

Measuring Hotel Financial and Non-Financial Performance in Thailand: The Application of Technology-Organization-Environment (TOE) Framework

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Abstract

Guided by the Technology-Organization-Environment (TOE) framework, the current study aims to test the impacts of organizational factors, technological factors, and environmental factors on the financial and non-financial performance (or goals) of hospitality firms. Unlike several empirical studies in the past, this study attempted to compare the effects of these factors on financial and non-financial performances. The authors proposed the contributions with clearer and more specific recommendations and a greater understanding of how managers can improve and adjust their strategic plan and implementation to achieve long-term firm performance. The data analysis was structural equation modeling. Prior to the data analysis, reliability and validity tests were conducted to certify the quality of the data. After screening the data carefully, based on 350 hospitality firms in Thailand, including 3–5-star hotels in Thailand representing all parts of the country, the results indicated that organizational factors and technological factors had significant effects on both financial and non-financial performance. The environmental factor demonstrated no significant effect on financial and non-financial performance. Moreover, for the theoretical contribution, this study provided empirical research by applying the TOE framework in the context of the hospitality industry, presenting that organizational factors and technological factors had significant impacts on the firm performance. Discussion with the past literature provided deeper insights into the findings. Research conclusions and practical recommendations were also provided.

Keywords: Hotel Performance Measurement, Technology-Organization-Environment (TOE) Framework, Thailand.

Introduction

Entrepreneurs and investors constantly strive to enhance their organizations' competitive edge in the dynamic business environment. Strategic management literature offers a foundational framework, highlighting the critical role of external environmental factors in influencing organizational performance and competitive positioning (Nandakumar et al., 2010). Factors such as dynamism, complexity, and hostility are vital determinants, as discussed by strategic management experts. Mintzberg (1979) supports this view, stating that an organization's performance is closely tied to how well its strategy aligns with the external environment. This strategic-environment fit is crucial for organizational success. Lin, Tsai, and Wu (2014) add that achieving competitive advantage involves leveraging strategic resources. In addition, strategic group-level analysis helps understand the complex relationship between business strategy and organizational performance. Businesses must navigate their external environments, developing strategies that respond to and excel in this dynamic landscape. Tarittawan et al. (2020) emphasizes the practical application of these theories, highlighting the importance of context-appropriate strategies in business. Effective strategies must be tailored to the specific environmental contexts in which businesses operate, necessitating sharp business acumen. Moreover, strategic typologies, such as those by Miles and Snow (1978) and Porter (1980), provide various perspectives for businesses to develop and implement their strategies. From prospectors and analyzers to defenders and reactors and from cost leadership to differentiation and focus strategies, there are numerous strategic archetypes for businesses to consider. Additionally, the McKinsey 7S framework, introduced by Tom Peters and Robert Waterman in the early 1980s, offers a comprehensive approach to evaluating and enhancing business implementation (Pascale & Athos, 1981). The seven criteria are shared values, strategy, structure, systems, style, staff, and skills. It underscores the importance of strategic coherence across different organizational elements.

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According to Krungsri Research (2024), the hotel industry is expected to see continued growth from 2024 to 2026, driven by government support and a recovery in foreign arrivals, projected to reach nearly pre-pandemic levels of 38 to 40 million by 2025. Domestic tourism is also predicted to hit 200 million trips annually by 2025. To tackle labor shortages and cater to the demands of digital consumers, large hotel operators plan to invest more in technology and eco-friendly hotels, particularly in major tourist destinations. The national occupancy rate is expected to stay above 70% in 2024. The easing of pandemic restrictions in 2022 marked the start of the tourism sector's recovery. Furthermore, Statista (2024) predicts significant revenue growth for Thailand's hotel market, reaching \$1.58 billion by 2024 and increasing at a compound annual growth rate (CAGR) of 3.02% to \$1.78 billion by 2028. User numbers are expected to rise to 10.61 million by 2028, with user penetration growing from 13.1% in 2024 to 14.7% by 2028. The average revenue per user (ARPU) is projected to be \$167.50, with 78% of total hotel market revenue coming from online sales by 2028. The U.S. is expected to lead globally with \$110.5 billion in hotel market revenue in 2024. Many Thai hotels are focusing on sustainable tourism trends. Mordor Intelligence Private Limited (2024) also forecasts growth in the Thai hospitality sector, driven by young travelers and enhanced government focus on tourism. Key performance metrics include visitor revenue and tourism-related income, with a rise in hotel projects propelling market momentum. The Daily Lodging Report (2024) notes that the Thai hotel industry expects full recovery from the pandemic by late 2024, with Phuket remaining a top destination.

