

The Path to Perfect Stays: Understanding Brand Image and Technological Convenience Impact on Customer Satisfaction in Penang's Luxury Hotels

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ABSTRACT

In the hospitality sector, the success of hotels is intricately tied to customer satisfaction, which serves as a critical performance metric and influences competitiveness in the market. 5-star hotels on Penang Island face increasing challenges to sustain guest satisfaction amidst growing competition. Despite the growth of the luxury accommodation sector, there is still much to learn about what truly drives customer satisfaction and loyalty in specific local contexts. Previous research points to factors like brand image and technological convenience as a key influence on customers when choosing luxury hotels. However, many studies overlook how these factors play out in localized markets. This study focuses on Penang Island's 5-star hotels, exploring how brand image and technological convenience shape customer satisfaction. Drawing on feedback from 390 guests who stayed in selected luxury hotels in the region, the results reveal a clear link: brand image and technological convenience significantly impact customer satisfaction. These insights highlight the need for hotels to adapt their strategies to meet the changing expectations of their guests, ultimately fostering stronger customer loyalty. The insights gained contribute to developing comprehensive strategies to sustain excellence in the competitive landscape of Penang's luxury hotel industry.

Keywords: brand image, customer satisfaction, luxury hotels, technological convenience

INTRODUCTION

Penang, a vibrant state in Malaysia celebrated for its rich cultural heritage and stunning landscapes, has become a top tourist hotspot, welcoming millions of hotel guests each year (Abbasi et al., 2021). The island's hospitality industry has seen remarkable growth, especially in the luxury market, with a notable rise in the number of 5-star hotels. As these establishments strive to cater to the high expectations of discerning guests seeking premium experiences, understanding the dynamics of customer satisfaction and loyalty becomes crucial.

In the context of luxury hotels, enhancing customer satisfaction hinges on delivering multisensory service experiences. Research by Wu and Gao (2019) and supported by Guan et al. (2021), highlights the critical role of creating positive Emotional Customer Experiences (ECX) in fostering customer satisfaction and loyalty, which are essential for sustaining competitive advantage. Similarly, Ban et al. (2019) and Kim and Kim (2022) in their studies utilized online review data to identify key attributes of customer experiences, emphasizing the need to understand these structural relationships to ensure long-term customer loyalty. Recent trends in the hospitality industry, such as the adoption of contactless service technologies, are shaping guest expectations. Alzoubi et al. (2021) stated that these innovative service designs not only enhance operational efficiency but also strengthen customers' emotional attachment to the brand, influencing their cognitive evaluations and overall satisfaction. Within this context, the study explores how brand image and technological convenience influence customer satisfaction in Penang's 5-star hotels.

Brand image has been widely recognized as a significant determinant of customer satisfaction in the Malaysian hotel sector (Fatima et al. (2021: Alsheikh et al., 2018; Lahap et al., 2016). For instance, Lahap et al. (2016) found that brand image accounted for 68.2% of the variation in customer satisfaction, underscoring its critical role in shaping customer perceptions. Additionally, technological integration within luxury hotel brands has become increasingly influential, with Shin and Jeong (2022) reporting that 40.8% of respondents prioritized technology when selecting a hotel. The importance of technological convenience is further supported by Hasanein and El-Kafy (2022), who found that 87% of respondents expressed high satisfaction with technological features in their hotel experiences.

This study, therefore, seeks to identify and analyse the impact of brand image and technological convenience on customer satisfaction within Penang's luxury hotel segment. By examining these factors, the research aims to provide actionable insights that can guide strategic decision-making in management, marketing, and service delivery, thereby enhancing the competitiveness and sustainability of 5-star hotels on Penang Island.

