SVRC facilitates collaboration, knowledge sharing, and the co-creation of value.

The enhanced SVRC, in turn, paves the way for improved financial inclusion. By leveraging the insights and trust gained from strong stakeholder relationships, organizations can develop innovative financial products and services that cater to the needs of underserved communities. This inclusive approach not only expands the organization's customer base but also contributes to social and economic development. The combination of sustainable supply chain strategies, robust SVRC, and enhanced financial inclusion ultimately leads to sustainable competitive advantage. By aligning their operations with sustainability principles, organizations differentiate themselves from competitors and build a positive reputation among stakeholders. This unique positioning, coupled with the ability to serve a broader range of customers through financial inclusion, creates a powerful and enduring competitive edge. Sixthly, the research uncovers a sophisticated strategic pathway that links

sustainable supply chain strategies (SSCS) to sustainable competitive advantage (SCA) through the sequential mediation of share value relational capital (SVRC) and organizational ambidexterity (AMB). This pathway demonstrates how organizations leverage sustainable practices to cultivate strong stakeholder relationships, which in turn facilitate the development of ambidextrous capabilities, ultimately leading to sustainable competitive advantages.

The pathway commences with organizations' adoption of sustainable supply chain strategies, which involve integrating environmental and social considerations into their operations. By embedding sustainability throughout their supply chains, organizations enhance their ability to build trust-based relationships with stakeholders. This strengthened SVRC serves as a foundation for collaboration, knowledge sharing, and the co-creation of value. The enhanced SVRC, in turn, enables the development of organizational ambidexterity. By leveraging the insights and trust gained from strong stakeholder relationships, organizations can simultaneously explore new opportunities while efficiently exploiting existing competencies. This ambidextrous capability allows organizations to innovate and adapt to changing market conditions while maintaining a stable foundation in their core business operations. The combination of sustainable supply chain strategies, robust SVRC, and organizational ambidexterity ultimately leads to sustainable competitive advantage. By aligning their operations with sustainability principles and fostering strong stakeholder relationships, organizations differentiate themselves from competitors and build a positive reputation. This unique positioning, coupled with the ability to balance exploration and exploitation through ambidexterity, creates a powerful and enduring competitive edge.

5. Conclusion

The acceptance of all hypotheses in this study provides valuable insights into the complex interplay between digital transformation, sustainable supply chain strategies, share value relational capital, frugal innovation, organizational ambidexterity, and sustainable competitive advantage in the tourism industry. The findings underscore the critical role of share value relational capital as a mediator in the relationships between digital transformation, sustainable supply chain strategies, and sustainable competitive advantage. This suggests that organizations can enhance their competitive position by strategically leveraging digital technologies and sustainable practices to cultivate strong stakeholder relationships. Furthermore, the study highlights the importance of frugal innovation and organizational ambidexterity as additional mediating mechanisms. The results demonstrate that share value relational capital facilitates the development of frugal innovation capabilities and ambidextrous practices, which in turn contribute to sustainable competitive advantage. This implies that tourism organizations should focus on fostering trust-based relationships with stakeholders to drive innovative solutions and maintain a balance between exploration and exploitation activities. The acceptance of all hypotheses also emphasizes the multifaceted nature of achieving sustainable competitive advantage in the tourism industry. The findings suggest that organizations must adopt a holistic approach, integrating digital transformation, sustainable supply chain strategies, relational

capital development, frugal innovation, and organizational ambidexterity to create enduring competitive advantages. By aligning these strategic elements and leveraging their synergistic effects, tourism organizations can differentiate themselves in the market and achieve long-term success.

5.1. Research implications

This research contributes significantly to the understanding of the complex relationships between digital transformation, sustainable supply chain strategies, share value relational capital, frugal innovation, organizational ambidexterity, and sustainable competitive advantage in the tourism industry. The findings provide several theoretical and managerial implications for tourism organizations seeking to enhance their competitive position in an increasingly dynamic and challenging market environment.

From a theoretical perspective, this study extends the application of the resource-based view (RBV) and the technology-organization-environment (TOE) framework to the tourism industry, demonstrating their relevance in explaining the interplay between digital technologies, sustainable practices, and competitive advantage. The research highlights the critical role of share value relational capital as a mediating mechanism, bridging the gap between digital transformation, sustainable supply chain strategies, and sustainable competitive advantage. This finding reinforces the importance of stakeholder relationships in the value creation process and suggests that tourism organizations should prioritize the development and nurturing of trust-based, collaborative relationships with their stakeholders.