Nevertheless, potential challenges to the anticipated recovery include geopolitical conflicts, such as the Israel-Hamas conflict, which could lead to higher oil prices and increased transportation costs, negatively affecting global tourism. Additionally, a weak Chinese economy could lead Chinese tourists to prefer domestic travel, limiting growth in this market. Statista (2024) highlights significant growth in Thailand's hotel market due to its tropical beauty and rich culture, driven by a demand for unique accommodations, sustainable practices, and a blend of traditional hospitality with modern amenities. The market's factors include stable political environments, strategic marketing, and infrastructure investments. Krungsri Research (2024) points out challenges such as intensified competition, technological upgrades, sustainability goals, and stricter safety regulations. During the Covid-19 pandemic, tourist behavior shifted towards health and hygiene tourism and digital technology for travel. Post-pandemic marketing strategies have focused on niche markets, health and hygiene, and digital trends. Hospitality firms are advised to diversify revenue streams, enhance value-added tourism, and collaborate with local communities to promote local travel packages.

In this dynamic environment, businesses must strive to secure a competitive advantage. Nandakumar, Ghobadian, and O'Regan (2010) emphasize that external environmental factors, such as dynamism, complexity, and hostility, significantly impact an organization's performance. Abdullah and Kadir (2019) highlight the importance of strategically integrating resources and capabilities, noting that the synergy between these elements is crucial for gaining a competitive edge and achieving organizational goals. Thus, identifying the factors influencing the business environment is essential for successful strategy formulation and execution. This paper focuses on the tourist accommodation businesses in Thailand, exploring the various dynamics that affect organizational performance. It aims to highlight both financial and non-financial aspects, acknowledging the complex interplay between strategic decision-making and the evolving external environment. As businesses in the tourism sector navigate these challenges, effectively identifying and responding to influencing factors is key to achieving sustained success and competitive advantages in Thailand's vibrant tourism accommodation industry.

The research rationale was to provide insights into factors affecting the financial performances and non-financial performances of the leading hotels in Thailand. Additionally, the current research aims to explore the relationship of the proposed factors in the context of hospitality in emerging economies. Therefore, the results of the study can be useful for other related hospitality firms in the context of emerging economies where the hospitality industry contributed significantly to the economy. The results of the study were expected to indicate the important factors to support the performances of the hospitality firms, and therefore, the managers of the hospitality companies can manage and utilize their resources effectively in order to achieve the performances of the firms.

Research Objectives

This research endeavor seeks to discern the determinants that influence organizational performance within the context of the tourist accommodation sector in Thailand. The primary objective is to pinpoint the specific factors within the business environment that contribute to shaping both the financial and non-financial aspects of organizational performance. For the purpose of this investigation, tourist accommodation is operationally defined as establishments providing lodging services for travelers during their journeys. This category encompasses entities such as hotels and resorts, characterized by either dependence (affiliation with a hotel chain) or independence in their operational structure. Additionally, the scope of this study encompasses tourist accommodations falling within the classification range of 3 to 5 stars, delineating the level of service provision.

Literature Review

Technology-Organization-Environment (Toe) Framework

The current study is created based on the Technology-Organization-Environment (TOE) Framework (Tornatzky & Fleischer, 1990). The TOE framework identifies three essential contexts that influence an organization's adoption and performance. Firstly, the technological context includes both the internal technologies currently in use within the firm and external technologies available in the market. Factors like technology competence and IT expertise are critical in this context. Secondly, organizational context involves the characteristics of the organization itself, such as its size, scope, and managerial structure. Organizational readiness and technology integration capabilities are key considerations. Lastly, environmental context encompasses the external environment in which the organization operates, including industry characteristics, market conditions, and government regulations.

TOE framework has been one of the most important frameworks focusing on the dynamic business environment and organizational adaptation and flexibility in coping with the ever-changing environment while at the same time, these organizations must ensure and be ready to manage the optimal combination among their organizational factors (such as structure and management style), technological factor (such as acquisition of high quality and compatible technology) and environmental factors (such as competitive readiness and information accessibility) (Awa et al., 2015; Soto-Acosta et al., 2016; Wen & Chen, 2010).