LITERATURE REVIEW

A 5-star hotel represents the pinnacle of luxury and excellence in the hospitality sector, offering an unmatched standard of accommodation and services. These establishments are characterized by their meticulously designed and spacious rooms, which are elegantly furnished with premium materials and equipped with state-of-the-art technological amenities to enhance guest comfort. Additionally, the hallmark of a 5-star experience is the personalized service provided by highly skilled staff members, who are dedicated to meeting every guest's needs with discretion and professionalism. From concierge assistance to butler services, guests receive individualized attention, ensuring an exceptional and memorable stay. This commitment to delivering superior service and comfort is what distinguishes 5-star hotels in the competitive landscape of luxury hospitality.

Brand Image

In recent years, there has been a substantial increase in research dedicated to understanding customer satisfaction, particularly in the hospitality industry (Aminudin et al., 2021; Lahap et al., 2016; Mohammed & Rashid, 2018; Shahril et al., 2022; Ying & Al-Khaled, 2023). This surge in research interest corresponds with the expansion of the service industry, where enhancing customer satisfaction is crucial for maintaining a competitive edge. As the hospitality sector continues to grow, especially in luxury segments, it becomes essential to identify factors that can optimize service delivery and foster customer loyalty (Poon & Low, 2005). In the context of Malaysia's hotel industry, research by Lahap et al. (2016) revealed a strong correlation between **brand image** and customer satisfaction, indicating that customers' perceptions of a hotel's brand significantly shape their overall experience. This relationship is particularly critical in the luxury hotel segment, where brand image fulfills

customers' high expectations for service excellence and quality (Alsheikh et al., 2018). A well-established brand image not only conveys trust and prestige but also enhances the perceived comfort and exclusivity of the guest experience, which influences customer satisfaction even before guests set foot on the property.

Extensive research highlights the impact of brand image on customer loyalty in luxury hotels. Han et al. (2017) and Tarinc et al. (2023) demonstrated that a positive brand image significantly influences customers' intentions to revisit, as guests who perceive the brand favorably are more likely to return in the future. Furthermore, studies by De Leániz and Bosque (2013), Le (2022) emphasize that brand image plays a vital role in establishing trust and credibility, which in turn leads to heightened satisfaction and loyalty throughout the guest's stay. This suggests that a robust brand image is instrumental in cultivating customer loyalty and ensuring repeat visits, thereby solidifying the hotel's position in a highly competitive market (Ryu et al., 2019). A 5-star hotel embodies the pinnacle of luxury and excellence in the hospitality industry by offering guests spacious, elegantly furnished rooms, cutting-edge technology, and premium amenities. Additionally, these hotels excel in delivering personalized services through highly trained staff, such as concierge and butler services, to meet the sophisticated needs of their guests. According to Peng and Chen (2019), the perceived value of luxury hotels—whether functional, hedonic, or symbolic—significantly influences customers' emotional attachment and purchase intentions. These emotional connections are crucial in driving repeat patronage in the luxury segment.

Moreover, the importance of brand image extends to the digital domain, where it influences E-service quality, thereby affecting E-satisfaction and E-loyalty (Handayani et al., 2021). A strong brand image plays a key role in boosting customer satisfaction, building emotional connections, and encouraging active engagement (Sahir et al., 2021). Understanding these dynamics is essential for luxury hotels aiming to enhance customer loyalty in both physical and digital service environments. As highlighted by Pudiprabowo and Hussein (2016) and Shimp (2010), brand image encompasses not only cognitive and emotional perceptions but also visual elements that customers associate with the brand. This multidimensional approach to brand image ensures that hotels align their strategies with the diverse preferences of their clientele. The findings of this study will contribute to a deeper understanding of how brand image influences customer satisfaction in the luxury hotel sector, providing valuable insights for enhancing customer experiences and fostering brand loyalty.