Furthermore, the study introduces the concepts of frugal innovation and organizational ambidexterity as additional mediators in the relationship between share value relational capital and sustainable competitive advantage. These findings contribute to the growing body of knowledge on the role of innovation and ambidextrous capabilities in driving competitive success. The research suggests that tourism organizations should foster a culture of frugal innovation, focusing on cost-effective and resource-efficient solutions, while simultaneously balancing exploration and exploitation activities to adapt to changing market conditions.

From a managerial perspective, the findings offer several actionable insights for tourism practitioners. First, the study emphasizes the need for tourism organizations to embrace digital transformation and integrate digital technologies into their operations and supply chain processes. By leveraging advanced digital capabilities, organizations can enhance operational efficiency, improve stakeholder communication, and gain valuable insights into market trends and customer preferences. Managers should actively seek opportunities to digitize processes, invest in digital infrastructure, and develop digital competencies within their organizations.

Second, the research highlights the importance of adopting sustainable supply chain strategies to build strong stakeholder relationships and achieve sustainable competitive advantage. Tourism organizations should prioritize the implementation of environmentally and socially responsible practices throughout their supply chain networks. This includes collaborating with suppliers to reduce waste, minimize environmental impact, and promote ethical sourcing. By aligning their operations with

sustainability principles, organizations can differentiate themselves from competitors, enhance their reputation, and attract environmentally conscious customers.

Third, the study underscores the critical role of share value relational capital in driving competitive success. Managers should focus on cultivating trust-based relationships with key stakeholders, including customers, suppliers, partners, and local communities. By engaging in open communication, knowledge sharing, and collaborative problem-solving, organizations can co-create value and develop innovative solutions that benefit all parties involved. Investing in relationship-building initiatives and fostering a culture of collaboration can help tourism organizations strengthen their relational capital and gain a competitive edge.

Fourth, the findings suggest that tourism organizations should embrace frugal innovation as a means to achieve sustainable competitive advantage. Managers should encourage their teams to develop cost-effective and resource-efficient solutions that address the unique needs of their customers and markets. By focusing on simplicity, functionality, and affordability, organizations can create value for their stakeholders while minimizing resource consumption and environmental impact. Fostering a culture of frugal innovation can help tourism organizations remain agile and adaptable in the face of changing market conditions.

Finally, the study highlights the importance of organizational ambidexterity in achieving sustainable competitive advantage. Tourism managers should strive to maintain a balance between exploration and exploitation activities, ensuring that their organizations can both innovate and optimize their existing operations. This requires investing in research and development, encouraging experimentation and risk-taking, while simultaneously refining and improving current processes and offerings. By cultivating an ambidextrous mindset and capabilities, tourism organizations can remain competitive and responsive to market changes.

This research provides valuable insights into the complex interplay between digital transformation, sustainable supply chain strategies, share value relational capital, frugal innovation, organizational ambidexterity, and sustainable competitive advantage in the tourism industry. The findings offer tourism organizations a roadmap for enhancing their competitive position by leveraging digital technologies, adopting sustainable practices, building strong stakeholder relationships, fostering frugal innovation, and cultivating ambidextrous capabilities. By embracing these strategies and principles, tourism organizations can navigate the challenges of an increasingly dynamic and competitive market environment and achieve long-term success.

5.2. Research limitations and future research

Despite the valuable insights provided by this study into the relationships between digital transformation, sustainable supply chain strategies, share value relational capital, frugal innovation, organizational ambidexterity, and sustainable competitive advantage in the tourism industry, it is not without limitations. These limitations, however, present opportunities for future research to further expand and refine our understanding of these complex phenomena. One limitation is the study's focus on the Indonesian tourism industry, which may limit the generalizability of the findings to other countries or regions with different cultural, economic, and

technological landscapes. Future research could replicate this study in other geographical contexts to validate the findings and explore potential variations in the relationships between the constructs.

Another limitation is the cross-sectional nature of the data, which may not fully account for the dynamic and evolving nature of the constructs. Longitudinal studies could provide a more comprehensive understanding of how these constructs interact and influence each other over time. Furthermore, the study may not capture all the relevant factors that influence the relationships between the constructs. Future research could explore additional variables, such as organizational culture, leadership style, and market turbulence, to gain a more holistic understanding of the complex interplay between these constructs.

