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SUSTAINABLE TOURISM DESTINATIONS THROUGH DIGITAL INNOVATION: SMART RESOURCE MANAGEMENT IN THE THAI HOSPITALITY SECTOR

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Abstract: The hospitality industry is progressively embracing digital technologies to improve competitiveness and sustainability. Prior research has offered a constrained perspective on the organizational processes that facilitate digital initiatives in achieving multi-dimensional sustainable outcomes. This study examines how digital orientation, as a strategic organizational posture, influences sustainable performance in hospitality sector, which is conceptualized in terms of business, competitive, and environmental performance. The study presents a framework informed by the resource-based view and dynamic capabilities perspective, where strategic change and entrepreneurial competency function as mediating mechanisms, and sustainable competitive advantage along with flexible resources operate as moderating conditions. The analysis of survey data gathered from hotel employees was conducted using covariance-based structural equation modeling. The findings indicate that digital orientation has a positive impact on strategic change, entrepreneurial competency, and environmental performance. Strategic change and entrepreneurial competency act as mediators in the connection between digital orientation and overall performance, while sustainable competitive advantage and flexible resources enhance these relationships. The findings suggest that digital transformation in the hospitality sector cannot depend solely on technology investment; it necessitates robust leadership, strategic alignment, and the development of workforce capabilities. Combining digital initiatives with a focus on human-centered service and adaptable resource structures is crucial for maintaining competitive and environmental performance.

Keywords: digital orientation, strategic change, entrepreneurial competency, sustainable competitive advantage, flexible resources, hospitality

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INTRODUCTION

Despite ongoing economic challenges and geopolitical tensions in 2023, the global tourism industry has demonstrated significant resilience, attaining nearly record economic contributions of US$9.9 trillion, which represents 9.1% of the total global GDP. The recovery resulted in approximately 27.4 million new jobs, increasing global employment in the sector to around 330 million (World Travel & Tourism Council, 2024). In Thailand, the advantages of economic recovery are not evenly distributed, disproportionately benefiting high-income groups, while low-income populations continue to face challenges. In 2023, 40% of consumption growth was linked to 10% of affluent households, with expenditures primarily focused on service sectors, including hotels and restaurants. However, these sectors account for merely 8% of Thailand's workforce, thereby constraining the distribution of economic advantages and highlighting structural inequalities (Bank of Thailand, 2024). To tackle this disparity, tourism and hospitality businesses in Thailand must embrace innovations that not only distribute economic benefits more equitably but also generate job opportunities for individuals at all income levels.

In a volatile hospitality market, innovation is essential for business survival and sustained competitiveness. In particular, firms must enhance operational efficiencies (Kitsios & Grigoroudis, 2020; Zaragoza-Sáez et al., 2024) or provide innovative experiences that meet changing customer expectations (Pencarelli, 2020; Zaragoza-Sáez et al., 2024). This imperative has expedited the integration of digital technologies, which are essential for optimizing operations, restructuring value chains, and improving service delivery (Iranmanesh et al., 2022; Kraus et al., 2021). Today, digital technologies have become key drivers of competitive advantage, facilitating improvements in efficiency, sustainability, and the creation of meaningful employment.

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Such innovations, including smart technologies, robotics, self-service systems, blockchain, analytics, and mobile applications, offer substantial opportunities for the hotel industry (Akyuz & Balkan, 2024). Global hotel leaders demonstrate these opportunities through practical implementations. For example, Hilton's Digital Key, utilized in 80% of its global properties, represents the dual advantage of enhancing operational efficiency and reducing 125 tons of plastic waste, while simultaneously improving guest experience through mobile check-ins and room access. The 45% increase in usage in 2022 indicates significant user acceptance (Hilton, 2021). Marriott's US$1.2 billion investment in technology underscores the importance of digital innovation, using AI tools, such as RenAI to enhance service personalization and increase productivity (AIX, 2024). The Shangri-La Group utilizes autonomous relay robots for room delivery, whereas Japan's Henn-na Hotel implements in-room bots and sensor systems for the comprehensive automation of services (Buhalis & Leung, 2018). The abovementioned innovations indicate a distinct trend in the industry toward digital transformation, which seeks to improve financial performance, operational flexibility, and stakeholder engagement (Ivanov et al., 2020; Lenuwat & Boon-itt, 2022).

Meanwhile, in the hospitality industry, the innovation phenomenon has been of vital importance (de Larrea et al., 2021), and technological adoption has shown promising operational benefits. However, digitalization representing an emerging frontier in hospitality innovation that remains insufficiently explored (Sudhagar, 2019). Despite positive expectations, numerous hospitality organizations encounter a disconnect between the expected digital advantages and the real results, frequently stemming from insufficient strategic alignment (Chen et al., 2025; Lopes et al., 2025), constrained organizational capabilities (Busulwa et al., 2022), and resistance to change (Jayawardena et al., 2023), which results in underperformance or halted digital initiatives. The implementation of sustainable innovations in the hospitality industries has also been a huge concern among businesses (Bilgihan & Nejad, 2015; Prasanna et al., 2019). Notwithstanding these advancements, the correlation between digital innovation and sustainable, inclusive performance outcomes - especially in emerging markets—remains inadequately investigated. Therefore, it is crucial to investigate the preceding factors, applications, and outcomes of sustainable innovations in these industries, which all play significant roles (Elkhwesky et al., 2024). Nevertheless, there are significant gaps in the understanding of the complex relationships between strategic change, digital orientation (DO), and entrepreneurial competency in the other context (Baawain et al., 2025). Although earlier research has predominantly highlighted the advantages of digitalization - like enhancements in efficiency, productivity, innovation, and competitiveness across various sectors and firm sizes (Leão & da Silva, 2021; Tian et al., 2023; Xue et al., 2025) - these benefits are not assured, especially in multi-performance in the hospitality business.

As such, the present study explores how digital orientation (DO) influences sustainable performance - conceptualized as business performance, competitive performance, and environmental performance - by examining the mediating roles of strategic change and entrepreneurial competency, while considering sustainable competitive advantage and flexible resources as moderating factors. This research elucidates the impact of digital orientation on various performance outcomes in the hospitality industry by incorporating mediating and moderating mechanisms within a detailed framework. This research investigates the interconnections among these variables to address gaps in understanding the long-term effects of digital orientation on multiple performance dimensions within hospitality organizations.