Technological Convenience

Technology plays a vital role in improving customer satisfaction in the hospitality industry by making services more convenient and enhancing overall experiences. Features like mobile apps, self-service kiosks, and online booking systems simplify processes and create smoother interactions, helping hotels build stronger connections with their guests (Law et al., 2019; Kim and Han, 2022). As society becomes increasingly dependent on digital solutions, customers are drawn to hotels that offer efficient technological conveniences like contactless check-ins, keyless room entry, and AI-powered room controls (Lukanova & Ilieva, 2019; Edgar D'Souza & Kevin D'Souza, 2023). Empirical evidence suggests that the adoption of advanced technologies can boost customer satisfaction, improve operational efficiency, and lower costs, giving hotels a competitive edge (Camisón, 2000; Collins & Cobanoglu, 2021). For example, hotels that use mobile applications can offer faster service and create personalized experiences that boost customer loyalty (Lee & Lee, 2015; Huang et al., 2019). The implementation of AI and automation, as seen at Kuching Park Hotel, demonstrates how technological innovation can enhance service quality. Guests at this hotel can control room features using voice commands and utilize efficient room service delivered by robots (News Desk, 2022).

Research shows that self-service technologies enhance customer satisfaction by providing convenience and personalized interactions, which in turn help build customer loyalty (Iqbal et al., 2018; Chun et al., 2019; Handayani et al., 2021). According to the extended technology acceptance model,

factors like user experience, perceived usefulness, and ease of use play a key role in how guests embrace technology in luxury hotels, ultimately boosting their overall satisfaction (Huang et al., 2019; Tarinc et al., 2023). Implementing user-friendly technology in Penang's 5-star hotels could thus provide a strategic advantage in meeting the evolving expectations of discerning customers. This study investigates how integrating technological advancements can enhance the guest experience, thereby driving customer satisfaction in the luxury hotel sector.

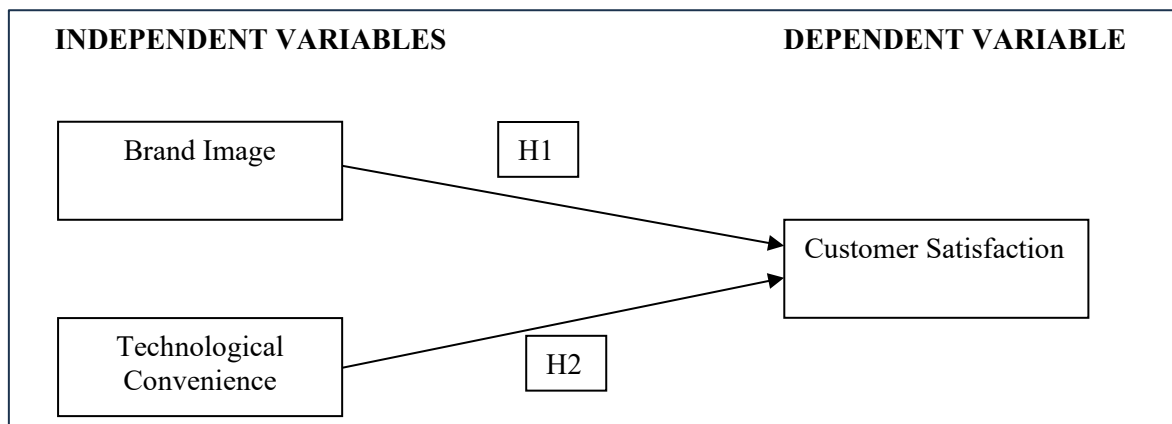


Figure 1: Research Framework

H1: There is a positive relationship between brand image in 5-star hotels and customer satisfaction.

H2: There is a positive relationship between technological conveniences in 5-star hotels and customer satisfaction.

METHODOLOGY

This study uses a quantitative research approach to examine customer satisfaction in 5-star hotels on Penang Island, with a particular focus on the roles of brand image and technological convenience in shaping guest perceptions. The study used a cross-sectional research design, allowing data to be collected and analyzed at a single point in time to understand current customer preferences and satisfaction levels. A structured questionnaire with closed-ended questions was used to gather insights, focusing on factors that influence customer satisfaction, particularly the roles of brand image and technological convenience. The instrumentation was adapted from previous scholars who studied in this particular interest. For brand image, 6 items adapted from H.Kim and Kim (2006) and for technological convenience, there are also 6 items adapted from Shahril et. al. (2022) and D'Souza and D'Souza (2023). Customer satisfaction consists of 6 items, adapted from Ying and Al-Khaled (2023)

Penang was chosen as the study's location due to its significant tourism growth, which saw a remarkable 138.37% increase in early 2023, attracting a record 1.68 million visitors (Penang Institute, n.d.). The target population consisted of guests with prior experience staying in 5-star hotels on the island. To ensure relevance, participants were first screened to confirm eligibility, with only those who had stayed at a 5-star hotel included in the study. For this research, luxury hotels were defined as 5-star full-service establishments (Panchapakesan & Ahn, 2020; Wu & Liang, 2009).