The study also relies on quantitative data collected through surveys, which may be subject to common method bias and self-reporting bias. Future research could employ mixed-methods approaches to triangulate the findings and gain deeper insights into the underlying mechanisms and processes. Moreover, the study does not explore potential moderating factors that may influence the relationships between the constructs. Future research could investigate the role of moderating variables, such as firm size, industry sub-sector, or technological intensity, to uncover potential boundary conditions and contingencies. Another avenue for future research is to delve deeper into the specific dimensions and sub-processes of each construct, such as the different facets of digital transformation or the various dimensions of sustainable supply chain strategies, and their unique contributions to sustainable competitive advantage.

Finally, future research could explore other potential mediating or moderating mechanisms that may further explain the relationships between the constructs, such as dynamic capabilities, absorptive capacity, or stakeholder engagement. This study makes significant contributions to our understanding of the complex relationships between digital transformation, sustainable supply chain strategies, share value relational capital, frugal innovation, organizational ambidexterity, and sustainable competitive advantage in the tourism industry, it also opens up several avenues for future research. By addressing the limitations and exploring new research directions, scholars can continue to advance our knowledge of these critical phenomena and provide valuable insights for tourism organizations seeking to enhance their competitive position in an increasingly dynamic and challenging market environment.

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References

1. Wiredu J, Yang Q, Saljoughipour S, et al. Exploring Sustainable Supply Chain Management Practice and Environmental Performance: A Systematic Review Perspective. Universal Journal of Carbon Research. 2024; 2(1): 1-18. doi: 10.37256/ujcr.2120244083
2. Riaz M, Pamucar D, Athar Farid HM, et al. q-Rung Orthopair Fuzzy Prioritized Aggregation Operators and Their Application Towards Green Supplier Chain Management. Symmetry. 2020; 12(6): 976. doi: 10.3390/sym12060976
3. Cao A, Shi F, Bai B. A comparative review of hospitality and tourism innovation research in academic and trade journals. International Journal of Contemporary Hospitality Management. 2022; 34(10): 3790-3813. doi: 10.1108/ijchm-11-2021-1443
4. Kot S. Sustainable Supply Chain Management in Small and Medium Enterprises. Sustainability. 2018; 10(4): 1143. doi: 10.3390/su10041143
5. Han H. Theory of green purchase behavior (TGPB): A new theory for sustainable consumption of green hotel and green restaurant products. Business Strategy and the Environment. 2020; 29(6): 2815-2828. doi: 10.1002/bse.2545
6. Trang HLT, Lee JS, Han H. How do green attributes elicit pro-environmental behaviors in guests? The case of green hotels in Vietnam. Journal of Travel & Tourism Marketing. 2018; 36(1): 14-28. doi: 10.1080/10548408.2018.1486782
7. Sarfraz M, Khawaja KF, Han H, et al. Sustainable supply chain, digital transformation, and blockchain technology adoption in the tourism sector. Humanities and Social Sciences Communications. 2023; 10(1). doi: 10.1057/s41599-023-02051-9
8. Queiroz MM, Fosso Wamba S. Blockchain adoption challenges in supply chain: An empirical investigation of the main drivers in India and the USA. International Journal of Information Management. 2019; 46: 70-82. doi: 10.1016/j.ijinfomgt.2018.11.021
9. Gusmão Caiado RG, Leal Filho W, Quelhas OLG, et al. A literature-based review on potentials and constraints in the implementation of the sustainable development goals. Journal of Cleaner Production. 2018; 198: 1276-1288. doi: 10.1016/j.jclepro.2018.07.102
10. IRDCP. International Conference on International Conference on (RDHR-2020). IRDCP; 2020.
11. Wynn M, Jones P. IT Strategy in the Hotel Industry in the Digital Era. Sustainability. 2022; 14(17): 10705. doi: 10.3390/su141710705
12. Tian H, Dogbe CSK, Pomegbe WWK, et al. Organizational learning ambidexterity and openness, as determinants of SMEs' innovation performance. European Journal of Innovation Management. 2020; 24(2): 414-438. doi: 10.1108/ejim-05-2019-0140
13. Shibin KT, Dubey R, Gunasekaran A, et al. Frugal innovation for supply chain sustainability in SMEs: multi-method research design. Production Planning & Control. 2018; 29(11): 908-927. doi: 10.1080/09537287.2018.1493139
14. Hoang Vuong Q, Napier NK. Vietnam National University Journal of Science and others. He won Vietnam's National Book Award 2007 and National Journalism Award. Human Resource Planning; 2014.
15. Vuong QH, Napier NK. Acculturation and global mindsponge: An emerging market perspective. International Journal of Intercultural Relations. 2015; 49: 354-367. doi: 10.1016/j.ijintrel.2015.06.003
16. Rehman S ur, Mohamed R, Ayoup H. The mediating role of organizational capabilities between organizational performance

