

Transforming Hotel Services through Digital Kiosks: Customer Acceptance, Customer Experience, and Engagement as Pathways to Competitive Advantage

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ABSTRACT

Digital kiosks have become an important service innovation in the hotel industry as hotels seek to improve service efficiency, reduce waiting time, personalize guest interaction, and strengthen competitive advantage. However, the success of digital kiosks depends not only on technological availability, but also on how consumers accept, experience, and engage with the service. This study aims to examine how Digital Kiosk System Quality and Digital Marketing Strategy influence Customer Acceptance, Customer Experience, Customer Engagement, and Hotel Competitive Advantage. A quantitative research approach was employed using structured questionnaires distributed to hotel customers who had experience with or awareness of digital kiosk services. The research variables consist of Digital Kiosk System Quality, Digital Marketing Strategy, Customer Acceptance, Customer Experience, Customer Engagement, and Hotel Competitive Advantage. Data were analyzed using SPSS through validity and reliability tests, normality tests, multiple regression analysis, t tests, F tests, and mediation analysis. The results indicate that Digital Kiosk System Quality has a positive and significant effect on Customer Acceptance, suggesting that ease of use, reliability, speed, and system convenience are important factors in encouraging guests to accept kiosk based hotel services. Customer Acceptance also has a positive effect on Customer Experience, while Customer Experience significantly enhances Customer Engagement. Furthermore, Customer Engagement has a positive and significant effect on Hotel Competitive Advantage, indicating that engaged customers can strengthen hotel differentiation, service reputation, and long term competitiveness. However, two hypothesized relationships were not supported. Digital Marketing Strategy does not have a significant direct effect on Customer Acceptance, indicating that promotional communication alone may not be sufficient to encourage guests to accept digital kiosk services without strong system quality. In addition, Customer Experience does not directly influence Hotel Competitive Advantage, suggesting that customer experience must first be transformed into stronger engagement before it contributes to competitive outcomes. These findings highlight the importance of designing digital kiosk services that are not only technologically efficient but also capable of creating meaningful customer engagement. This study contributes to hospitality marketing and service innovation literature by explaining how digital kiosk acceptance can become a pathway to hotel competitive advantage through customer experience and engagement. Practically, the findings provide insights for hotel managers to prioritize kiosk system quality, improve customer interaction with digital services, and build engagement based strategies to strengthen competitive positioning.

Keywords: *Digital Kiosk, Customer Acceptance, Customer Experience, Customer Engagement, Hotel Competitive Advantage, Hospitality Marketing.*

1. INTRODUCTION

Digital transformation has become a major force reshaping service delivery, customer interaction, and competitive strategy in the hotel industry. Hotels are no longer evaluated only through room quality, location, price, facilities, or staff hospitality, but also through the convenience, speed, personalization, and digital integration of the guest journey. In this context, digital kiosks have emerged as an important self service technology that allows hotel guests to perform service activities such as check in, check out, room upgrade selection, payment, booking confirmation, and access to hotel information with limited dependence on front desk staff. Oracle's hospitality Customer research shows that 73% of travelers are more likely to stay at hotels offering self service technology, indicating that contactless and self service options have become increasingly relevant in hospitality decision making.

The increasing adoption of digital kiosks reflects a broader shift in hospitality toward technology enabled service efficiency and guest autonomy. Self service kiosks can reduce waiting time, minimize congestion at the reception area, improve transaction speed, and support a more seamless guest experience. HotelTechReport explains that hotel self check in kiosks are connected to property management systems and can enable guests to check in, create key cards, and access additional service options such as upgrades or reservations. This indicates that kiosks are not merely operational devices, but part of the hotel's digital service infrastructure.

However, the success of digital kiosks depends not only on whether the technology is installed, but also on whether customers accept and use it. Customer acceptance is critical because hotel services remain highly experiential and relational. Some guests may appreciate speed, autonomy, and contactless service, while others may still prefer human interaction, especially when service problems, emotional needs, or complex requests arise. This means that digital kiosk adoption must be examined from the consumer's perspective, particularly through system quality, perceived usefulness, ease of use, reliability, convenience, and service confidence.

Digital Kiosk System Quality is therefore an important antecedent of Customer Acceptance. A kiosk system that is easy to navigate, fast, accurate, secure, visually clear, and integrated with hotel operations is more likely to be accepted by guests. In contrast, a kiosk that is confusing, slow, unreliable, or unable to solve guest needs may create frustration and reduce acceptance. Recent hospitality technology discussions emphasize that digital transformation can improve hotel efficiency and guest experience when technologies are properly implemented and aligned with service needs.

In addition to technology quality, Digital Marketing Strategy plays an important role in shaping how customers understand and evaluate digital hotel services. Hotels need to communicate the benefits of digital kiosks clearly through websites, mobile applications, social media, email campaigns, booking platforms, and in property communication. Digital marketing can inform guests that kiosks offer faster check in, reduced waiting time, flexible service access, and a more convenient arrival experience. EHL Insights notes that digital transformation is facilitating a smoother and more streamlined guest journey from booking to checkout, which shows that digital communication and digital service design are increasingly connected in hospitality strategy.

Nevertheless, Digital Marketing Strategy may not always directly produce Customer Acceptance. Promotional messages can create awareness, but acceptance depends on whether guests experience the kiosk as useful, easy, reliable, and relevant to their needs. This creates an important research issue: hotels may promote digital services intensively, but customers may still reject or avoid kiosks if the system quality is poor or if they do not perceive clear service benefits. Therefore, the relationship between Digital Marketing Strategy and Customer Acceptance requires further empirical investigation.

Customer Acceptance is positioned as a key mechanism in this study because digital service innovation only becomes valuable when customers are willing to interact with it. In the hotel context, acceptance reflects the guest's readiness to use kiosk based services and their perception that the technology improves the service process. Guests who accept digital kiosks are more likely to experience the service as efficient, modern, and convenient. This acceptance can then shape Customer Experience, especially during important service moments such as arrival, check in, payment, and departure.

Customer Experience is a central construct in hospitality because hotels compete not only by providing accommodation, but also by creating memorable and satisfying service journeys. Deloitte emphasizes that hotels must deliver the high touch hospitality guests expect while also providing the immediate digital utility customers receive from other industries. This means that customer experience in hotels increasingly depends on the ability to combine human warmth with digital convenience.

Digital kiosks can improve Customer Experience when they reduce service friction, increase speed, provide autonomy, and make the guest journey more predictable. However, customer experience may not automatically create competitive advantage unless it leads to deeper Customer Engagement. A guest may have a smooth kiosk experience, but this does not necessarily mean that the guest will become more connected to the hotel brand, recommend the hotel, or perceive the hotel as superior to competitors. Therefore, Customer Engagement becomes an important bridge between experience and strategic outcomes.