This investigation focuses on identifying the factors that influence organizational performance within the tourist accommodation sector in Thailand. Anwar and Hasnu (2016) highlight that the relationship between strategy and performance is based on a clear causal connection, as shown by advancements in strategy research. Extensive studies have examined the relationship between organizational context and performance or business objectives. Hambrick's 1983 research emphasizes that differences in organizational performance among various strategies can be linked to the type of performance metrics and environmental distinctions. Tornatzky and Fleischer (1990) describe organizational context using size, formation, and structure measures. They stress the importance of human resources, resource availability, decision-making processes, employee coordination, and organization-wide transactions in influencing organizational operations. Tichy and Devanna (1986) argue that organizational change is strategically important and responds to key sources of organizational uncertainty, such as technical designs, political allocations, and organizational ideologies. Research by Tarittawan et al. (2020) reveals the significant impact of organizational structure on performance and highlights a positive relationship between organizational structural variables and business outcomes like innovation and strategic alignment in accommodation businesses, suggesting that environmental and organizational factors, including dynamics, technology, firm size and age, and management style influence effective internal management. In addition, Iselin et al. (2008) find a positive association between the alignment of performance measurement and strategic goals, impacting both financial and non-financial performance indicators. Key aspects affected by organizational performance include financial metrics like profit and cash flow, market share and sales growth, and non-financial factors like employee satisfaction (health and safety), customer satisfaction, product quality, innovation, R&D, time-to-market, employee quit rate, and IT dimensions. In summary, the relationship

between strategy, organizational context, and performance is a key theme in strategic management research. The works of Anwar and Hasnu (2016), Hambrick (1983), Tarittawan et al. (2020), Tornatzky and Fleischer (1990), Tichy and Devanna (1986), and Iselin et al. (2008) collectively enhance our understanding of the diverse factors influencing organizational performance in the tourist accommodation industry in Thailand. These studies emphasize the need to consider financial and non-financial dimensions to achieve organizational excellence in this sector. Accordingly, the following hypotheses are proposed:

H1: Organizational factor has a positive effect on non-financial performance

H2: Organizational factor has a positive effect on financial performance

Additionally, Taylor's 2004 empirical study demonstrates that enhancing technology and innovation within a firm can significantly improve organizational performance and competencies. Business performance is measured by the level of achievement, market reach, and customer value, all contributing to the ability to enter new markets. Numerous studies have explored the link between technological factors and organizational performance. Jaskyte 2020 emphasizes the importance of technology-driven strategies, noting that they are essential for innovation, customer value, and business competitiveness. They point out, however, that maintaining a competitive advantage requires agility in adapting to rapidly changing technology and business environments. AbdManap et al. (2023) explore the factors influencing the technological capability of food manufacturing firms in Malaysia and highlight the crucial role of technology development in driving business success and economic growth. Their findings suggest that technology provides a competitive edge by offering cost-effective solutions and enhancing customer satisfaction. Xue et al. (2022) support these conclusions with empirical evidence, stressing that technology is vital for business competitiveness. They highlight the role of technology in achieving competitive advantage, implementing cost-effective practices, and improving customer satisfaction. Their study argues that strategic use of technology can bring significant benefits to organizational performance. However, they caution that technology must be aligned with business plans to achieve cost savings, operational efficiency, and improved customer relationships. Collectively, the studies by Taylor (2004), Sabherwal et al. (2019), AbdManap et al. (2023), and Wang et al. (2023) enhance our understanding of the symbiotic relationship between technology and organizational performance. These works underscore the multifaceted benefits of a technology-driven strategy, emphasizing its role in fostering innovation, customer value, and business competitiveness. The studies highlight the need to stay current with rapidly evolving technology and align technological efforts with broader business plans to maximize efficiency, cost-effectiveness, and customer satisfaction. Accordingly, the following hypotheses are proposed:

H3: Technological factor has a positive effect on non-financial performance

H4: Technological factor has a positive effect on financial performance

According to Tornatzky and Fleischer (1990), the business environment includes various factors such as the organization's industry, competitors, external resources, and interactions with government entities. Chesbrough (2007) and Narula (2004) define the business environmental factor as the external conditions significantly affecting organizational performance. Additionally, Rakic et al. (2022) emphasize the crucial role of technology intensity in the environment, which is more significant in industries with higher technology intensity levels. In addition, Alalawneh et al. (2022) indicated that business environment factors, such as competition intensity, are significant in the relationship between social media platform usage and business marketing performance. In summary, the studies by Tornatzky and Fleischer (1990), Chareanporn et al. (2020), and Sabherwal et al. (2019) collectively enhance our understanding of the complex nature of the business environment. These studies demonstrate the significant impact of various environmental dimensions on organizational performance, whether in tourist accommodation or the car materials industry. The intensity of competition and information availability are critical factors influencing performance. Furthermore, the strategic use of ICT is crucial for signaling legitimacy and fostering competitiveness in today's business landscape. Accordingly, the following hypotheses are proposed:

H5: Environmental factor has a positive effect on non-financial performance

H6: Environmental factor has a positive effect on financial performance

This study aimed to identify the factors influencing financial and non-financial organizational performance in Thailand's tourist accommodation sector. The research findings are intended to enhance the strategic development plans for businesses in this sector. The survey included 350 cases from well-known entities in the Thai accommodation industry. The results highlighted the importance of organizational and technological factors in shaping financial and non-financial performance, while environmental factors were insignificant. In a dynamic business environment, all properties must consider these influencing factors before developing strategic implementation plans. Factors such as organizational structure and management style were particularly significant within the organizational dimension. For technological factors, aspects like technology design and availability, technological compatibility, and machine capacity were influential. On the other hand, environmental factors, precisely competition intensity, and information intensity were deemed non-significant. Thus, organizational and technological dimensions were crucial for achieving success in financial and non-financial performance. While this study focuses on a specific subset of accommodation businesses, future research could extend to various types of accommodation enterprises to improve the generalizability of the findings. Nonetheless, the study provides a strategic framework for accommodation entrepreneurs and management teams, outlining the factors contributing to successful financial and non-financial performance strategies in Thailand's tourist accommodation sector.

Research Methodology

The current research applied structural equation modeling to analyze the proposed model in order to identify the influential factors affecting financial and non-financial performance. The questionnaires were developed primarily based on past literature and adapted to the context of the study. After the screening questions, the samples are qualified as the hotel staff in the 3 – 5-star hotels in Thailand. In addition, the questionnaire questions were approved by the university's ethics committee for human research prior to the data collection. Three hundred fifty usable samples were adopted and analyzed in the model. In addition, prior to the full model testing, the authors tested the convergent validity and discriminant validity to ensure the quality of the data. The data were collected with paper-based questionnaires from the leading hotels in Thailand.

Results

Key respondents represented the tourist accommodation management team in various levels of position. There were owners, owner representatives, general managers, or management teams.

The following section reports the organization characteristics and background information of the sample collected in this study. This includes gender, type of business management, accommodation brand, accommodation classification, property location (cluster) in Thailand, and the range of accommodation business management experience. Moreover, this section presents organization characteristics and background information using descriptive statistics such as frequency and percentage.

Of the 350 responses, the majority of respondents were male, which contained 58.57% (205) of total respondents, while females contained 41.43% (145) of total respondents.

Regarding the type of business management, they were grouped into dependent or franchise under the hotel chain group and independent group. Most respondents were dependent or franchise under the hotel chain type, which contained 64.29% (225) of the total respondents, while the independent type contained 35.71% (125) of the total respondents.

According to the type of accommodation brand, respondents were grouped into Thai and non-Thai brand groups. The majority of respondents were in the non-Thai brand group, which contained 64.29% (225) of the total respondents, while the Thai brand group contained 35.71% (125) of the total respondents.

In terms of the accommodation classification, they were grouped into 3-star, 4-star, and 5-star groups. The majority of respondents were in the 5-star group, which contained 38.86% (136) of total respondents, followed by 4-star groups, which contained 32% (112) of total respondents, while the 3-star group contained 29.14% (102) of total respondents.

Table 1 Property Location (Cluster) in Thailand

Property Location in Thailand	Frequency	Percentage
Northern part	65	18.57
Central part	106	30.29
Eastern part	71	20.29
Northeastern part	10	2.86
Western part	12	3.43
Southern part	86	24.57
Total	350	100.0

Of the 350 responses, according to property location, the majority of respondents were in the Central part, which contained 30.29% (106) of total respondents, 24.57% (86) from the Southern part, 20.29% (71); for Eastern part, and 18.57 (65) from the Northern part, respectively, while the Northeastern part is the lowest percent, containing 2.86% (10) of total respondents, as shown in Table 1.

Range of experience	Frequency	Percentage
5-9 years	37	10.57
10-14 years	76	21.71
15-19 years	126	36
Up to 20 years	111	31.72
Total	350	100.0

In terms of the range of accommodation business management experiences, the majority of respondents were in the group of up to 20 years, which contained 31.72% (111) of total respondents, while the group of 5-9 years is the lowest group containing 10.57% (37) of total respondents, as shown in Table 2.