and its determinants. Journal of Global Entrepreneurship Research. 2019; 9(1). doi: 10.1186/s40497-019-0155-5
17. Qu Y, Eguchi A, Ma L, et al. Role of the gut–brain axis via the subdiaphragmatic vagus nerve in stress resilience of 3,4-methylenedioxymethamphetamine in mice exposed to chronic restrain stress. Neurobiology of Disease. 2023; 189: 106348. doi: 10.1016/j.nbd.2023.106348
18. Martins AM, Cró S. The Impact of Tourism on Solid Waste Generation and Management Cost in Madeira Island for the Period 1996–2018. Sustainability. 2021; 13(9): 5238. doi: 10.3390/su13095238
19. Widiatmaka FP, Sularno H, Prasetyo AN, et al. How Interaction Should Transform, Value be Developed to Drive Teamwork Performance? An Empirical Research in Merchant Marine Colleges. International Journal of Professional Business Review. 2023; 8(4): e01044. doi: 10.26668/businessreview/2023.v8i4.1044
20. Wang L en, Ni X, Li Y, et al. Framework proposal for estimating tourist food waste and its carbon footprint in China: Sampling from four main tourist destinations. Resources, Conservation and Recycling. 2023; 197: 107107. doi: 10.1016/j.resconrec.2023.107107
21. Widiatmaka FP, Suherman, Kensiwi F, et al. Resilience in tourism-based SMEs driven by initiatives and strategies through share value relational capital viewed from a resource-based theory perspective. Humanities and Social Sciences Communications. 2024; 11(1). doi: 10.1057/s41599-024-03607-z
22. Martins R, Pereira E, Rosado A, et al. Exploring the relationship between sport demand's key players and environmental sustainability: Pointers from a systematic review. Journal of Outdoor Recreation and Tourism. 2021; 35: 100419. doi: 10.1016/j.jort.2021.100419
23. Pambudi Widiatmaka F, Sukrisno S, Suherman S, et al. Share value relational capital: Suggestions for the future and an assessment of past research in driving marketing performance. Journal of Innovation in Business and Economics. 2023; 6(02). doi: 10.22219/jibe.v6i02.22495
24. Hinch T, Higham J. Sport Tourism Development. Channel View Publications; 2018.
25. Fu Q, Abdul Rahman AA, Jiang H, et al. Sustainable Supply Chain and Business Performance: The Impact of Strategy, Network Design, Information Systems, and Organizational Structure. Sustainability. 2022; 14(3): 1080. doi: 10.3390/su14031080
26. Gunawan A, Malik A, Rusmana D, et al. Fatty acid composition of black soldier fly maggot were reared in the mixture of laying hen manure with lemuru fish oil. IOP Conference Series: Earth and Environmental Science. 2022; 1020(1): 012020. doi: 10.1088/1755-1315/1020/1/012020
27. Baker J. The Technology–Organization–Environment Framework. Springer; 2012.
28. Waitt G. 'Killing waves': surfing, space and gender. Social & Cultural Geography. 2008; 9(1): 75-94. doi: 10.1080/14649360701789600
29. Wernerfelt B. A Resource-Based View of the Firm. Strategic Management Journal. 1984; 5(2): 171-180.
30. Treiblmaier H. The impact of the blockchain on the supply chain: a theory-based research framework and a call for action. Supply Chain Management: An International Journal. 2018; 23(6): 545-559. doi: 10.1108/scm-01-2018-0029
31. Larouche J, Deschamps MH, Saucier L, et al. Effects of Killing Methods on Lipid Oxidation, Colour and Microbial Load of Black Soldier Fly (Hermetia illucens) Larvae. Animals. 2019; 9(4): 182. doi: 10.3390/ani9040182
32. Adams R, Kewell B, Parry G. Blockchain for Good? Digital Ledger Technology and Sustainable Development Goals. Springer; 2018.
33. Sousa SR de O, Melchior C, Da Silva WV, et al. Show you the money – firms investing in worker safety have better financial performance: insights from a mapping review. International Journal of Workplace Health Management. 2021; 14(3): 310-331. doi: 10.1108/ijwhm-11-2020-0200
34. Ngugi IK, Johnsen RE, Erdélyi P. Relational capabilities for value co-creation and innovation in SMEs. Journal of Small Business and Enterprise Development. 2010; 17(2): 260-278. doi: 10.1108/14626001011041256
35. Villena VH, Revilla E, Choi TY. The dark side of buyer–supplier relationships: A social capital perspective□. Journal of Operations Management. 2010; 29(6): 561-576. doi: 10.1016/j.jom.2010.09.001
36. Hong L, Hales DN. Blockchain performance in supply chain management: application in blockchain integration companies. Industrial Management & Data Systems. 2021; 121(9): 1969-1996. doi: 10.1108/imds-10-2020-0598
37. Savastano M, Zentner H, Spremić M, et al. Assessing the relationship between digital transformation and sustainable business excellence in a turbulent scenario. Total Quality Management & Business Excellence; 2022.
38. Sheel A, Nath V. Effect of blockchain technology adoption on supply chain adaptability, agility, alignment and performance.