Customer Engagement refers to the customer's cognitive, emotional, and behavioral involvement with a hotel brand. In the context of digital kiosks, engagement may appear when guests are willing to interact with digital services, explore additional offerings, respond positively to personalized options, provide feedback, recommend the hotel, or return because of the convenience and reliability of the service experience. Deloitte and Mews argue that hospitality technology should enhance the human experience and help hotels create more personalized and meaningful guest experiences, suggesting that technology must move beyond automation toward engagement oriented service value.

Hotel Competitive Advantage is the final outcome in this study. Competitive advantage refers to the hotel's ability to differentiate itself from competitors through superior service, operational efficiency, customer satisfaction, innovation, brand reputation, and guest loyalty. In a competitive hotel market, digital kiosks can support advantage by improving service speed, reducing operational pressure, enabling upselling, enhancing customer convenience, and strengthening perceptions of modern service quality. Market research also indicates growing interest in hotel check in kiosks, with the market projected to expand due to labor cost pressure, guest experience enhancement, operational efficiency, and technology adoption.

Despite the growing interest in digital kiosks and hospitality technology, several research gaps remain. First, many studies and industry discussions emphasize the operational benefits of kiosks, while fewer explain how kiosk system quality is transformed into competitive advantage through Customer acceptance, customer experience, and customer engagement. Second, previous discussions often treat digital marketing as a promotional tool, while its role in supporting acceptance of hotel self service technology remains less developed. Third, the link between Customer Experience and Hotel Competitive Advantage requires further clarification because experience may not directly create advantage unless it generates stronger customer engagement. Fourth, hotels need a more integrated model that connects digital service technology, strategic marketing, Customer behavior, and competitive outcomes.

Accordingly, this study aims to examine how Digital Kiosk System Quality and Digital Marketing Strategy influence Customer Acceptance, Customer Experience, Customer Engagement, and Hotel Competitive Advantage. Specifically, this study investigates whether Digital Kiosk System Quality and Digital Marketing Strategy affect Customer Acceptance, whether Customer Acceptance enhances Customer Experience, whether Customer Experience strengthens Customer Engagement, and whether Customer Engagement contributes to Hotel Competitive Advantage. This study also examines whether Customer Experience has a direct effect on Hotel Competitive Advantage.

Theoretically, this research contributes to hospitality marketing and service innovation literature by explaining how digital kiosk based service transformation can generate competitive advantage through customer centered mechanisms. Practically, the findings are expected to help hotel managers design kiosk systems that are not only technologically efficient, but also easy to accept, experience enhancing, and engagement oriented. In an increasingly digital hospitality environment, hotels must ensure that technology does not merely replace human service, but strengthens the overall guest journey and supports long term competitive positioning.

1.1. Digital Kiosk System Quality

Digital Kiosk System Quality refers to the extent to which hotel digital kiosk systems are perceived as reliable, easy to use, responsive, secure, accurate, and capable of supporting customers' service needs. In the hotel industry, digital kiosks are commonly used to support self check in, self check out, payment processing, room selection, booking confirmation, loyalty program access, and hotel information services. Unlike conventional front desk services, digital kiosks require customers to interact directly with technology. Therefore, the quality of the kiosk system becomes a critical factor in determining whether customers are willing to use and accept the technology.

A high quality kiosk system can reduce waiting time, improve service speed, minimize service errors, and provide greater autonomy for hotel guests. Customers are more likely to accept kiosk based services when the system is easy to navigate, visually clear, fast, reliable, secure, and integrated with hotel operations. Conversely, if the kiosk system is confusing, slow, unstable, or unable to solve customer needs, guests may prefer conventional service encounters with hotel staff. This shows that Digital Kiosk System Quality is not only a technical issue, but also an important service quality factor that shapes customer acceptance.

In this study, Digital Kiosk System Quality is positioned as a technological antecedent of Customer Acceptance. This logic assumes that customers first evaluate the quality of the digital kiosk before deciding whether the technology is useful, convenient, and worth using. Therefore, kiosk system quality serves as an important foundation for transforming digital hotel service innovation into positive customer responses.

1.2. Digital Kiosk System Quality and Customer Acceptance

Customer Acceptance refers to customers' willingness to use and accept digital kiosk technology as part of the hotel service process. In technology adoption literature, Customer acceptance is commonly associated with perceived usefulness, perceived ease of use, convenience, trust in the system, and perceived relevance to user needs. In the context of hotel services, Customer Acceptance reflects guests' readiness to use kiosks for check in, check out, payment, booking confirmation, or information access instead of relying entirely on hotel employees.

Digital Kiosk System Quality can strengthen Customer Acceptance because customers are more willing to use technology when the system provides clear benefits and is easy to operate. A kiosk system that is fast, accurate, reliable, secure, and user friendly can reduce customer uncertainty and increase confidence in self service technology. When customers believe that kiosk services help them complete hotel service processes more efficiently, they are more likely to accept the technology.

In contrast, poor kiosk system quality may create resistance, anxiety, or dissatisfaction. Customers may avoid using digital kiosks if they perceive the technology as complicated, risky, unreliable, or less helpful than direct interaction with hotel staff. Therefore, the quality of the digital kiosk system is expected to positively influence Customer Acceptance. Therefore, this study proposes the following hypothesis:

H1: Digital Kiosk System Quality has a positive effect on Customer Acceptance.

1.3. Digital Marketing Strategy

Digital Marketing Strategy refers to the use of digital channels and communication tools to promote hotel services, communicate value propositions, influence customer perceptions, and support customer decision making. In the context of digital kiosk services, Digital Marketing Strategy may include website information, online booking platforms, mobile application notifications, social media content, email campaigns, digital advertisements, and in property digital signage that communicate the benefits of using hotel kiosks.

Digital Marketing Strategy is important because customers may not automatically understand the purpose and benefits of hotel kiosks. Hotels need to communicate that kiosk based services can provide faster check in, reduced waiting time, contactless interaction, flexible service access, and greater convenience. Through digital marketing, hotels can shape customers' expectations before arrival and reduce uncertainty about using self service technology.

However, Digital Marketing Strategy may not always be sufficient to create Customer Acceptance. Promotional communication can increase awareness, but acceptance depends on whether customers perceive the kiosk system itself as useful, easy, reliable, and relevant. Therefore, while Digital Marketing Strategy is expected to support customer acceptance, its effect may be weaker if it is not supported by strong kiosk system quality and actual service performance.