LITERATURE REVIEW

Digital orientation (DO) in the hotel sector

DO is a transformative element that improves sustainability and development (Das et al., 2020; Vrontis et al., 2022). DO endows hotel enterprises with strategic agility, thus enabling rapid responses to external environmental changes while preserving organizational coherence (Warner & Wäger, 2019). A study has shown that businesses with a robust DO can identify trends early, allocate resources flexibly, and synchronize activities across many divisions by leveraging integrated digital platforms (Sestino et al., 2020). Furthermore, DO is crucial to competitiveness, as digitally mature companies outperform peers in revenue growth, customer retention, and operational resilience (Sharma et al., 2024).

In recent years, DO has been transforming the hospitality and tourism sector by enabling tailored services and quicker transactions (Casais & Ferreira, 2023), as well as better resource allocation, thereby boosting strategic agility and innovation (Sharma et al., 2024; Suder et al., 2024). In accordance with the resource-based view (Madhani, 2010), hotels must have distinctive, valuable, and hard-to-imitate resources, such as human capital and technology infrastructure, to preserve competitive advantage (Willie, 2025). Related to this, targeted retraining and upskilling make human resources fundamental competitive assets that competitors struggle to reproduce (Alqarni et al., 2023). Hotels may innovate, increase operational efficiency, and distinguish guest experiences by modernizing digital infrastructure with advanced IT systems, digital platforms, and electronic human resource management (Cuthbertson & Furseth, 2022). When managed well, these digital assets meet the resource-based view's valuable, unique, and difficult-to-imitate characteristics, making them vital for achieving competitiveness in the hospitality sector (Alqarni et al., 2023).

Effect of DO on strategic change and entrepreneurial competency

Strategic change is the intentional transformation of a company's core activities, structure, and direction in response to changes in the external environment or internal organizational dynamics (Acciarini et al., 2024; Warner & Wäger, 2019). The integration of digital technologies, such as artificial intelligence (AI), internet of things (IoT), mobile apps, and automation, has become central to hospitality strategy (D'Souza & D'Souza, 2023; Khreis et al., 2025; Molina-Castillo et al., 2023). Furthermore, digitalization is changing hotel operations from in-person to hybrid service, requiring managers to adopt new technology and restructure internal systems to suit digital-first initiatives (Anwar et al., 2024; Thomas, 2024).

Studies have shown that DO improves strategic agility and innovation (Sestino et al., 2020; Sharma et al., 2024; Suder et al., 2022). For example, digital firms use AI, IoT, and data analytics to adapt to market changes and create business models as well as address guest preferences and operational issues (Puspita & Widjaja, 2023). Cloud-based platforms, AI-driven data, and smart room technology allow hotels to try new products (Casais & Ferreira, 2023; Kosta et al., 2025). Digitally mature organizations outperform peers in revenue growth, customer retention, and operational resilience (Sharma et al., 2024), making this attitude vital to competitiveness. DO allows organizations to use digital technologies and data analytics to inform strategic decisions in a flexible, innovation-focused context (Wang et al., 2025). At the same time, companies exhibiting a strong DO initiate strategic changes that align with evolving market demands by adopting modern technologies and implementing future-focused strategies (Becker & Schmid, 2020).

Entrepreneurial competency, defined by initiative, adaptability, and innovation, is a significant factor connecting DO to strategic transformation (Becker & Schmid, 2020). The internal environment of digitally-oriented organizations foster entrepreneurial behavior by creating systems that facilitate creative thinking and encourage proactive risk-taking (Wang et al., 2025). Entrepreneurial competency serves as a crucial connection that translates digital knowledge into practical application. Studies have established correlations between sustainable business performance, strategic change, and DO (Kirtley & O'Mahony, 2023) as well as demonstrated the impact of DO on innovation capability (Laachach & Ettahri, 2023) and value creation for SMEs (Vrontis et al., 2022). AlKoliby et al. (2024) and Ed-Dafali et al. (2023) also underscored the importance of entrepreneurial competency in promoting innovation.

Companies that integrate digital empowerment with entrepreneurial workforce capabilities are more adept at identifying market changes and making rapid competitive decisions, thus rendering entrepreneurial competency crucial for the success of strategic change. In light of the above discussion, we propose the following hypotheses:

H1a: DO positively affects strategic change.

H1b: DO positively affects entrepreneurial competency.

Effect of DO on company performance

DO enhances operational efficiency, refines decision-making, and speeds up innovation (Wang et al., 2025). Companies that adopt digital strategies enhance their capabilities through data analytics and AI, thus allowing them to refine business processes and track market trends more efficiently (Becker & Schmid, 2020). Additionally, by facilitating the sharing and implementation of innovative ideas among staff members, digital technologies improve organizational innovation (Li et al., 2022). Thus, as technology advances, tourist and hospitality businesses are using automation as a strategic means of achieving innovation, competitive advantage, efficiency, and profitability while striking a balance between disruptive breakthroughs and technologies that guarantee seamless daily operations (Buhalis et al., 2024). In turn, these can enhance business competitiveness by compelling companies to reduce costs while maintaining quality and market share (Pereira et al., 2022). Furthermore, digitally advanced organizations use real-time data and analytics to promote sustainable resource usage, minimize emissions, and establish waste-reduction programs (Ameh, 2024). The integration of circular economy principles also enables firms to focus on reuse, recycling, and conservation (Sanguino et al., 2020). Based on the preceding discussion, we propose the following hypotheses:

H1c: DO positively affects business performance.

H1d: DO positively affects competitive performance.

H1e: DO positively affects environmental performance.