To ensure diverse demographic representation, the study combined cluster and snowball sampling methods. Clusters were created based on key factors like age, gender, and prior experience with 5-star hotels. Snowball sampling was then used to distribute online surveys, where initial participants referred others from similar demographic groups, expanding the sample base. The target sample size was

calculated using Raosoft software to ensure reliable results, aiming for at least 385 participants (Hair et al., 2012). In total, 395 responses were collected, but 5 were excluded for not meeting eligibility criteria, leaving a final sample of 390 participants. The study focused on guests from ten prominent 5-star hotels on the island, including Angsana Teluk Bahang, The Prestige Penang, and Shangri-La's Rasa Sayang Resort. A 6-point Likert scale was used to capture respondents' levels of agreement, ranging from "Very Strongly Disagree" to "Very Strongly Agree," providing a nuanced measure of satisfaction and perceptions (Chang, 1994; Sirganci and Uyumaz, 2022). This scale was selected for its ability to balance detailed insights with ease of interpretation, particularly in capturing variations in satisfaction levels. This methodological approach allows for a thorough exploration of the factors that influence customer satisfaction in the luxury hotel sector on Penang Island, offering valuable insights into the interplay between brand image, technological convenience, and guest perceptions. Statistical software, SPSS version 27 was used to analyze the data gathered for this study. Hence, a regression analysis was conducted to see the influence of brand image and technological convenience towards customer satisfaction.

FINDINGS

The demographic analysis revealed that 56.9% of the respondents were female (222 participants), while 43.1% were male (168 participants). In terms of age, the largest group of respondents (42.56%) fell within the 31-40 years age range, with the smallest group (3.06%) being aged 60 and above. Among the 5-star hotels in Penang, Lexis Suite Penang emerged as the most frequently visited, with 17.95% of respondents (70 participants) reporting stays there. Other prominent hotels, such as The Light Hotel, Angsana Teluk Bahang, The Prestige, and Eastern & Oriental, each attracted around 8% of the sample, while Evergreen Laurel Hotel had the lowest visitation rate, at 6.67% (26 participants).

Regarding on the brand image, the respondents rated the comfort of their stay the highest, with a mean score of 5.13 (SD = 1.077). Furthermore, they strongly agreed that the hotels maintained a distinct and positive image, with mean scores of 5.12 (SD = 1.064) and 5.12 (SD = 1.056) for the hotel's image and reputation, respectively. Respondents also affirmed that their hotel experience was luxurious (mean = 5.09, SD = 1.069), and that the hotel staff were exceptionally kind (mean = 5.08, SD = 1.029). However, slightly lower ratings were given to the overall perception of luxury, with a mean score of 4.99 (SD = 1.111), indicating some variability in responses.

In terms of technological convenience, the highest mean score (5.14, SD = 1.071) indicated strong agreement that innovation significantly enhances customer convenience. Respondents also agreed that technological advancements improve operational efficiency (mean = 5.11, SD = 1.018) and provide a competitive advantage for hotels (mean = 5.08, SD = 1.117). Additionally, technology was seen as enhancing the overall hotel experience (mean = 5.06, SD = 1.150) and enabling hotels to expand their reach to a larger audience (mean = 5.03, SD = 1.099). Respondents also favoured hotels that incorporate innovative technology, with a mean score of 5.03 (SD = 1.068).