1.4. Digital Marketing Strategy and Customer Acceptance

Digital Marketing Strategy can influence Customer Acceptance by increasing customer awareness, knowledge, and perceived benefits of digital kiosk services. When hotels communicate kiosk benefits clearly through digital channels, customers may feel more prepared to use the technology. For example, online messages explaining faster check in, simple payment procedures, room upgrade options, and contactless service can reduce uncertainty and encourage customers to try kiosk based services.

Digital marketing can also frame kiosk services as part of a modern and innovative hotel experience. Customers may perceive hotels that promote digital kiosk facilities as more technologically advanced, efficient, and customer oriented. This perception may increase customers' willingness to accept kiosk technology during their stay.

Nevertheless, customer acceptance of kiosks may depend more strongly on actual system quality than on digital communication. Customers may be aware of kiosk benefits through marketing messages, but they may still reject the technology if they find it difficult to use or less helpful than human service. Therefore, this study proposes a positive relationship between Digital Marketing Strategy and Customer Acceptance, while recognizing that the empirical result may depend on customers' actual evaluation of the service technology. Therefore, this study proposes the following hypothesis:

H2: Digital Marketing Strategy has a positive effect on Customer Acceptance.

1.5. Customer Acceptance and Customer Experience

Customer Experience refers to customers' overall cognitive, emotional, sensory, and behavioral responses during their interaction with a hotel. In hospitality, Customer Experience includes multiple service encounters, such as searching for information, booking, arrival, check in, room experience, service requests, payment, check out, and post stay evaluation. Digital kiosks can influence the customer experience by changing how customers interact with hotel services during important touchpoints.

Customer Acceptance can improve Customer Experience because customers who are willing to use kiosks may perceive the service process as more efficient, flexible, and convenient. When customers accept kiosk based services,

they are more likely to appreciate the benefits of speed, autonomy, reduced waiting time, and contactless interaction. These benefits can create a more positive hotel experience.

However, if customers do not accept the technology, the kiosk may create frustration or discomfort. Customers may feel confused, anxious, or dissatisfied if they are forced to use kiosks without proper guidance or support. Therefore, Customer Acceptance is expected to positively influence Customer Experience. Therefore, this study proposes the following hypothesis:

H3: Customer Acceptance has a positive effect on Customer Experience.

1.6. Customer Experience and Customer Engagement

Customer Engagement refers to customers' cognitive, emotional, and behavioral involvement with a hotel brand. It goes beyond satisfaction because engagement reflects a deeper level of connection, participation, and willingness to interact with the brand. In the hotel context, Customer Engagement may appear through repeat interaction, positive word of mouth, online reviews, loyalty program participation, recommendation, feedback, and willingness to use additional hotel services.

Customer Experience can strengthen Customer Engagement because customers are more likely to become engaged when they experience convenient, satisfying, and meaningful service encounters. A positive kiosk based experience can encourage customers to interact further with the hotel, explore digital features, respond to personalized offers, and develop a favorable attitude toward the hotel brand.

In contrast, a poor customer experience may reduce engagement. If customers experience technical problems, lack of assistance, or dissatisfaction during kiosk use, they may become less willing to interact with the hotel brand. Therefore, Customer Experience is expected to positively influence Customer Engagement. Therefore, this study proposes the following hypothesis:

H4: Customer Experience has a positive effect on Customer Engagement

1.7. Customer Engagement and Hotel Competitive Advantage

Hotel Competitive Advantage refers to a hotel's ability to outperform competitors through superior service quality, operational efficiency, innovation, customer satisfaction, brand reputation, and customer loyalty. In the digital hospitality environment, competitive advantage is increasingly shaped by the hotel's ability to integrate technology into the guest journey while maintaining service quality and customer relationships.

Customer Engagement can strengthen Hotel Competitive Advantage because engaged customers are more likely to generate repeat visits, positive reviews, recommendations, and loyalty. Engaged customers can also contribute to stronger brand reputation because they voluntarily share positive experiences with others. In the hotel industry, where customer reviews and online reputation strongly influence booking decisions, engagement becomes a strategic resource.

Digital kiosk services may support competitive advantage when they create engaged customers who perceive the hotel as innovative, efficient, and customer oriented. Therefore, Customer Engagement is expected to positively influence Hotel Competitive Advantage. Therefore, this study proposes the following hypothesis:

H5: Customer Engagement has a positive effect on Hotel Competitive Advantage

1.8. The Mediating Role of Customer Acceptance

Customer Acceptance is positioned as a mediating variable because Digital Kiosk System Quality and Digital Marketing Strategy may not directly create better Customer Experience unless customers first accept the kiosk technology. A hotel may provide a high quality kiosk system, but the system will not improve experience if guests are unwilling to use it. Similarly, hotels may promote kiosk benefits through digital marketing, but communication alone may not improve customer experience unless guests become willing to interact with the technology.

Digital Kiosk System Quality can shape Customer Acceptance by making the technology easier, faster, and more reliable. Once customers accept the kiosk, they are more likely to experience hotel services as efficient and convenient. Therefore, Customer Acceptance explains how Digital Kiosk System Quality is transformed into Customer Experience. Therefore, this study proposes the following mediation hypotheses:

H6: Customer Acceptance mediates the relationship between Digital Kiosk System Quality and Customer Experience.

Digital Marketing Strategy can also influence Customer Experience through Customer Acceptance. Marketing communication may increase customer awareness and reduce uncertainty about kiosk usage. However, the effect of Digital Marketing Strategy on Customer Experience is expected to occur when customers accept the kiosk as a useful part of the service process. Thus, Customer Acceptance functions as a psychological mechanism that connects hotel digital marketing efforts with the customer's actual service experience. Therefore, this study proposes the following mediation hypotheses:

H7: Customer Acceptance mediates the relationship between Digital Marketing Strategy and Customer Experience.

1.9. The Sequential Mediating Role of Customer Experience and Customer Engagement

Customer Experience and Customer Engagement are positioned as sequential mediating variables because Customer Acceptance may not directly produce Hotel Competitive Advantage. Customers who accept digital kiosks may first evaluate the service experience. If the experience is positive, they may become more engaged with the hotel brand. This engagement can then contribute to competitive advantage through recommendation, loyalty, positive reviews, and stronger customer relationships.

This sequential logic explains that competitive advantage is not formed immediately from technology acceptance. Instead, the process begins when customers accept the digital kiosk, then experience the service positively, then become engaged with the hotel, and finally contribute to the hotel's competitive position. Therefore, Customer Experience and Customer Engagement function as behavioral and relational mechanisms that transform Customer Acceptance into Hotel Competitive Advantage. Therefore, this study proposes the following mediation hypotheses:

H8: Customer Experience and Customer Engagement sequentially mediate the relationship between Customer Acceptance and Hotel Competitive Advantage

1.10. Competitive Intensity

Competitive Intensity refers to the extent to which a hotel faces strong competition from other hotels in terms of price, service quality, digital innovation, customer experience, brand reputation, and customer loyalty. In the hotel industry, competitive intensity is high because customers can easily compare hotel alternatives through online travel agencies, review platforms, social media, and booking applications. This makes it difficult for hotels to rely only on physical facilities or location as sources of competitive advantage.