Effect of strategic change on performance

Strategic change enhances adaptability and agility, thereby improving an organization's ability to identify opportunities and manage risks in dynamic environments (Klarner et al., 2023). This approach integrates business process optimization via technology adoption and resource reallocation, thus enhancing effectiveness and efficiency while simultaneously promoting sustainable performance (Kirtley & O'Mahony, 2023). Strategic change also enhances employee engagement and satisfaction, thereby supporting sustainable practices (Lu et al., 2023). Studies have shown the positive correlations between strategic change and performance in business and competitive aspects (Chaudhuri et al., 2024), as well as the environmental dimension (Matloob et al., 2023; Nguyen & Adomako, 2021). Using adaptation and innovation tools enables businesses to enhance processes for effective resource allocation, thereby improving overall performance (Garrido-Moreno et al., 2024). In light of the abovementioned information, the following hypotheses are proposed:

H2a: Strategic change positively affects business performance

H2b: Strategic change positively affects competitive performance

H2c: Strategic change positively affects environmental performance

Effect of entrepreneurial competency on performance

Entrepreneurial competency plays a crucial role in fostering innovation and promoting sustainable performance within organizations (AlKoliby et al., 2024). In particular, entrepreneurial competency provides a strategic vision by identifying unique solutions and recognizing market gaps and opportunities (Aftab et al., 2024). Improved entrepreneurial competency also allows organizations to address competitive disadvantages related to low productivity and limited resources, thus achieving sustainable business performance (Fazal et al., 2022). This approach aids firms in enhancing sustainable business performance metrics, such as profitability, innovation, corporate social responsibility, and competitive advantage (Aidara et al., 2021). Additionally, research indicates that entrepreneurial competency markedly improves business (Nuryanti &

Hanifah, 2022), competitive (Koliby et al., 2024), and environmental performance (Ishaq et al., 2024), thus facilitating overall business success. Based on the abovementioned information, the following hypotheses are proposed:

H3a: Entrepreneurial competency positively affects business performance.

H3b: Entrepreneurial competency positively affects competitive performance.

H3c: Entrepreneurial competency positively affects environmental performance.

Strategic change as a mediator between DO and performance

Strategic change serves as a critical connection between DO and sustainable performance. DO has been shown to improve organizational adaptability and innovation through the systematic reassessment of strategic priorities (Klarner et al., 2023). Research strongly supports the alignment of strategic initiatives with digital advancements as a way for companies to effectively tackle sustainability challenges while also enhancing their competitive position (Bendig et al., 2023). Strategic change can transform DO into enhanced business, competitive, and environmental performance (Baawain et al., 2025; Rawashdeh et al., 2024). Accordingly, the following hypotheses are suggested:

H4a: Strategic change mediates the relationship between DO and business performance.

H4b: Strategic change mediates the relationship between DO and competitive performance.

H4c: Strategic change mediates the relationship between DO and environmental performance.

Entrepreneurial competency as a mediator between DO and performance

Entrepreneurial competency is a vital mechanism by which DO impacts business performance. According to Wang et al. (2025), organizations that foster certain entrepreneurial traits, such as opportunity recognition, agile thinking, and market responsiveness, effectively convert digital insights into distinctive value propositions and innovations that enhance performance. Furthermore, employees possessing entrepreneurial skills utilize digital technologies to predict market changes and develop superior products (Becker & Schmid, 2020, thereby enhancing business, competitive, and environmental performance (Ishaq et al., 2024; Koliby et al., 2024; Nuryanti & Hanifah, 2022). In turn, this approach facilitates entrepreneurial competency as a mediator connecting DO to various performance dimensions. Thus, the following hypotheses are proposed:

H4d: Entrepreneurial competency mediates the relationship between digital orientation and business performance.

H4e: Entrepreneurial competency mediates the relationship between digital orientation and competitive performance.

H4f: Entrepreneurial competency mediates the relationship between digital orientation and environmental performance.

Sustainable competitive advantage as a moderator

Organizations that possess lasting competitive advantages exhibit proficiency in using digital tools for strategic realignment and in navigating internal obstacles (Hussein et al., 2024). Previous studies have indicated that sustainable competitive advantage allows organizations to maximize the benefits of DO by using digital tools for workflow optimization, cost reduction, and improved customer experiences (Ijomah et al., 2024; Kim et al., 2020), ultimately leading to increased profitability and customer loyalty (Hussein et al., 2024). Studies have demonstrated that SCA enables firms to customize digital capabilities for market-specific opportunities, including supply chain efficiency and customer-centric innovations (Ning & Yao, 2023; Van Hoang et al., 2025). Furthermore, SCA integrates sustainability into digital strategies to promote eco-innovation and environmental leadership (Baawain et al., 2025; Batarfi et al., 2025; Hussein et al., 2024). These mechanisms illustrate that SCA enhances the influence of DO on a company's business, competitive, and environmental performance, enabling them to attain sustainable competitive advantage in the hospitality sector. Therefore, the following hypothesis are proposed:

H5a: Sustainable competitive advantage moderates the relationship between digital orientation and strategic change.

H5b: Sustainable competitive advantage moderates the relationship between digital orientation and business performance.

H5c: Sustainable competitive advantage moderates the relationship between digital orientation and competitive performance.

H5d: Sustainable competitive advantage moderates the relationship between digital orientation and environmental performance.

Flexible Resources as a Moderator

Flexible resources encompass adaptable capabilities and procedures that allow organizations to transition between functions and strategies, thereby enhancing innovation and responsiveness (Cosa & Torelli, 2024). Furthermore, high levels of resource flexibility enhance experimental research and creative initiatives, thus promoting the development of entrepreneurial competencies (Awais et al., 2023). Companies that possess resource flexibility effectively convert their DO into enhanced business performance by quickly adapting to market fluctuations and realigning their operations (Hussein et al., 2024). Flexible resources lower transformation costs and enhance performance gains (Baawain et al., 2025). Such resources further improve competitive positioning by facilitating swift differentiation and responsive strategies (Wang et al., 2025). In sustainability, resource adaptability facilitates the swift incorporation of eco-friendly technologies and ensures alignment with environmental goals (Bendig et al., 2023). Based on this reasoning, the following hypotheses are proposed:

H5e: Flexible resources moderate the relationship between DO and entrepreneurial competency.

H5f: Flexible resources moderate the relationship between DO and business performance.

H5g: Flexible resources moderate the relationship between DO and competitive performance.

H5h: Flexible resources moderate the relationship between DO and environmental performance.