The proposed model is shown as follows;

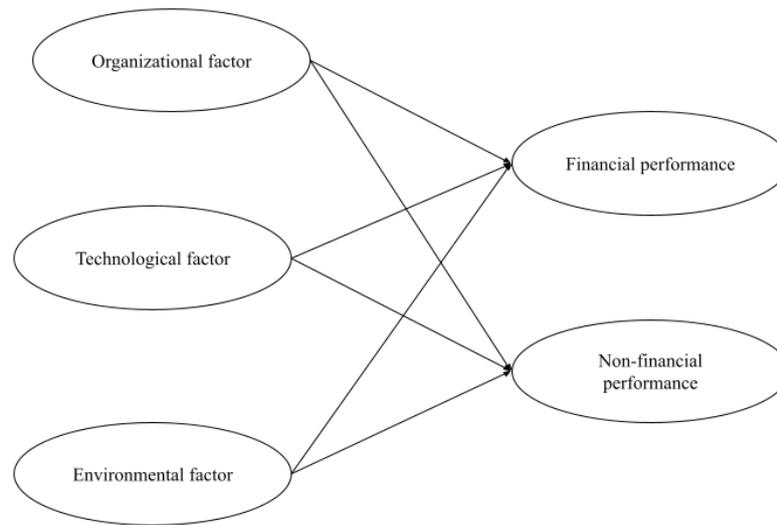


Figure 1 The Proposed Model

For the model testing, the following findings were found:

Table 3 Item Loadings on Related Factors

Item/Factors	standardized loading	AVE	Square root of AVE	Composite Reliability	Cronbach alpha
OR		0.696	0.835	0.733	0.781
OR1: Our hotel has an effective organizational structure to achieve our organizational goals.	0.805				
OR2: Our hotel has a management style suitable to achieve our vision.	0.863				
Item/Factors					
TE		0.747	0.864	0.774	0.834
TE1: Our hotel has the available technology relative to our competitive advantages.	0.850				
TE2: Our hotel has an effective technological design to achieve our organizational goals.	0.897				
TE3: Our technology is compatible with the hotel industry standard.	0.845				
Item/Factors					
EN		0.707	0.841	0.742	0.792
EN1: Our hotel has the capability to cope with competition intensity.	0.800				
EN2: Our hotel has an effective system for managing information intensity.	0.880				
Item/Factors					
FIN		0.724	0.851	0.755	0.821
FIN1: In the past years, our hotel has a profitable business operation.	0.885				

FIN2: In the past years, our hotel has had revenue growth.	0.861				
FIN3: In the past years, our hotel has achieved its goals in return on investment.	0.804				
Item/Factors					
NONFIN		0.775	0.880	0.797	0.894
NONFIN1: In the past years, our hotel has had higher customer satisfaction.	0.887				
NONFIN2: In the past years, our hotel has had higher staff satisfaction.	0.893				
NONFIN3: In the past years, our hotel has had higher customer retention.	0.861				

Note: OR= Organizational factor; TE=Technological Factor; EN=Environmental factor; FIN= Financial performance; NONFIN=Non-financial performance

As shown in Table 3, the reliability coefficients for all constructs surpassed the recommended Cronbach's alpha thresholds of 0.7 and 0.8 (Anderson & Gerbing, 1992; Cronbach, 1951). The lowest Cronbach's alpha among the constructs was 0.7, which is above the minimum acceptable value, demonstrating the reliability of the constructs.

The test results for convergent and discriminant validity indicated that the model achieved acceptable convergent validity, as AVE values were greater than 0.5, according to Hair et al. (2010). Additionally, discriminant validity met the acceptable standards, with the square roots of the AVE for all constructs exceeding the squared correlations of the constructs, as shown in the table.

For the measurement model, the authors conducted validity tests to ensure the data was suitable for structural equation modeling. The study reported the following fit indices: CFI=0.957, RMSEA=0.071, NFI=0.941, IFI=0.957, and NNFI=0.939, indicating a good model fit.

Hair et al. (2010) describe convergent validity as the extent to which certain measures are strongly correlated with other measures of the same construct. Anderson and Gerbing (1988) proposed that strong convergent validity is demonstrated when the standardized factor loadings for each item are greater than 0.60.

In the structural model testing, the fit indices (CFI, NFI, NNFI, and IFI) exceeded the threshold of 0.900, and the RMSEA was below 0.08, indicating an acceptable fit for the proposed model (Hair et al., 2006), as illustrated in Table 4 and 5. Additionally, the AVE values were above 0.50, and factor loadings exceeded 0.6, confirming convergent validity (Anderson & Gerbing, 1992; Hair et al., 2010). Moreover, the discriminant validity tests showed that the square roots of the AVEs were higher than the squared correlations between the constructs, indicating strong discriminant validity (Fornell & Larcker, 1981).