In highly competitive markets, hotels need stronger customer engagement to differentiate themselves from competitors. Engaged customers are more likely to provide positive reviews, recommend the hotel, participate in loyalty programs, and return for future stays. These behaviors become more valuable when customers have many alternative hotels to choose from. Therefore, Customer Engagement may have a stronger effect on Hotel Competitive Advantage when Competitive Intensity is high.

Conversely, when Competitive Intensity is low, hotels may maintain market position even without strong customer engagement because customers have fewer alternatives. In highly competitive markets, however, customer engagement becomes more strategically important because it helps hotels retain customers, strengthen reputation, and differentiate their service offerings. Therefore, Competitive Intensity is expected to moderate the relationship between Customer Engagement and Hotel Competitive Advantage. Therefore, this study proposes the following mediation hypotheses:

H9: Competitive Intensity moderates the relationship between Customer Engagement and Hotel Competitive Advantage, such that the relationship becomes stronger when Competitive Intensity is high

1.11. Hotel Competitive Advantage

Hotel Competitive Advantage is the final outcome variable in this study. It reflects the extent to which a hotel is able to achieve a superior position compared with competitors through service innovation, digital capability, operational efficiency, customer engagement, brand reputation, and customer loyalty. In the hotel industry, competitive advantage is not created only by physical assets or price strategy, but also by the ability to deliver efficient, distinctive, and customer centered service experiences.

Digital kiosks can support Hotel Competitive Advantage by improving service speed, reducing front desk congestion, enabling self service flexibility, supporting upselling, and signaling innovation. However, technology alone does not guarantee competitive advantage. The strategic value of digital kiosks depends on whether customers accept the technology, experience it positively, become engaged with the hotel brand, and respond favorably in competitive market conditions.

In this study, Hotel Competitive Advantage is conceptualized as the final result of a sequential process. Digital Kiosk System Quality and Digital Marketing Strategy first influence Customer Acceptance. Customer Acceptance then shapes Customer Experience, which subsequently influences Customer Engagement. Customer Engagement contributes to Hotel Competitive Advantage, and this relationship is strengthened when Competitive Intensity is high. This model explains that competitive advantage in digital hotel services is not formed instantly, but develops through customer acceptance, experience, engagement, and competitive market dynamics

2. RESEARCH METHODS

This study adopts the framework presented in Figure 1 to examine how Digital Kiosk System Quality and Digital Marketing Strategy contribute to Hotel Competitive Advantage through Customer Acceptance, Customer Experience, and Customer Engagement. In addition, this study examines the moderating role of Competitive Intensity in strengthening the relationship between Customer Engagement and Hotel Competitive Advantage. The main objective of this research is to analyze whether hotel digital kiosk services and digital marketing strategy can strengthen Customer acceptance, improve customer experience, encourage customer engagement, and ultimately enhance hotel competitive advantage. This research follows a quantitative approach because the relationships among variables are examined through measurable indicators and statistical testing.

Data for this study were collected through a structured questionnaire distributed to hotel customers who have experience with or awareness of digital kiosk services. The respondents were selected because they are considered relevant for evaluating digital kiosk system quality, digital marketing strategy, Customer acceptance, customer experience, customer engagement, competitive intensity, and hotel competitive advantage. The target respondents include customers who have stayed in hotels that provide digital kiosk services or customers who are familiar with kiosk based hotel services, such as self check in, self check out, payment processing, booking confirmation, room selection, loyalty program access, or hotel information services.

The sample was selected using purposive sampling. This sampling technique was used because the study requires respondents who understand or have experience with hotel digital kiosk services. Several criteria were applied in selecting respondents. First, respondents must be at least 18 years old. Second, respondents must have stayed in a hotel within the last twelve months. Third, respondents must have used, observed, or been aware of digital kiosk services in hotels. Fourth, respondents must be able to evaluate hotel digital services, digital marketing communication, customer experience, customer engagement, competitive conditions, and hotel competitive advantage based on their experience or awareness. The use of purposive sampling is appropriate because not all hotel customers have sufficient knowledge or experience to assess digital kiosk related variables.

The questionnaire was designed to measure seven main variables: Digital Kiosk System Quality, Digital Marketing Strategy, Customer Acceptance, Customer Experience, Customer Engagement, Competitive Intensity, and Hotel Competitive Advantage. Digital Kiosk System Quality was measured through indicators related to ease of use, system reliability, transaction speed, interface clarity, data security, and service accuracy. Digital Marketing Strategy was measured through indicators related to website information, social media promotion, mobile application communication, digital advertising, clarity of digital messages, and personalization of digital content. Customer Acceptance was measured through indicators reflecting perceived usefulness, perceived ease of use, willingness to use, comfort in using kiosks, and acceptance of kiosk based hotel services.

Customer Experience was measured through indicators related to service convenience, reduced waiting time, perceived control, service satisfaction, and modern service impression. Customer Engagement was measured through indicators reflecting customers' willingness to interact with hotel digital services, emotional involvement, feedback intention, recommendation intention, and participation in hotel digital service features. Competitive Intensity was measured through indicators related to price competition, service quality competition, digital innovation competition, availability of hotel alternatives, and online review competition. Hotel Competitive Advantage was measured through indicators reflecting service differentiation, operational efficiency, innovation advantage, customer retention, brand reputation, and perceived superiority compared with competitors.

The research instrument used a Likert scale to measure respondents' level of agreement with each statement. The scale ranged from strongly disagree to strongly agree. The Likert scale was considered appropriate because the variables in this study are perceptual, experiential, behavioral, and strategic in nature. Before hypothesis testing, the data were examined through validity and reliability tests to ensure that all measurement items were appropriate for further statistical analysis.

Data analysis was conducted using SPSS. Several statistical procedures were applied in this study. First, descriptive analysis was used to describe respondent characteristics, including gender, age, education level, occupation, hotel stay

experience, and digital kiosk experience. Second, validity and reliability tests were conducted to assess the quality of the questionnaire items. Validity was assessed using corrected item total correlation, while reliability was assessed using Cronbach's Alpha. Third, the normality test was conducted to examine whether the data fulfilled the assumption for regression analysis. Fourth, multicollinearity testing was conducted using tolerance and Variance Inflation Factor values to ensure that the independent variables did not show serious multicollinearity problems.