Management Research Review. 2019; 42(12): 1353-1374. doi: 10.1108/mrr-12-2018-0490
39. Khan SA, Mubarik MS, Kusi-Sarpong S, et al. Blockchain technologies as enablers of supply chain mapping for sustainable supply chains. Business Strategy and the Environment. 2022; 31(8): 3742-3756. doi: 10.1002/bse.3029
40. Rafique MZ, Nadeem AM, Xia W, et al. Does economic complexity matter for environmental sustainability? Using ecological footprint as an indicator. Environment, Development and Sustainability. 2021; 24(4): 4623-4640. doi: 10.1007/s10668-021-01625-4
41. Centobelli P, Cerchione R, Esposito E. Pursuing supply chain sustainable development goals through the adoption of green practices and enabling technologies: A cross-country analysis of LSPs. Technological Forecasting and Social Change. 2020; 153: 119920. doi: 10.1016/j.techfore.2020.119920
42. Grover AK, Dresner M. A theoretical model on how firms can leverage political resources to align with supply chain strategy for competitive advantage. Journal of Supply Chain Management. 2022; 58(2): 48-65. doi: 10.1111/jscm.12284
43. Kuo FI, Fang WT, LePage BA. Proactive environmental strategies in the hotel industry: eco-innovation, green competitive advantage, and green core competence. Journal of Sustainable Tourism. 2021; 30(6): 1240-1261. doi: 10.1080/09669582.2021.1931254
44. Welbourne TM, Pardo-del-Val M. Relational Capital: Strategic Advantage for Small and Medium-Size Enterprises (SMEs) Through Negotiation and Collaboration. Group Decision and Negotiation. 2008; 18(5): 483-497. doi: 10.1007/s10726-008-9138-6
45. Cuevas-Vargas H, Armendáriz-Esparza DA, del Carmen González-Vega AM, et al. Digitalization strategies and sustainability benefits in Mexican SMEs: Unveiling the mediating role of innovation. Procedia Computer Science. 2024; 242: 1299-1306. doi: 10.1016/j.procs.2024.08.135
46. Jotaworn S, Nitivattananon V, Kusakabe K, et al. Partnership towards Synergistic Municipal Solid Waste Management Services in a Coastal Tourism Sub-Region. Sustainability. 2021; 13(1): 397. doi: 10.3390/su13010397
47. Afolabi H, Ram R, Hussainey K, et al. Exploration of small and medium entities' actions on sustainability practices and their implications for a greener economy. Journal of Applied Accounting Research. 2022; 24(4): 655-681. doi: 10.1108/jaar-09-2022-0252
48. Korber S, McNaughton RB. Resilience and entrepreneurship: a systematic literature review. International Journal of Entrepreneurial Behavior & Research. 2017; 24(7): 1129-1154. doi: 10.1108/ijebr-10-2016-0356
49. Weaven S, Quach S, Thaichon P, et al. Surviving an economic downturn: Dynamic capabilities of SMEs. Journal of Business Research. 2021; 128: 109-123. doi: 10.1016/j.jbusres.2021.02.009
50. Vesci M, Feola R, Parente R, et al. How to save the world during a pandemic event. A case study of frugal innovation. R&D Management. 2021; 51(4): 352-363. doi: 10.1111/radm.12459
51. Karmaker CL, Ahmed T, Ahmed S, et al. Improving supply chain sustainability in the context of COVID-19 pandemic in an emerging economy: Exploring drivers using an integrated model. Sustainable Production and Consumption. 2021; 26: 411-427. doi: 10.1016/j.spc.2020.09.019
52. Voukkali I, Loizia P, Navarro Pedreño J, et al. Urban strategies evaluation for waste management in coastal areas in the framework of area metabolism. Waste Management & Research: The Journal for a Sustainable Circular Economy. 2021; 39(3): 448-465. doi: 10.1177/0734242x20972773
53. Dian W, Pambudi WF, janny DA, et al. The mediating role of environmental sustainability between green human resources management, green supply chain, and green business: A conceptual model. Uncertain Supply Chain Management. 2022; 10(3): 933-946. doi: 10.5267/j.uscm.2022.3.001
54. Agyapong F, Ojo TK. Managing traffic congestion in the Accra Central Market, Ghana. Journal of Urban Management. 2018; 7(2): 85-96. doi: 10.1016/j.jum.2018.04.002
55. Darnall N, Welch EW, Cho S. Sustainable supply chains and regulatory policy. Edward Elgar Publishing; 2019.
56. Park YA, Yip TL, Park HG. An Analysis of Pilotage Marine Accidents in Korea. The Asian Journal of Shipping and Logistics. 2019; 35(1): 49-54. doi: 10.1016/j.ajsl.2019.03.007
57. Milanzi M. The Impact of Barriers on Export Behavior of a Developing Country Firms: Evidence from Tanzania. International Journal of Business and Management. 2012; 7(3). doi: 10.5539/ijbm.v7n3p10
58. Karami M, Tang J. Entrepreneurial orientation and SME international performance: The mediating role of networking capability and experiential learning. International Small Business Journal: Researching Entrepreneurship. 2019; 37(2): 105-124. doi: 10.1177/0266242618807275