RESEARCH METHODOLOGY

Data collection and sample selection

The Human Research Ethics Committee of Burapha University, Thailand, granted formal approval for this research (Approval No. IRB2-103/2567). All the study participants provided informed consent concerning their voluntary participation and right to withdraw. Data confidentiality and anonymity were upheld via deidentification procedures and secure storage, while adhering to organizational confidentiality agreements. Purposive sampling identified 30 four- and five-star hotels in Bangkok and Chonburi through digital technology, of which 18 hotels agreed to participate. Simple random sampling identified 600 employees from a total of 850 across 18 hotels. The sample size complied with SEM guidelines (Hoe, 2008; Wolf et al., 2013). A minimum of 400–600 samples was necessary for 39 observed variables. Self-administered questionnaires were distributed to hotel employees at the location. Researchers secured management approval, disseminated questionnaires, and gathered completed forms in sealed envelopes. Of the 600 distributed questionnaires, 510 were returned, yielding a response rate of 85%. Following data cleaning, 400 responses were validated, representing 66.67%, thereby meeting the requirements for structural equation modeling (SEM).

Research instrument

This research employed a self-administered questionnaire, ensuring linguistic precision and conceptual equivalence via a thorough translation-back-translation procedure between English and Thai. The resulting questionnaire was then validated by a bilingual linguistics expert. The questionnaire comprised an introduction detailing the study, estimated participation duration, and data confidentiality, followed by items for construct measurement and demographic data. The instrument consisted of two sections, demographic characteristics and construct measurements, in which items were scored using a five-point Likert scale (1 = "totally disagree" to 5 = "totally agree"). The measurement framework incorporated multiple validated constructs.

DO was assessed through 18 items merged from Orlandi (2016), Tajeddini et al. (2024), and Von Briel (2018). Strategic change was measured using 12 items adapted from Matloob et al. (2023), while entrepreneurial competency was evaluated through 5 items from Man et al. (2008). The business performance construct used 5 items from Fernando et al. (2019). We measured competitiveness performance was measured using 4 items derived from Tajeddini et al. (2024). Environmental performance was measured using 6 items adopted from Zhu & Sarkis (2004). Seven items from Behl et al. (2022) were used to measure sustainable competitive advantage, and five items from Li et al. (2017) were used to measure flexible resources.

Data analysis

The analysis of data was conducted using covariance-based structural equation modeling (CB-SEM) through Mplus 7.3, aimed at assessing the relationships among latent constructs and evaluating the proposed theoretical model. The measurement model was evaluated using confirmatory factor analysis (CFA) to examine indicator–latent variable relationships. To assess model fitness, five criteria were used for models with over 30 items and sample sizes over 250: chi-square (χ^2)/degree of freedom (df) < 3, χ^2 with significant p-value, CFI and TLI > 0.900, RMSEA < 0.070, and SRMR < 0.080 (Hair et al., 2010). The analysis was conducted in three stages. First, CFA was assessed using the measurement model by analyzing factor loadings (greater than 0.700), composite reliability (CR, greater than 0.700), average variance extracted (AVE, greater than 0.500), and discriminant validity through the Fornell–Larcker criterion to verify the quality of the scale. The structural model evaluated the proposed relationships among constructs by examining path coefficients for their statistical significance and effect size. To assess the significance of moderation effects on the relationships between DO and the dependent variables, the moderating effects of sustainable competitive advantage and flexible resources were examined using interaction analysis, which included interaction plots and slope analysis.

RESULTS

Participant characteristics

The participant characteristics of hotel employees in this study are based on a sample size of 400 respondents. As shown in Figure 1, the workforce primarily consists of females (54.5%), followed by males (38.7%) and LGBTQIA+ individuals (6.8%).

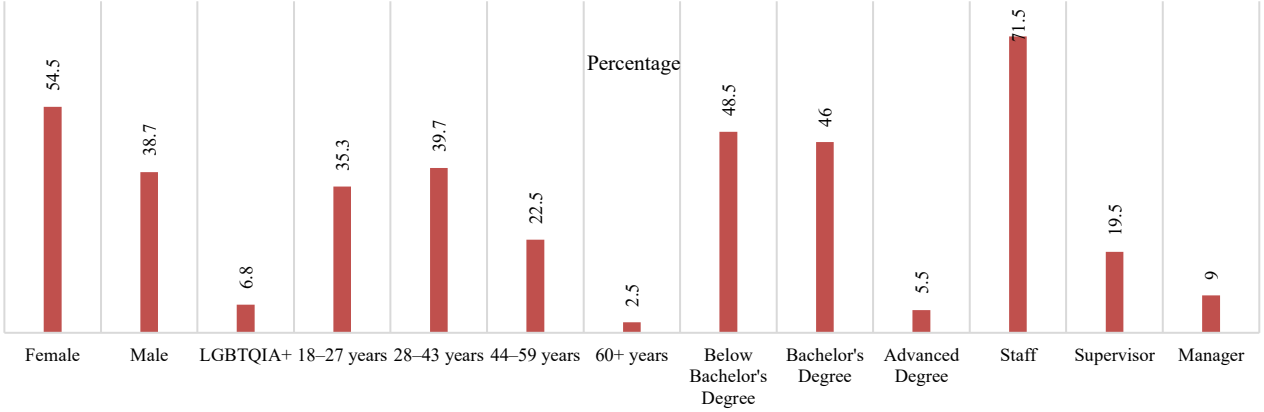

Figure 1. Percentages of participant characteristics

The predominant age group is 28–43 years, comprising 39.7% of the sample, followed by the 18–27 age group (35.3% of the sample). Smaller proportions include individuals aged 44–59 years (22.5%) and those over 59 years (2.5%). In terms of educational attainment, 48.5% possess qualifications below a bachelor's degree, 46.0% hold a bachelor's degree, and only 5.5% have advanced degrees. The majority of participants are employed at the staff level (71.5%), while supervisors and managers account for 19.5% and 9.0% of the total sample, respectively.