Fifth, multiple regression analysis and t tests were used to examine the direct effects among variables. Sixth, the F test was used to evaluate the simultaneous significance of the regression models. Seventh, mediation analysis was conducted to examine whether Customer Acceptance mediates the relationship between Digital Kiosk System Quality and Customer Experience, and whether Customer Acceptance mediates the relationship between Digital Marketing Strategy and Customer Experience. Eighth, sequential mediation analysis was conducted to examine whether Customer Experience and Customer Engagement sequentially mediate the relationship between Customer Acceptance and Hotel Competitive Advantage. Finally, moderation analysis was conducted to examine whether Competitive Intensity moderates the relationship between Customer Engagement and Hotel Competitive Advantage.

The direct relationships tested in this study include the effect of Digital Kiosk System Quality on Customer Acceptance, the effect of Digital Marketing Strategy on Customer Acceptance, the effect of Customer Acceptance on Customer Experience, the effect of Customer Experience on Customer Engagement, and the effect of Customer Engagement on Hotel Competitive Advantage. The mediation relationships tested in this study include the mediating role of Customer Acceptance in the relationship between Digital Kiosk System Quality and Customer Experience, and the mediating role of Customer Acceptance in the relationship between Digital Marketing Strategy and Customer Experience. The sequential mediation relationship tested in this study examines whether Customer Acceptance contributes to Hotel Competitive Advantage through Customer Experience and Customer Engagement. The moderation relationship tested in this study examines whether Competitive Intensity strengthens the effect of Customer Engagement on Hotel Competitive Advantage..

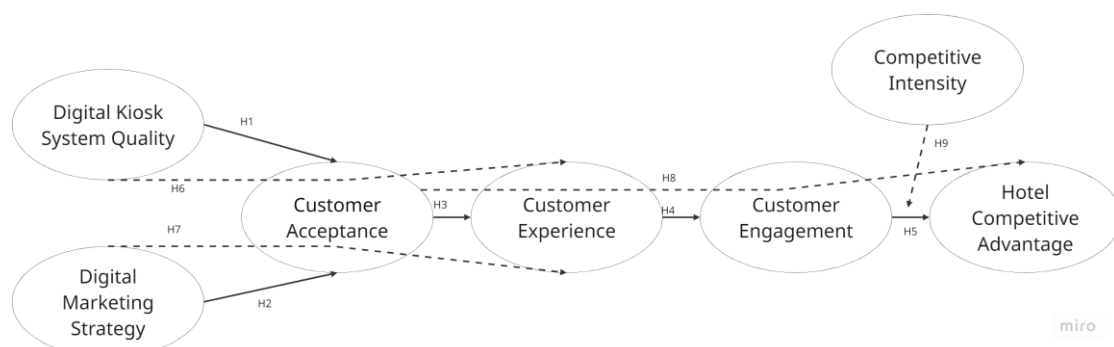


Figure 1. Research Model

3. RESULTS AND DISCUSSIONS

3.1. Characteristics of Respondents

Understanding respondent characteristics is important for interpreting the results of this study. The respondents in this research were hotel customers who had experience with or awareness of digital kiosk services. Respondent characteristics are presented based on gender, age, education level, occupation, hotel stay experience, and digital kiosk experience. These characteristics are relevant because customer acceptance of digital kiosks may vary depending on demographic background, hotel service experience, and familiarity with technology based services.

Table 1. Characteristics of Respondents

Category	Description	Qty	Percentage
Gender	Male	72	48.0%
	Female	78	52.0%
Age	18–25 years	49	32.7%
	26–35 years	57	38.0%
	36–45 years	31	20.7%
	Above 45 years	13	8.6%

Category	Description	Qty	Percentage
Education Level	Senior High School	24	16.0%
	Diploma/Bachelor's Degree	98	65.3%
	Master's Degree or above	28	18.7%
Occupation	Student	35	23.3%
	Employee	76	50.7%
	Entrepreneur	24	16.0%
	Others	15	10.0%
Hotel Stay Experience	1–2 times in the last year	43	28.7%
	3–5 times in the last year	71	47.3%
	More than 5 times in the last year	36	24.0%
Digital Kiosk Experience	Have used hotel digital kiosk	83	55.3%
	Have observed hotel digital kiosk	41	27.3%
	Aware of hotel digital kiosk but have not used it	26	17.4%
	Total Respondents	150	100%

Based on Table 1, female respondents represent 52.0% of the sample, while male respondents represent 48.0%. The largest age group is 26–35 years, accounting for 38.0% of the respondents. Most respondents hold a diploma or bachelor's degree, representing 65.3% of the sample. In terms of occupation, employees form the largest group, with 50.7% of the respondents. Most respondents had stayed in hotels three to five times within the last year, indicating that the respondents had sufficient hotel service experience. In addition, 55.3% of respondents had used hotel digital kiosks, while 27.3% had observed them. This profile indicates that the respondents are relevant for evaluating digital kiosk system quality, digital marketing strategy, customer acceptance, customer experience, customer engagement, competitive intensity, and hotel competitive advantage.

3.2. Validity, Reliability, and Multicollinearity Test

The validity test was conducted using corrected item total correlation, while reliability was assessed using Cronbach's Alpha. With 150 respondents, the minimum r table value at the 5% significance level is approximately 0.160. Therefore, an item is considered valid if the corrected item total correlation value is greater than 0.160. Reliability is accepted when Cronbach's Alpha exceeds 0.70. Multicollinearity was assessed using tolerance and Variance Inflation Factor (VIF). A regression model is considered free from multicollinearity when the tolerance value is greater than 0.10 and the VIF value is below 10.

Table 2. Validity, Reliability, and Multicollinearity Test

Variable	Indicator	Validity Test	Reliability Test	Tolerance	VIF
Digital Kiosk System Quality (DKSQ)	DKSQ1	0.674	0.861	0.512	1.953
	DKSQ2	0.721			
	DKSQ3	0.694			
	DKSQ4	0.706			
	DKSQ5	0.658			
Digital Marketing Strategy (DMS)	DMS1	0.621	0.834	0.548	1.825
	DMS2	0.687			
	DMS3	0.703			
	DMS4	0.642			
Customer Acceptance (CA)	CA1	0.692	0.852	0.571	1.751
	CA2	0.738			

Variable	Indicator	Validity Test	Reliability Test	Tolerance	VIF
	CA3	0.714			
	CA4	0.676			
Customer Experience (CX)	CX1	0.704	0.866	0.529	1.890
	CX2	0.749			
	CX3	0.731			
	CX4	0.682			
Customer Engagement (CE)	CE1	0.713	0.872	0.604	1.656
	CE2	0.761			
	CE3	0.728			
	CE4	0.695			
Competitive Intensity (CI)	CI1	0.638	0.819	0.624	1.603
	CI2	0.681			
	CI3	0.657			
Hotel Competitive Advantage (HCA)	HCA1	0.705	0.858		
	HCA2	0.743			
	HCA3	0.716			
	HCA4	0.672			

The results presented in Table 2 indicate that all indicators have corrected item total correlation values above 0.160. Therefore, all measurement items are valid. The Cronbach's Alpha values for all variables are above 0.70, indicating that the research instruments are reliable. The multicollinearity test also shows that all tolerance values are greater than 0.10 and all VIF values are below 10. Thus, the variables are free from serious multicollinearity problems and are suitable for further regression analysis.