59. Sun J, Sarfraz M, Khawaja KF, et al. Sustainable Supply Chain Strategy and Sustainable Competitive Advantage: A Mediated and Moderated Model. Frontiers in Public Health. 2022; 10. doi: 10.3389/fpubh.2022.895482
60. Ruel H, Rowlands H, Njoku E. Digital business strategizing: the role of leadership and organizational learning. Competitiveness Review: An International Business Journal. 2020; 31(1): 145-161. doi: 10.1108/cr-11-2019-0109
61. Gopal PRC, Thakkar J. Sustainable supply chain practices: an empirical investigation on Indian automobile industry. Production Planning & Control. 2015; 27(1): 49-64. doi: 10.1080/09537287.2015.1060368
62. Kun M. Linkages Between Knowledge Management Process and Corporate Sustainable Performance of Chinese Small and Medium Enterprises: Mediating Role of Frugal Innovation. Frontiers in Psychology. 2022; 13. doi: 10.3389/fpsyg.2022.850820
63. Zhang X. Frugal innovation and the digital divide: Developing an extended model of the diffusion of innovations. International Journal of Innovation Studies. 2018; 2(2): 53-64. doi: 10.1016/j.ijis.2018.06.001
64. Jansen JJP, Van Den Bosch FAJ, Volberda HW. Exploratory Innovation, Exploitative Innovation, and Performance: Effects of Organizational Antecedents and Environmental Moderators. Management Science. 2006; 52(11): 1661-1674. doi: 10.1287/mnsc.1060.0576
65. Burke JJ, Hoitash R, Hoitash U. The Heterogeneity of Board-Level Sustainability Committees and Corporate Social Performance. Journal of Business Ethics. 2017; 154(4): 1161-1186. doi: 10.1007/s10551-017-3453-2
66. Martins R, Mascarenhas M, Pereira E. Exploring strategic multi-leveraging of sport tourism events: An action-research study. Journal of Destination Marketing & Management. 2024; 32: 100902. doi: 10.1016/j.jdmm.2024.100902
67. Nachtigall C, Kroehne U, Funke F, Steyer R. (Why) Should We Use SEM? Pros and Cons of Structural Equation Modeling. Methods of Psychological Research. 2003; 8(2): 1-22.
68. Tarka P. An overview of structural equation modeling: its beginnings, historical development, usefulness and controversies in the social sciences. Quality & Quantity. 2017; 52(1): 313-354. doi: 10.1007/s11135-017-0469-8
69. Hayes AF, Rockwood NJ. Regression-based statistical mediation and moderation analysis in clinical research: Observations, recommendations, and implementation. Behaviour Research and Therapy. 2017; 98: 39-57. doi: 10.1016/j.brat.2016.11.001