Measurement model

Data normality was evaluated as a prerequisite for CB-SEM before conducting common method bias testing. All observed variables demonstrated acceptable normality, with skewness values within the range of |skewness| < 2 (observed range = -0.892 to 0.483) and kurtosis values within |kurtosis| < 7 (observed range = -1.154 to 0.391). Furthermore, Harman's single-factor test indicated that no individual factor explained more than 41.181% of the total variance, implying that common method bias is not likely to pose a significant issue.In this step, the CFA eliminated items with inadequate factor loadings as they failed to meet the cutoff threshold and did not fit the study's context. Thus, the final model maintained 33 items. The CFA in Table 1 has acceptable model fit, as indicated by the following index values: χ^2 = 1096.762 (p = 0.000), df = 467, CFI = 0.936, TLI = 0.927, RMSEA = 0.058, and SRMR = 0.039. While a close fit (RMSEA < 0.05) is preferred, RMSEA values below 0.07 are considered acceptable for complex models with large sample sizes.

Table 1. CFA of measurement model (Note: AVE = average variance extracted, CR = composite reliability, and ** = p < 0.001)

Constructs Items	Factor Loadings	t-value	CR	AVE
DO: Digital orientation (α = 0.907, KMO = 0.904)			0.908	0.623
My company always looks out for opportunities to use digital technology in our innovation.	0.845	49.001**		
My company uses digital technology to reduce costs as a goal (including all aspects of R&D, production, and sales).	0.826	44.599**		
My company uses digital technology to improve corporate efficiency (including production efficiency, R&D efficiency, and communication efficiency).	0.824	44.073**		
My company uses digital technology to deliver new offerings as a goal.	0.759	32.027**		
My company uses digital technologies to develop more advantageous business models.	0.749	30.616**		
New digital technology is readily accepted in our company.	0.724	27.565**		
SC: Strategic change (α = 0.913, KMO = 0.907)			0.916	0.608
My company is carrying out a considerable change in its organization.	0.848	50.848**		
My company is starting marketing oneself in a new way.	0.798	38.919**		
My company is carrying out a considerable change in its internal operation.	0.790	37.377**		
My company is carrying out measures in advance that it otherwise would have been forced to do sooner or later.	0.778	35.295**		
My company is introducing an important new product or service or in any other way substantially changing offerings to customers.	0.776	34.946**		
My company is commencing the development of a new important product, service, or similar, which has not yet been introduced.	0.742	29.927**		
My company is starting a business in a new place within Thailand.	0.721	27.511**		
EC: Entrepreneurial competency (α = 0.864, KMO = 0.733)			0.867	0.680
My company determines long-term issues, problems, or opportunities	0.843	43.353**		
My company manages enterprise effectively	0.828	40.532**		
My company applies ideas, issues, and observations to alternative contexts.	0.804	36.472**		
BP: Business performance (α = 0.913, KMO = 0.831)			0.916	0.730
The growth of my company's profitability has been exceptional.	0.894	67.381**		
My company's return on investment has increased.	0.891	66.528**		
My company's net profit margin has increased.	0.849	50.846**		
My company's profitability has surpassed that of competitors.	0.781	35.676**		
CP: Competitiveness performance (α = 0.883, KMO = 0.744)			0.883	0.716
My company improved brand value of services.	0.865	50.920**		
My company increased accessibility to new markets/customer groups.	0.850	47.194**		
My company improved quality of services.	0.823	41.304**		
EP: Environmental performance (α = 0.880, KMO = 0.810)			0.881	0.650
My company decreased frequency of environmental accidents.	0.865	47.354**		
My company decreased consumption for hazardous/harmful/toxic materials.	0.819	38.439**		
My company improved environmental situation.	0.779	32.575**		
My company reduced of solid waste.	0.759	29.810**		
SCA: Sustainable competitive advantage (α = 0.863, KMO = 0.730)			0.865	0.681
Compared with competitors, my company have more profitable new customers.	0.851	44.858**		
Compared with competitors, my company have more profitable old customers.	0.834	41.694**		
Compared with competitors, my company have better product and service quality.	0.789	33.958**		
FR: Flexible resources (α = 0.878, KMO = 0.741)			0.878	0.706
The difficulty of switching the use of key resources to an alternative one in my company is very low.	0.867	49.823**		
The main resources in my company are widely used in product development, manufacturing, sales, etc.	0.837	43.126**		
The time required for my company to switch the use of key resources to an alternative one is very short.	0.816	39.431**		

The present model comprises 33 items and a sample size of 400, and the RMSEA values are further supported by satisfactory incremental and residual-based fit indices (Hair et al., 2010). The measures demonstrated strong reliability, with Cronbach's alpha values ranging between 0.863 and 0.913. The data's suitability for factor analysis is confirmed by KMO values (0.730 to 0.907) and significant Bartlett's test results ($p < 0.050$). The scales are internally consistent, with CR scores ranging between 0.865 and 0.916, which is higher than the recommended 0.600 threshold (Hair et al., 2010). The measures are also convergent, with average variance extracted (AVE) values between 0.608 and 0.730. The research assessed the discriminant validity of the measurement model through two methodologies. Initially, the researchers applied the Fornell & Larcker (1981) criterion by comparing the square root of AVE with the correlation coefficients among the constructs. The correlation coefficients ranged from 0.411 to 0.757, and the square root of AVE for each construct varied from 0.779 to 0.854, surpassing all correlations, as indicated by the bold diagonal values in Table 2.The second validation method used the CICFA (sys) technique, which has been demonstrated in recent studies to be superior to the traditional HTMT ratio. The analysis, employing a threshold value of 0.900 as suggested by Rönkkö & Cho (2022), indicated that the coefficients at the 95% upper bound varied between 0.503 and 0.815. The values remained below the threshold, confirming the absence of high correlations between constructs. Furthermore, the results indicated that it is appropriate to proceed with the structural model analysis.