The reliability analysis, indicated by Cronbach's alpha, demonstrated strong internal consistency for both brand image ($\alpha = 0.846$) and technological convenience ($\alpha = 0.843$). The correlation analysis revealed a robust positive relationship between brand image and customer satisfaction ($r = 0.826$) as well as between technological convenience and customer satisfaction ($r = 0.860$), suggesting that both factors are strongly associated with customer satisfaction.

Table 1: Multiple Linear Regression Result

Model Summary:			
Model	R	R Square	Std. Error of the Estimate
1	0.880 ^a	0.774	0.38228

a. Predictors: (Constant), Technological Convenience, Brand Image

A multiple linear regression analysis revealed a strong positive relationship between brand image and technological convenience ($R = 0.88$), with these two factors explaining 77% of the variance in customer satisfaction ($R^2 = 0.774$). The statistical significance of the regression model was confirmed by an ANOVA result with a p-value of 0.000, indicating that the predictors significantly influence customer satisfaction. The regression coefficients further support the conclusion that both brand image and technological convenience are significant predictors of customer satisfaction, with p-values less than 0.05. These findings provide compelling evidence that improvements in brand image and technological convenience are likely to lead to enhanced customer satisfaction in the luxury hotel sector.

Table 2: ANOVA Results

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	193.811	2	96.905	663.094	0.000 ^b
	Residual	56.557	387	0.146		
	Total	250.368	389			

a. Dependent variable: Customer Satisfaction

b. Predictors: (Constant), Technological Convenience, Brand Image

Table 3: Coefficient of Regression

Coefficients ^a						
Model		Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	0.442	0.128		3.443	0.001
	Brand Image	0.344	0.045	0.344	7.607	0.000
	Technological Convenience	0.561	0.045	0.569	12.572	0.000

a. Dependent variable: Customer Satisfaction

Table 3 displays the findings, showing that both brand image and technological convenience exhibit significant predictive power over customer satisfaction (p -values < 0.05). This suggests that alterations in these factors are likely to be linked to fluctuations in customer satisfaction levels. The compelling evidence presented by the low p -values (0.000) provides strong evidence for the hypothesis (H1 & H2), which states the substantial impact of these predictors on customer satisfaction.

DISCUSSION

Guests often view a strong brand image as a promise of high-quality service and exceptional experiences, which boosts their satisfaction and loyalty. This study highlights how key factors like comfort, a unique brand identity, and a solid reputation significantly influence positive customer experiences. High mean scores for these factors reflect their significant contribution to shaping perceptions of the hotel. At the same time, the strong positive correlation between brand image and customer satisfaction (Pearson correlation coefficient of 0.826) further affirms the substantial impact of brand image on guests' overall satisfaction. These results support the hypothesis (H1) that a positive relationship exists between brand image and customer satisfaction in luxury hotels. Considering this, it can be confidently concluded that enhancing a hotel's brand image directly influences customer satisfaction, reinforcing and solidifying the reliability of these findings. This conclusion is consistent with prior research, including studies by Lahap et al. (2016) and Malik et al. (2012), which also highlight the critical role of brand image in influencing customer satisfaction. In sum, the evidence suggests a

clear and positive link between brand image and customer satisfaction, with efforts to enhance comfort, reputation, and the overall luxury experience likely leading to increased satisfaction levels.

The regression analysis further strengthens this conclusion, revealing that brand image is a significant predictor of customer satisfaction. The high correlation coefficient ($R = 0.88$) and the R-squared value of 0.774 indicate that brand image, in conjunction with technological convenience, accounts for approximately 77% of the variation in customer satisfaction. This highlights the considerable influence brand image exerts in shaping hotel guests' overall satisfaction with their stay. Additionally, the role of technological innovation cannot be overlooked. Advances in technology enable hotels to provide a range of services that enhance operational efficiency, streamline processes, and offer personalized experiences, all of which play a crucial role in boosting customer satisfaction. The high mean scores for technological convenience in this study suggest that guests greatly value the convenience and efficiency afforded by technological innovations. The Pearson correlation coefficient of 0.860 further underscores the strong positive relationship between technological convenience and customer satisfaction. These findings support the hypothesis (H2) that technological conveniences in luxury hotels have a significant positive impact on customer satisfaction. As technological offerings such as high-speed internet, smart room controls, and seamless check-in/check-out processes improve, customer satisfaction is likely to increase. This aligns with the findings of Shahril et al. (2022), which revealed that hotel guests were particularly satisfied with technology services due to their efficiency and effectiveness. The analysis further emphasizes that hotels investing in advanced technological solutions are likely to see substantial improvements in customer satisfaction.