Table 4 Correlation Coefficient Matrix and The Square Root of Aves

Items	OR	TE	EN	FI	NF
OR	0.835				

TE	0.460	<i>0.864</i>			
EN	0.666	0.406	<i>0.841</i>		
FI	0.328	0.353	0.285	<i>0.851</i>	
NF	0.506	0.431	0.371	0.772	<i>0.880</i>

Table 5 The Model Fit Indices (Structural Model)

Fit Index	Model Value	Criteria
Chi-square/df (150.628/55)	2.739	<3
Normed Fit Index (NFI)	0.941	>0.900
Non-Normed Fit Index (NNFI)	0.939	>0.900
Comparative Fit Index (CFI)	0.957	>0.900
Fit Index (IFI)	0.957	>0.900
Root Mean Square Error of Approximation (RMSEA)	0.071	<0.08

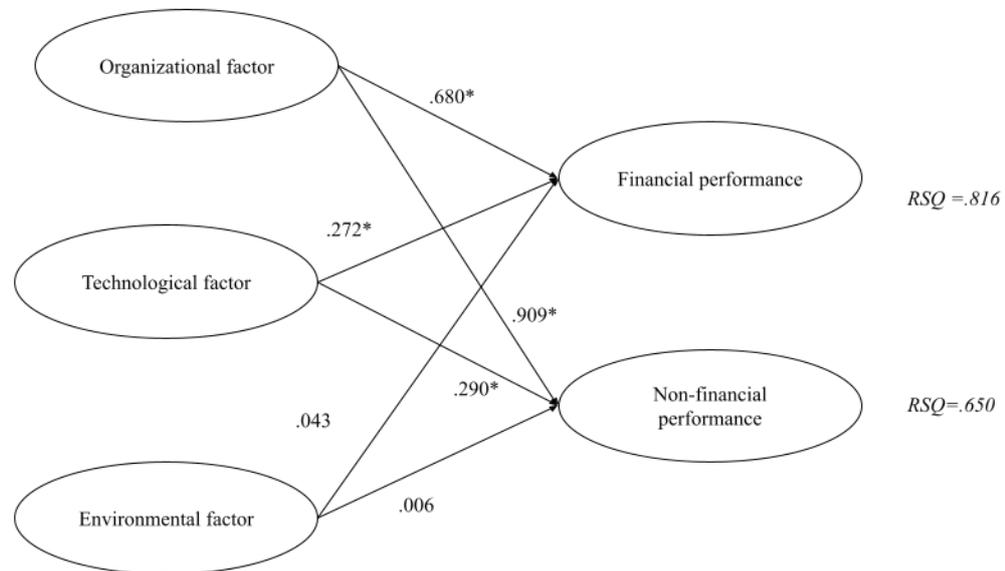


Figure 2 The Structural Model and Coefficients

Note: RSQ = R-squared

The results showed that organizational factors and technological factors had significant positive effects on financial performance, whereas organizational factors had the strongest influence on financial performance, while environmental factors had no significant effect on financial performance. Regarding non-financial performance, the findings were similar to those of financial performance, where both organizational and technological factors demonstrated significant positive effects. Furthermore, the environmental factors showed no impact on non-financial performances.

Table 6 Summary of Hypothesis Testing

Hypothesis	Findings
H1: Organizational factor has a positive effect on non-financial performance	Supported
H2: Organizational factor has a positive effect on financial performance	Supported
H3: Technological factor has a positive effect on non-financial performance	Supported
H4: Technological factor has a positive effect on financial performance	Supported
H5: Environmental factor has a positive effect on non-financial performance	Not Supported
H6: Environmental factor has a positive effect on financial performance	Not Supported

Discussions

Regarding the organizational factors, the results of hypothesis testing affirmed that the organizational factor had supported financial and non-financial organizational performances. It aligns with the kinds of literature mentioned (Del Aguila-Obra & Padilla-Meléndez, 2006; Hackney et al., 2006; Hofstede, 1993; Kamal, 2006; Koslowsky et al., 2011; Marx, 2016; Thong, 1999; Tornatzky & Fleischer, 1990). Accommodation businesses in Thailand had to explore and understand their organizational circumstance. Tornatzky and Fleischer (1990) describe the organizational context using various descriptive measures, including the organization's size, formation, and structure. They also highlight the impact of human resources, resource availability, decision-making processes, employee coordination, and organizational transactions on the organizational context.