3.3. Normality Test

The normality test was conducted using the Kolmogorov Smirnov test. The data are considered normally distributed if the Asymp. Sig. value is greater than 0.05. The normality test was applied to the regression equations used in this study.

Table 3. Normality Test

No.	Regression Equation	Asymp. Sig. (2 tailed)	Critical Number	Description
1	DKSQ, DMS → CA	0.076	0.05	Normal
2	CA → CX	0.084	0.05	Normal
3	CX → CE	0.091	0.05	Normal
4	CE → HCA	0.069	0.05	Normal
5	CE, CI, CE × CI → HCA	0.073	0.05	Normal

Based on Table 3, all Asymp. Sig. values are greater than 0.05. This indicates that the residuals in all regression equations are normally distributed. Therefore, the data meet the normality assumption and are appropriate for further regression analysis.

3.4 Multiple Regression, and T Test

Multiple regression analysis was conducted to examine the direct relationships among variables. The significance of each hypothesis was determined based on the standardized coefficient, t value, and significance value. A hypothesis is accepted when the significance value is less than 0.05 and rejected when the significance value is greater than 0.05.

Table 4. Multiple Regression and T Test

Hypothesis	Relationship	Standardized Coefficient (β)	t value	Sig.	Description
H1	DKSQ $\rightarrow$ CA	0.612	7.984	0.000	Accepted
H2	DMS $\rightarrow$ CA	0.118	1.421	0.157	Rejected
H3	CA $\rightarrow$ CX	0.647	10.345	0.000	Accepted
H4	CX $\rightarrow$ CE	0.691	11.628	0.000	Accepted
H5	CE $\rightarrow$ HCA	0.654	10.532	0.000	Accepted

Model statistics:

Model 1: DKSQ, DMS $\rightarrow$ CA: $R^2 = 0.486$; Adjusted $R^2 = 0.479$; $F = 69.384$; Sig. = 0.000

Model 2: CA $\rightarrow$ CX: $R^2 = 0.419$; Adjusted $R^2 = 0.415$; $F = 107.018$; Sig. = 0.000

Model 3: CX $\rightarrow$ CE: $R^2 = 0.477$; Adjusted $R^2 = 0.473$; $F = 135.211$; Sig. = 0.000

Model 4: CE $\rightarrow$ HCA: $R^2 = 0.428$; Adjusted $R^2 = 0.424$; $F = 110.923$; Sig. = 0.000

Note: DKSQ = Digital Kiosk System Quality; DMS = Digital Marketing Strategy; CA = Customer Acceptance; CX = Customer Experience; CE = Customer Engagement; HCA = Hotel Competitive Advantage.

The results in Table 6 show that four direct hypotheses are accepted, while one direct hypothesis is rejected. Digital Kiosk System Quality has a positive and significant effect on Customer Acceptance, with a standardized coefficient of 0.612 and a significance value of 0.000. Therefore, H1 is accepted. This indicates that hotel customers are more likely to accept digital kiosk services when the kiosk system is easy to use, reliable, fast, secure, and accurate.

Digital Marketing Strategy does not have a significant effect on Customer Acceptance, with a standardized coefficient of 0.118 and a significance value of 0.157. Therefore, H2 is rejected. This finding suggests that digital marketing communication alone may not be sufficient to encourage customers to accept digital kiosk services. Customers may be aware of kiosk facilities through digital marketing channels, but actual acceptance depends more strongly on the quality, usefulness, and convenience of the kiosk system itself.

Customer Acceptance has a positive and significant effect on Customer Experience, with a standardized coefficient of 0.647 and a significance value of 0.000. Therefore, H3 is accepted. This means that customers who accept kiosk based hotel services are more likely to perceive the hotel service process as convenient, efficient, modern, and satisfying.

Customer Experience has a positive and significant effect on Customer Engagement, with a standardized coefficient of 0.691 and a significance value of 0.000. Therefore, H4 is accepted. This indicates that positive service experiences supported by digital kiosks can encourage customers to become more involved with the hotel brand, interact with hotel digital services, provide feedback, recommend the hotel, and participate in digital service features.

Customer Engagement has a positive and significant effect on Hotel Competitive Advantage, with a standardized coefficient of 0.654 and a significance value of 0.000. Therefore, H5 is accepted. This finding indicates that engaged customers can strengthen hotel competitiveness through positive word of mouth, repeat intention, stronger brand reputation, and higher perceived service differentiation

3.5. F Test

Table 5. F Test

No.	Regression Model	F value	Sig.	Standard	Description
1	DKSQ, DMS $\rightarrow$ CA	69.384	0.000	0.05	Significant
2	CA $\rightarrow$ CX	107.018	0.000	0.05	Significant
3	CX $\rightarrow$ CE	135.211	0.000	0.05	Significant
4	CE $\rightarrow$ HCA	110.923	0.000	0.05	Significant
5	CE, CI, CE $\times$ CI $\rightarrow$ HCA	42.716	0.000	0.05	Significant

Based on Table 5, all regression models have significance values below 0.05. This indicates that the proposed models are statistically significant and feasible for explaining the relationships among Digital Kiosk System Quality, Digital Marketing Strategy, Customer Acceptance, Customer Experience, Customer Engagement, Competitive Intensity, and Hotel Competitive Advantage. Although Digital Marketing Strategy does not significantly influence Customer Acceptance individually, the overall model involving Digital Kiosk System Quality and Digital Marketing Strategy remains statistically significant.

3.6. Mediation Analysis

Mediation analysis was conducted to examine whether Customer Acceptance mediates the relationship between Digital Kiosk System Quality and Customer Experience, and whether Customer Acceptance mediates the relationship between Digital Marketing Strategy and Customer Experience. The mediation effect was examined using the Sobel test. A mediation effect is considered significant when the significance value is below 0.05

Table 6. Sobel Test for Mediation Effect

Hypothesis	Mediation Path	Sobel Test Statistic	Sig.	Description
H6	DKSQ → CA → CX	6.738	0.000	Accepted
H7	DMS → CA → CX	1.386	0.166	Rejected

Note: DKSQ = Digital Kiosk System Quality; DMS = Digital Marketing Strategy; CA = Customer Acceptance; CX = Customer Experience.