This research offers valuable contributions to the luxury hotel industry, particularly for 5-star hotels on Penang Island, by providing empirical evidence on the critical factors that influence guest satisfaction. The findings highlight the importance of hotels investing in cultivating a strong brand image characterized by luxury, comfort, and exceptional service. Equally important is the role of technological convenience, indicating that hotels must continuously innovate and adopt cutting-edge technologies to meet the evolving expectations of modern travelers. By understanding these key drivers of customer satisfaction, hotel managers can design targeted strategies that enhance their brand image while effectively leveraging technology. Such efforts will not only lead to higher customer retention rates and positive word of mouth but also provide a significant competitive advantage in the luxury hospitality market. Moreover, these insights can inform staff training programs, ensuring that employees are equipped to contribute positively to the overall guest experience and support the hotel's efforts to enhance satisfaction.

CONCLUSION

This study offers a thorough examination of the influence of brand image and technological convenience on customer satisfaction within the 5-star hotel sector on Penang Island. The findings demonstrate that both brand image and technological convenience have a significant effect on customer satisfaction, with brand image exhibiting a slightly stronger influence. This highlights the critical importance for luxury hotels to cultivate and maintain a robust brand image while simultaneously investing in cutting-edge technological amenities to enhance guest experiences. The positive relationship between brand image and customer satisfaction suggests that 5-star hotels should prioritize the development and preservation of a strong brand reputation to attract and retain customers. Furthermore, the study emphasizes the growing significance of technological convenience, illustrating that the integration of advanced technological solutions plays a vital role in exceeding guest expectations. The findings also indicate that guests place considerable value on efficient, user-friendly technological services, which substantially contribute to their overall satisfaction. Hotel managers should place a stronger emphasis on integrating cutting-edge technological innovations that not only streamline their operational processes but also significantly improve the overall convenience and experience for their guests. By adopting tools and systems that facilitate smoother check-in and check-

out procedures, enhance communication, and personalize services, they can create a more efficient and enjoyable environment for everyone in their establishment. Overall, this research makes a meaningful contribution to the existing literature, offering practical recommendations for hotel managers seeking to optimize both their brand image and technological offerings. By doing so, they can effectively drive customer satisfaction, business success, and long-term customer loyalty.

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AUTHORS' CONTRIBUTION

Mohd Zool Fadli Ibrahim: Responsible for conceptualising the research design, formulating research questions, and overseeing the overall research methodology. Contributed significantly to data analysis and interpretation. Muhammad Aiman Alif Abu Bakar and Joesri Mohamad Saber: Conducted literature review, developed the research framework, designed the survey instruments, and collected data. They also assisted in drafting and revising the research findings. Khairil Anuar Bahari and Nur Aina Afiqah Abu Mansor: Led the development of the theoretical framework, provided expertise in statistical methods, and assisted in interpreting the results. They also contributed to writing the methodology and results sections, thus playing a pivotal role in reviewing and editing the manuscript for clarity and coherence.

CONFLICT OF INTEREST DECLARATION

The authors agree that this research was conducted without any self-benefits or commercial or financial conflicts and declare the absence of conflicting interests with the funders. We certify that the article is the Authors' and Co-Authors' original work. The article has not received prior publication and is not under consideration for publication elsewhere. This research/manuscript has not been submitted for publication, nor has it been published in whole or in part elsewhere. We testify to the fact that all Authors have contributed significantly to the work, validity and legitimacy of the data and its interpretation for submission to Jurnal Intelek.

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