Table 2. The result of discriminant validity (Note: The diagonal values shown in italic bold represent each construct's square root of AVE. The correlation coefficients between the constructs are displayed below the diagonal. Above the diagonal, the numbers enclosed in parentheses indicate the correlations between constructs at the 95% confidence interval (CI). DO = Digital orientation, SC = Strategic change, EC = Entrepreneurial competency, BP = Business performance, CP = Competitiveness performance, EP = Environmental performance, SCA = Sustainable competitive advantage, FR = Flexible resources)

Constructs	DO	SC	EC	BP	CP	EP	SCA	FR
DO	***0.789***	[.652, .769]	[.640, .766]	[.569, .704]	[.600, .733]	[.406, .577]	[.581, .720]	[.511, .664]
SC	0.710	***0.779***	[.578, .717]	[.638, .757]	[.610, .740]	[.319, .503]	[.619, .750]	[.663, .780]
EC	0.703	0.648	***0.825***	[.602, .736]	[.700, .815]	[.418, .593]	[.508, .668]	[.489, .652]
BP	0.637	0.697	0.669	***0.854***	[.592, .726]	[.320, .504]	[.622, .752]	[.625, .751]
CP	0.666	0.675	0.757	0.659	***0.846***	[.592, .726]	[.630, .762]	[.538, .689]
EP	0.491	0.411	0.506	0.412	0.486	***0.806***	[.408, .584]	[.347, .532]
SCA	0.651	0.684	0.588	0.687	0.696	0.496	***0.825***	[.666, .790]
FR	0.587	0.721	0.570	0.688	0.613	0.439	0.728	***0.840***

Structural model

The structural model analysis was conducted to evaluate the proposed relationships between the constructs. The primary structural model presented in Table 4 demonstrates an acceptable fit, as indicated by the following index values: $\chi 2 = 789.357$ ($p = 0.000$), df = 310, CFI = 0.939, TLI = 0.931, RMSEA = 0.062, and SRMR = 0.044. The findings of the hypotheses testing within the structural model are as follows. As shown in Figure 2 and Table 3, the structural model testing indicates varying levels of support for the proposed direct relationships.

Table 3. Hypothesis testing (Note: Beta coefficient (β), *** = $p < 0.001$, ** = $p < 0.010$, * = $p < 0.050$)

Hypotheses	*β*	*t*-values	95% CI	Results
H1a: DO ⟶ SC	0.727	25.520***		Supported
H1b: DO ⟶ EC	0.721	23.400***		Supported
H1c: DO ⟶ BP	0.109	1.448		Not supported
H1d: DO ⟶ CP	0.111	1.486		Not supported
H1e: DO ⟶ EP	0.250	2.701**		Supported
H2a: SC ⟶ BP	0.419	6.884***		Supported
H2b: SC ⟶ CP	0.291	4.722***		Supported
H2c: SC ⟶ EP	0.048	0.625		Not supported
H3a: EC ⟶ BP	0.335	5.186***		Supported
H3b: EC ⟶ CP	0.503	8.060***		Supported
H3c: EC ⟶ EP	0.295	3.701***		Supported
H4a: DO ⟶ SC ⟶ BP	0.304	6.563***	[0.219, 0.389]	Supported
H4b: DO ⟶ SC ⟶ CP	0.212	4.625***	[0.108, 0.316]	Supported
H4c: DO ⟶ SC ⟶ EP	0.035	0.625	[-0.080, 0.150]	Not supported
H4d: DO ⟶ EC ⟶ BP	0.241	4.984***	[0.141, 0.341]	Supported
H4e: DO ⟶ EC ⟶ CP	0.363	7.375***	[0.251, 0.474]	Supported
H4f: DO ⟶ EC ⟶ EP	0.213	3.625***	[0.053, 0.373]	Supported
H5a: DO x SCA ⟶ SC	0.829	3.094**		Supported
H5b: DO x SCA ⟶ BP	0.635	2.274*		Supported
H5c: DO x SCA ⟶ CP	0.072	0.253		Not supported
H5d: DO x SCA ⟶ EP	0.725	2.174*		Supported
H5e: DO x FR ⟶ EC	0.547	2.192*		Supported
H5f: DO x FR ⟶ BP	0.547	2.304*		Supported
H5g: DO x FR ⟶ CP	0.348	1.391		Not supported
H5h: DO x FR ⟶ EP	0.710	2.469*		Supported

DO demonstrates notable positive impacts on SC, EC, and EP. However, its direct influences on BP and CP are insignificant. SC exhibits notable positive effects on BP and CP, while showing no impact on EP. Thus, the analysis indicates that EC has a substantial positive impact on all three performance outcomes, namely, BP, CP, and EP.

For the hypothesis testing of the indirect effects, 10,000 bootstrap resampling iterations were applied to confirm the mediating roles of SC and CP. The absence of zero in the 95% confidence intervals confirms the statistical significance of these indirect effects, thus providing support for hypotheses H4a–d and H4f. DO demonstrates the notable indirect effects on BP via SC and EC. Similarly, the indirect effects of DO on CP are significant via SC and EC. In the context of EP, DO demonstrates an indirect effect via EC, whereas no such effect is observed through SC. This finding aligns with the lack of a significant direct relationship between SC and EP.