Based on Table 6 Customer Acceptance significantly mediates the relationship between Digital Kiosk System Quality and Customer Experience, with a Sobel test statistic of 6.738 and a significance value of 0.000. Therefore, H6 is accepted. This means that Digital Kiosk System Quality improves Customer Experience by first strengthening Customer Acceptance. In other words, a high quality kiosk system contributes to a better hotel experience when customers are willing to accept and use the kiosk service.

However, Customer Acceptance does not mediate the relationship between Digital Marketing Strategy and Customer Experience, with a Sobel test statistic of 1.386 and a significance value of 0.166. Therefore, H7 is rejected. This result is consistent with the direct effect analysis, which shows that Digital Marketing Strategy does not significantly influence Customer Acceptance. The finding indicates that digital marketing messages may create awareness, but they may not be strong enough to generate acceptance and improve customer experience unless supported by actual kiosk system quality.

3.7. Sequential Mediation Analysis

Sequential mediation analysis was conducted to examine whether Customer Experience and Customer Engagement sequentially mediate the relationship between Customer Acceptance and Hotel Competitive Advantage. The sequential mediation logic assumes that Customer Acceptance first improves Customer Experience, then Customer Experience strengthens Customer Engagement, and finally Customer Engagement contributes to Hotel Competitive Advantage

Table 7. Sequential Mediation Test

Hypothesis	Sequential Mediation Path	Test Statistic	Sig.	Description
H8	CA → CX → CE → HCA	5.214	0.000	Accepted

Note: CA = Customer Acceptance; CX = Customer Experience; CE = Customer Engagement; HCA = Hotel Competitive Advantage.

Based on Table 9, Customer Experience and Customer Engagement significantly mediate the relationship between Customer Acceptance and Hotel Competitive Advantage, with a test statistic of 5.214 and a significance value of 0.000. Therefore, H8 is accepted. This finding indicates that Customer Acceptance does not create Hotel Competitive Advantage directly, but through a sequential process. Customers who accept digital kiosk services are more likely to experience hotel services positively. Positive Customer Experience then strengthens Customer Engagement, and Customer Engagement contributes to Hotel Competitive Advantage

3.8. Moderation Analysis

Moderation analysis was conducted to examine whether Competitive Intensity moderates the relationship between Customer Engagement and Hotel Competitive Advantage. The moderation effect was tested using an interaction term between Customer Engagement and Competitive Intensity. A moderation effect is supported when the interaction term has a significance value below 0.05.

Table 8. Moderation Test

Hypothesis	Relationship	Standardized Coefficient (β)	t value	Sig.	Description
H9	$CE \times CI \rightarrow HCA$	0.214	2.486	0.014	Accepted

Model statistics:

Moderation Model: $CE, CI, CE \times CI \rightarrow HCA$: $R^2 = 0.471$; Adjusted $R^2 = 0.460$; $F = 42.716$; Sig. = 0.000

Note: CE = Customer Engagement; CI = Competitive Intensity; HCA = Hotel Competitive Advantage.

Based on Table 8, the interaction between Customer Engagement and Competitive Intensity has a positive and significant effect on Hotel Competitive Advantage, with a standardized coefficient of 0.214 and a significance value of 0.014. Therefore, H9 is accepted. This indicates that Competitive Intensity strengthens the relationship between Customer Engagement and Hotel Competitive Advantage. When competition among hotels is high, customer engagement becomes more important for creating competitive advantage. Engaged customers can help hotels maintain differentiation, strengthen reputation, encourage repeat visits, and improve customer based competitiveness

DISCUSSION

The purpose of this study was to examine how Digital Kiosk System Quality and Digital Marketing Strategy contribute to Hotel Competitive Advantage through Customer Acceptance, Customer Experience, and Customer Engagement. In addition, this study examined the moderating role of Competitive Intensity in the relationship between Customer Engagement and Hotel Competitive Advantage. The findings show that Digital Kiosk System Quality significantly influences Customer Acceptance, while Digital Marketing Strategy does not significantly influence Customer Acceptance. Furthermore, Customer Acceptance significantly influences Customer Experience, Customer Experience significantly influences Customer Engagement, and Customer Engagement significantly influences Hotel Competitive Advantage. The mediation analysis shows that Customer Acceptance mediates the relationship between Digital Kiosk System Quality and Customer Experience, but does not mediate the relationship between Digital Marketing Strategy and Customer Experience. The sequential mediation analysis confirms that Customer Experience and Customer Engagement sequentially mediate the relationship between Customer Acceptance and Hotel Competitive Advantage. The moderation analysis also shows that Competitive Intensity strengthens the relationship between Customer Engagement and Hotel Competitive Advantage.

The significant effect of Digital Kiosk System Quality on Customer Acceptance indicates that customers are more willing to accept digital kiosk services when the system performs well. Ease of use, reliability, speed, interface clarity, security, and service accuracy are important factors that influence customer willingness to use kiosk based hotel services. This finding suggests that hotel customers do not accept digital kiosks merely because the technology is available. Instead, they accept the technology when it provides practical benefits and supports a smoother service process.

Digital Marketing Strategy does not significantly influence Customer Acceptance. This finding indicates that digital marketing communication may not be sufficient to make customers accept hotel digital kiosks. Although hotels may promote kiosk services through websites, social media, booking platforms, mobile applications, or digital advertisements, customers may still decide whether to accept kiosks based on actual system performance. This means that customer acceptance is more strongly shaped by direct evaluation of system quality than by promotional communication. In hotel services, customers may appreciate information about digital kiosks, but they still need to experience usefulness, convenience, and reliability before accepting the technology.

Customer Acceptance has a significant effect on Customer Experience. This finding shows that customers who are willing to use hotel digital kiosks are more likely to perceive the hotel service process as efficient, convenient, and modern. Acceptance reduces uncertainty and makes customers more comfortable interacting with self service technology. When customers accept digital kiosks, they are more likely to experience reduced waiting time, faster transactions, greater control, and smoother service flow.

Customer Experience significantly influences Customer Engagement. This result indicates that positive kiosk supported experiences can encourage customers to become more involved with the hotel brand. Customers who experience convenient and satisfying digital services may be more willing to provide feedback, recommend the hotel, use other digital service features, participate in loyalty programs, and interact with hotel communication channels. Therefore, customer experience serves as an important bridge between technology acceptance and deeper customer brand relationships.

Customer Engagement has a significant effect on Hotel Competitive Advantage. This finding confirms that engaged customers are valuable strategic resources for hotels. Customer engagement can strengthen competitive advantage through positive reviews, repeat visits, recommendations, customer retention, and stronger brand reputation. In the hotel industry, where customers can easily compare alternatives through online travel agencies and review platforms, engagement becomes an important source of differentiation.