Additionally, various studies have identified several organizational factors, including the size of the organization (Hackney et al., 2006; Tarittawan et al. 2020; Thong, 1999), culture (Aguila-Obra & Padilla-Melendez, 2006; Hofstede, 1993; Kamal, 2006; Laforet, 2016), organizational structure (Marx, 2016; Kamal, 2006), age of the business (Kamal, 2006), management style (Koslowsky et al., 2011), investment (Kamal, 2006), business strategy (Marx, 2016), customer reaction (Kamal, 2006), performance (Kamal, 2006), and innovation ability (Ho, 2011; Thong, 1999).

These studies indicate that organizational factors positively influence businesses' financial and non-financial performances. This is aligned with the hypothesis testing results. Agreeing with the empirical study from Prihadi et al. (2022), the research indicated a significant relationship between organizational behavior and organizational performance. Likewise, the study by Rays et al. (2022) showed that organizational culture and reputation significantly positively affect organizational performance. Mohammed et al. (2023) showed that modern leadership styles enhance organizational output and can improve organizational performance. Furthermore, many empirical studies indicated their research results aligned with the same direction. Organizational culture influences organizational performance (Abdelaliem et al., 2023; Imran et al., 2021; Pradoto et al., 2021). In addition, organizational structure influences organizational performance (Dissanayake et al., 2021; Globerson, 2023; Urban et al., 2023; Vasconcelos, 2022). The staff of the organization is perceived as a positive influence on organizational performance (Atf et al., 2019; Lee & Jun, 2023; Wesemann, 2022). Agreeing with Kojongian et al. (2022), their study indicates that organizational performance is the heart of any for-profit and nonprofit organization. Thus, many researchers indicated that organizational factors positively influence organizational performance in both a business's financial and non-financial performances.

Regarding the technological factors, the hypothesis testing results confirmed that the technological factors supported financial and non-financial organizational performances. Tornatzky and Fleischer (1990) describe the technological context as encompassing internal and external factors relevant to the organization. Internally, technology equips the business with current practices (Lin & Chen, 2007; Löfsten, 2016; Thong, 1999). Externally, it serves as a pool of available technologies (Aguila-Obra & Padilla-Melendez, 2006). Cheng, Gibson, Carrillo, and Fitch (2011) note that technology, organizational structures, and business processes influence each other, and their research indicates that in a technology-intensive environment, these structures and processes must be developed or modified to gain business advantages. Jones, Borgman, and Ulusoy (2015) found positive impacts on business success from internet technology benefits, such as increased traffic, awareness, and revenue. Jeffcoate, Chappell, and Feindt (2002) showed that technology adoption leads to cost minimization, improved quality, and enhanced performance. Additionally, the relative advantages and benefits of technology help increase new customers, customer awareness and inquiries, customer relationships, global reach, and co-promotion with other businesses to enhance regional business image (Jones et al., 2015).

Cheng et al. (2011) state that technology is a holistic concept that must be considered when researchers or practitioners take a dynamic view to study business entities, such as through multi-dimensional or technology-centric frameworks. Technology can also be examined as a potential facilitator for organizational operations. Various studies have identified several organizational factors, including relative

advantages (Jeffcoate et al., 2002; Jones et al., 2015), design or available technologies (Cheng et al., 2011; Tornatzky & Fleischer, 1990), compatibility (Cheng et al., 2011; Karahanna et al., 2006), and machine capacity (Chareanporn et al., 2020).

These studies indicate that technological factors positively influence businesses' financial and non-financial performances, aligning with the hypothesis testing results. Aligning with the empirical study from Ippolito et al. (2023), technological factors impact organizational performance. Agreeing with Jaskyte 2020 indicates that technological factors affect an organization's financial performance. However, technological innovation was not a significant predictor of financial performance in nonprofit organizations. Moreover, Xue et al. (2022) mention that technology has accelerated organizational competitiveness and performance. Furthermore, more empirical studies indicated that their research findings aligned with the same direction. Technological factors positively influence organizational performance in a business's financial and non-financial performances (AbdManap et al., 2023; Cheng et al., 2023; Sabherwal et al., 2019; Wang et al., 2023).