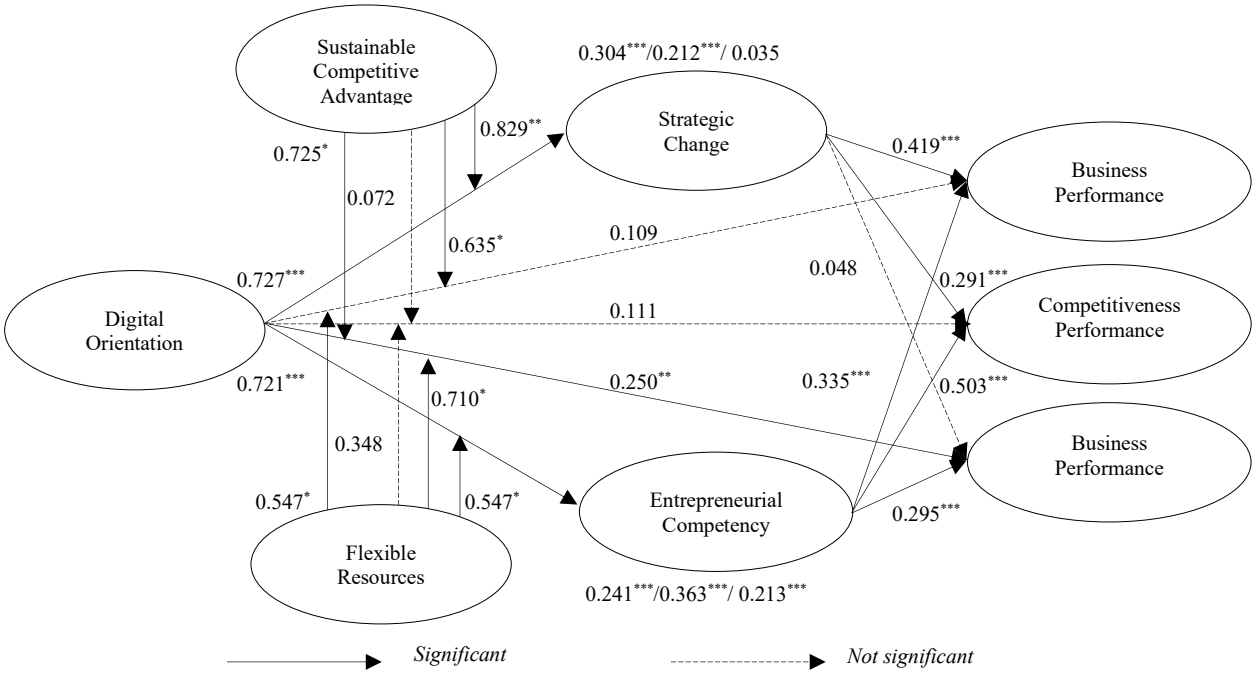

Figure 2. Structural model

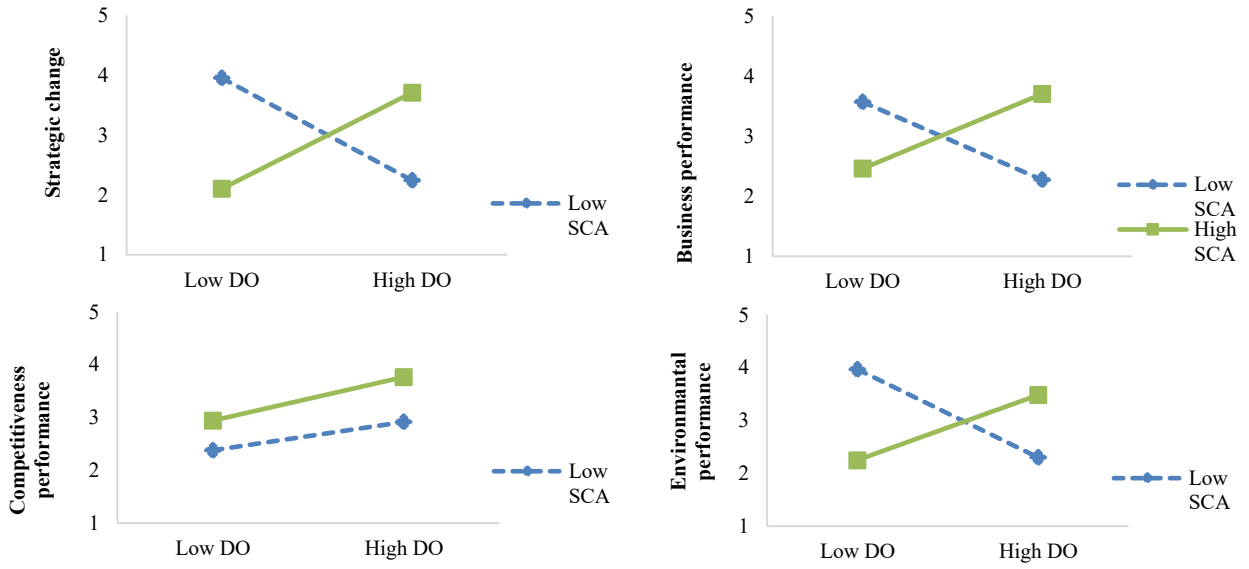

Figure 3. The moderating effect of SCA on the relationship between DO and SC, BP, CP, and EP

The moderating effects

Figures 3 and 4, along with Table 3, exhibit the results of the moderating influences of SCA and FR. As can be seen, SCA played a significant moderating role in the relationships between DO and SC, BP, and EP, exhibiting steeper positive slopes in conditions of high SCA. Correspondingly, FR served as a positive moderator for the relationships between DO and EC, and EP, demonstrating more pronounced positive slopes under conditions of elevated high FR. Nonetheless, both moderators exhibited negligible effects on specific relationships: SCA did not significantly influence the relationship between DO and CP, while FR did not significantly affect the relationship between DO and CP.

Although the moderating effect of FR on the relationship between DO and CP shows a crossed-line graph, the nonsignificant value confirms that it does not play a moderating role (Hayes, 2018).

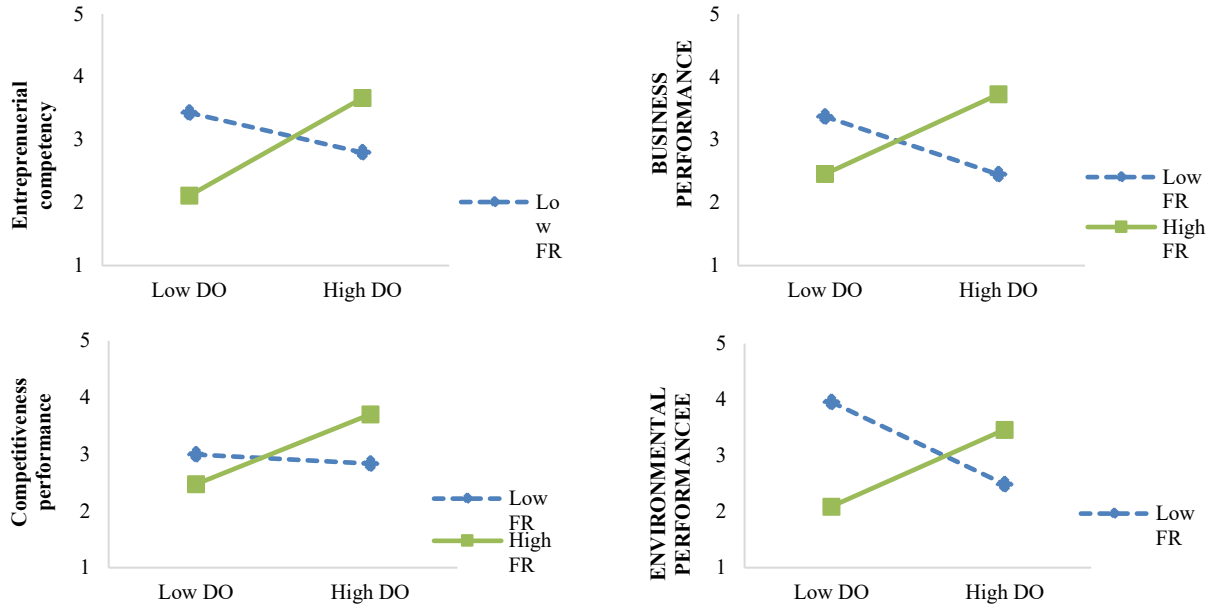

Figure 4. The moderating effects of FR on the relationship between DO and EC, BP, CP, and EP

DISCUSSION

DO positively affects strategic change and entrepreneurial competency, supporting the literature, which states that digitally-oriented organizations better meet market demands by adopting modern technologies and forward-thinking strategies (Wang et al., 2025). While the literature shows that DO improves environmental performance by optimizing resource utilization and implementing sustainability efforts through data analytics (Asad et al., 2024), interestingly, DO did not affect company or competitive performance in the current study. This finding contradicts the idea that technological investment alone improves performance. Instead, it shows that digital technologies must be operationalized through strategy realignment and capabilities development to produce performance results. This also demonstrates that technological adoption without organizational transformation has little business benefit and that successful digital efforts require organizational change and workforce development.

Furthermore, the results show that strategic change and entrepreneurial competencies mediate DO-performance linkages. Strategic change boosts flexibility and efficiency, promoting sustainable business (Baawain et al., 2025). Strategic change in hotels involves process reform, such as installing digital reservation systems that need staff retraining, revamping guest service processes, and reorganizing departments to accommodate new technology. In this regard, entrepreneurial competency helps companies transform digital capabilities into competitive advantages through opportunity recognition and innovation (Becker & Schmid, 2020). Entrepreneurial hotel employees identify service gaps addressed by digital platforms (e.g., data-driven guest experiences), develop innovative revenue streams (e.g., mobile app-based services), and improve operational efficiency. These findings indicate that DO affects performance through internal competencies and organizational transformation, not technology. Sustainable competitive advantage boosts strategic change, company performance, and environmental performance with DO. Companies with long-term competitive advantages use digital technologies for strategy realignment more efficiently (Cosa & Torelli, 2024). Flexible resources mitigate DO's effects on entrepreneurial competency, business performance, and environmental performance. Resource flexibility allows organizations to change structures, invest in innovation, and cut digital transformation costs (Adomako & Ahsan, 2022). These studies demonstrate that organizational change management determines digital project success.

CONCLUSION

This research enhances the comprehension of digital orientation as a strategic organizational stance rather than just technology adoption, illustrating that digital orientation affects performance through various indirect routes involving strategic change and entrepreneurial competency. The study aligns with the concept of *digitainability*, the synergistic integration of digitalization and sustainability (Wang et al., 2025). The study also combines the resource-based view and dynamic capabilities perspectives, demonstrating the synergistic interaction between dynamic capabilities and sustainable competitive advantage, along with flexible resources. The notable moderating effects of sustainable competitive advantage and flexible resources reinforce the theoretical stance that organizational resources and capabilities work in tandem rather than in isolation, thus enhancing our comprehension of how internal capabilities boost the success of digital transformation (Cosa & Torelli, 2024). Moreover, the results contribute to a deeper comprehension of the ways in which digital technologies improve environmental performance within the hospitality industry. In particular, digital orientation supports

sustainability objectives through enhanced operational efficiencies and resource monitoring technologies, illustrating that digital capabilities can effectively promote both business performance and environmental results (Asad et al., 2024).

The study provides actionable recommendations for hotels undergoing digital transformation. First, hotel managers should actively champion digital initiatives by allocating resources, engaging personally, and providing visible support. The commitment of leadership is essential for successful adoption and indicates an organization's prioritization of digital transformation. Second, instead of implementing digital technologies as isolated solutions, hotels ought to weave them into a holistic strategy, viewing digital tools as enablers of strategic transformation. Multiscenario planning also allows hotels to utilize digital capabilities for improved strategic flexibility. Third, successful adoption necessitates comprehensive training initiatives that tackle technological skill disparities among different employee generations, while also fostering a workforce with diverse skills that can adaptively operate across various functions. This minimizes resistance to change and speeds up digital adoption. While digital technologies are becoming more accessible to all competitors, hotels need to create a sustainable advantage by integrating unique digital capabilities with exceptional human service elements. Digital tools ought to enhance, not substitute, the human aspects of hospitality, thus fostering a unique competitive edge that technology by itself cannot provide. Finally, hotels should create adaptable structures that include versatile staff, scalable technology systems, and financial reserves that can be swiftly redirected. The agility of resources significantly boosts the success of digital transformation, lowers transition costs, and facilitates rapid strategic adjustments. This cohesive strategy of merging effective leadership, strategic alignment, workforce enhancement, service uniqueness, and organizational adaptability enables hotels to optimize returns on digital investments while preserving their unique hospitality value proposition.

Limitations and future research directions

A few drawbacks in this study give opportunity for future investigations. For instance, the cross-sectional approach limits causal inference; longitudinal investigations establish causation over time. The study explored DO without separating customer-facing versus back-office systems or basic versus advanced technologies. Furthermore, hotel size, star rating, ownership structure, and target market niche were not thoroughly considered moderators. To compare hospitality sectors and geographies throughout digital change, future research should use longitudinal designs. Specific technology kinds, multilevel analysis (individual, team, and organizational), and customer experience mediation effects should also be studied. Hospitality organizations can find ideal configurations by examining how DO interacts with market, learning, and sustainability. These directions will clarify DO's significance in the hospitality sector.

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