Lastly, from the perspectives related to environmental factors, the results of hypothesis testing, with a comprehensive sample of 350 respondents, affirmed that the environmental factor did not support organizational performance's financial and non-financial performances. According to Tornatzky and Fleischer (1990), the environmental dimension includes various factors such as the organization's industry, competitors, accessible resources provided by others, and ways of dealing with the government. These environmental factors also influence business operations and conduct (Chesbrough, 2007; Narula, 2004; Alalawneh et al., (2022) agree that competition and information technology intensity are significant factors in the accommodation business context. Studies have shown that competition intensity (Alalawneh et al., 2022; Zhu et al., 2003) and information technology intensity (Hackney et al., 2006; Kamal, 2006). The business must utilize information technology to meet customer needs and improve competition (Cheng et al., 2023; Sabherwal et al., 2019). These studies indicate that environmental factors positively influence businesses' financial and non-financial performances. However, Garg and Ma (2005) and Iselin et al. (2008) note that multi-perspective strategic performance-setting and performance-reporting systems have become increasingly popular in business evaluations. According to Kaplan (2005), the objectives and measures of this approach include a financial perspective, customer perspective, internal process perspective, and learning and growth perspective. Additionally, Neely et al. (2002) describe non-financial measures as "the performance prism in practice," which focuses heavily on stakeholders and consists of five elements: stakeholder satisfaction, strategies, processes, capabilities, and contributions. Furthermore, Kaplan (2005) categorizes organizational performance measurement approaches into three perspectives. It is a customer perspective that identifies revenue growth drivers such as satisfaction, acquisition, retention, and growth, highlighting the value differentiation organizations offer to generate sales and loyalty from targeted customers. Next, internal process perspectives identify operating, customer management, innovation, and social processes. Lastly, learning and growth perspectives define the intangible assets crucial to the strategy, including the necessary jobs, systems, and climate to support value-creating internal processes. Then, these contexts impact the hypothesis testing, and the research findings do not align with the hypothesis testing results.

According to the empirical study of Alalawneh et al. (2022), business environment factors, such as competition intensity, are only significant in the relationship between social media platform usage and business marketing performance. This does not include financial and operational performance. Moreover, Zhao et al. (2023) indicate that competition intensity negatively correlates with organizational profitability as a financial performance. Despite this, Rakic et al. (2022) state that technology intensity is more significant in industries with higher technology intensity levels, such as those with the highest financial performance. The business must combine product-related services with digital solutions. Likewise, the empirical study of Bayraktar et al. (2023) indicates that technological intensity influences organizational and financial performance in low-tech industries. It will achieve the highest efficiency only from the adoption of business analytics. Sabherwal et al. (2019) also state that aligning a firm's business and information technology strategies is essential for research and practice because of environmental uncertainty. Technological intensity influences organizational performance through dynamic, complex, and hostile environments.

Thus, these empirical studies support the research finding that environmental factors do not support organizational performance in a business's financial and non-financial performances.

Conclusions

Based on the proposed objectives, this study offered insightful findings as follows. Firstly, the findings demonstrated that organizational factors and technological factors significantly determined the financial and non-financial performance of the hospitality firms. Moreover, the current study contributed to the TOE framework in its application in the context of organizational performance. In particular, few researchers have attempted to understand both financial and non-financial performance since several studies in the past focused mainly on the overall performance of firms. This finding expanded the scope of knowledge and the clearer understanding of the effects of each factor on different areas of firm performance.

Recommendation and Managerial Implications

Based on the research findings, practical recommendations for these hotel managers are as follows: Firstly, hotel managers should ensure that organizational structure and management styles match the organizational goals and are relative to the industry business atmosphere. Secondly, as the business world moves faster with the ever-changing technology, hotel companies should adapt to the up-to-date technology to meet customer expectations and a competitive environment. A more advanced and higher degree of user-friendliness of hotel technology can support the overall hotel services, from booking, check-in, check-out, and customer online evaluation. In addition, the more advanced technology the hotels can acquire, the better their performance will be.

Limitations and Directions for Future Research

It is essential to acknowledge several limitations of the current research. First, the study's cross-sectional design limits its ability to explain future relationships among the examined factors. Consequently, future researchers should conduct longitudinal studies over the next five to ten years to investigate these relationships further. Second, although the sample size was adequate and met the criteria for good sampling, it may only represent some hotel types. The current study primarily reflects the broader picture of 3-5-star hotels but needs to account for the diverse characteristics of different hotel categories. Future research should focus on more specific types of hotels, such as beach hotels and boutique hotels, to gain deeper insights into each category. Additionally, incorporating qualitative approaches could enhance understanding the Technology-Organization-Environment (TOE) Framework and provide a more nuanced analysis of both financial and non-financial aspects of organizational performance.

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