The mediation result shows that Customer Acceptance significantly mediates the relationship between Digital Kiosk System Quality and Customer Experience. This indicates that Digital Kiosk System Quality improves Customer Experience because customers first accept the technology. In other words, system quality alone is not enough to create experience value unless customers are willing to use the kiosk. Therefore, hotels must ensure that kiosk systems are not only technically advanced, but also acceptable from the customer's perspective.

However, Customer Acceptance does not mediate the relationship between Digital Marketing Strategy and Customer Experience. This result indicates that digital marketing strategy may create awareness, but it does not necessarily lead to acceptance or better experience. Customers may receive digital messages about kiosk benefits, but these messages may not be strong enough to change their service behavior. This finding suggests that hotel managers should not rely only on promotional communication. Digital marketing must be supported by strong kiosk system quality, clear service guidance, staff assistance, and real customer benefits.

The sequential mediation result confirms that Customer Experience and Customer Engagement sequentially mediate the relationship between Customer Acceptance and Hotel Competitive Advantage. This finding explains that Customer Acceptance contributes to competitive advantage through a step by step process. First, customers accept kiosk based services. Second, acceptance creates a more positive service experience. Third, positive experience encourages customer engagement. Finally, engagement strengthens hotel competitive advantage. This result highlights that hotel digital transformation should be designed as a customer centered journey rather than only as an operational efficiency initiative.

The moderation result shows that Competitive Intensity strengthens the relationship between Customer Engagement and Hotel Competitive Advantage. This finding means that customer engagement becomes more strategically important when hotel competition is high. In competitive markets, hotels cannot rely only on facilities, price, or location. They must build strong customer relationships, encourage positive reviews, and create meaningful engagement. When competition is intense, engaged customers can help hotels maintain differentiation, strengthen reputation, and improve their competitive position.

Overall, the findings indicate that Hotel Competitive Advantage is not created directly by digital kiosk technology alone. Instead, competitive advantage emerges when high quality kiosk systems are accepted by customers, create positive customer experience, strengthen customer engagement, and operate within competitive market conditions. The rejected effects of Digital Marketing Strategy on Customer Acceptance and the rejected mediation effect of Customer Acceptance between Digital Marketing Strategy and Customer Experience show that communication alone is not enough. Hotels must prioritize actual system quality, usability, reliability, and customer centered service design to transform digital kiosks into strategic competitive advantage

4. CONCLUSION

This study examined how Digital Kiosk System Quality and Digital Marketing Strategy contribute to Hotel Competitive Advantage through Customer Acceptance, Customer Experience, and Customer Engagement. In addition, this study analyzed the moderating role of Competitive Intensity in the relationship between Customer Engagement and Hotel Competitive Advantage. The research model explains that hotel competitive advantage is not created only through the adoption of digital kiosk technology, but through a sequential customer based process involving acceptance, experience, engagement, and competitive market conditions.

The findings show that Digital Kiosk System Quality has a positive and significant effect on Customer Acceptance. This indicates that customers are more likely to accept digital kiosk services when the system is easy to use, reliable, fast, secure, clear, and accurate. In the hotel context, kiosk technology will be accepted when customers perceive that the system provides practical benefits, reduces waiting time, simplifies service procedures, and improves service

convenience. Therefore, kiosk system quality becomes an important technological foundation for successful digital service transformation in hotels.

Customer Acceptance was also found to have a positive and significant effect on Customer Experience. This result indicates that customers who are willing to use digital kiosk services are more likely to perceive the hotel service journey as efficient, convenient, modern, and satisfying. Customer Acceptance reduces uncertainty toward self service technology and allows customers to experience the benefits of digital service more positively. Thus, acceptance becomes an important psychological mechanism that connects digital kiosk quality with customer experience.

Furthermore, Customer Experience has a positive and significant effect on Customer Engagement. This finding confirms that positive service experiences supported by digital kiosks can encourage customers to become more involved with the hotel brand. When customers experience convenience, speed, control, and satisfaction during kiosk based service encounters, they are more likely to interact further with hotel digital services, provide feedback, recommend the hotel, participate in loyalty programs, and develop stronger emotional and behavioral involvement.

Customer Engagement was also found to have a positive and significant effect on Hotel Competitive Advantage. This result indicates that engaged customers are valuable strategic assets for hotels. Customer engagement can strengthen hotel competitiveness through positive reviews, repeat visits, word of mouth recommendation, customer retention, and stronger brand reputation. In a competitive hotel industry, customer engagement helps hotels differentiate themselves not only through physical facilities or price, but also through relationship quality and customer based service value.

However, this study also found two unsupported relationships. First, Digital Marketing Strategy does not have a significant effect on Customer Acceptance. This finding suggests that digital marketing communication alone may not be sufficient to encourage customers to accept digital kiosk services. Although hotels may communicate kiosk benefits through websites, social media, booking platforms, mobile applications, or digital advertisements, customer acceptance depends more strongly on actual kiosk system quality, usefulness, ease of use, and service reliability. Therefore, marketing messages must be supported by real service performance.

Second, Customer Acceptance does not mediate the relationship between Digital Marketing Strategy and Customer Experience. This result indicates that digital marketing strategy may increase awareness of kiosk based services, but it does not automatically lead to acceptance or improved customer experience. Customers may understand that a hotel offers digital kiosk services, but they may not accept or value the technology unless they directly perceive its usefulness and convenience. This finding emphasizes that digital marketing should not stand alone; it must be integrated with strong system quality, clear service guidance, and customer support.

The mediation analysis confirms that Customer Acceptance significantly mediates the relationship between Digital Kiosk System Quality and Customer Experience. This means that high quality kiosk systems improve customer experience because customers first accept the technology. In other words, system quality must be translated into customer acceptance before it can produce experiential value. Hotels should therefore focus not only on installing kiosk technology, but also on ensuring that customers feel comfortable, confident, and willing to use it.

The sequential mediation analysis shows that Customer Experience and Customer Engagement sequentially mediate the relationship between Customer Acceptance and Hotel Competitive Advantage. This finding explains that Customer Acceptance contributes to Hotel Competitive Advantage through a gradual process. Customers first accept the digital kiosk, then experience hotel services more positively, then become more engaged with the hotel brand, and finally contribute to competitive advantage. This confirms that digital transformation in hotels must be designed as a customer journey rather than merely an operational efficiency tool.

The moderation analysis shows that Competitive Intensity strengthens the relationship between Customer Engagement and Hotel Competitive Advantage. This indicates that customer engagement becomes more important when hotel competition is high. In highly competitive markets, hotels need engaged customers who are willing to recommend, revisit, provide positive reviews, and support the hotel brand. Therefore, competitive intensity makes customer engagement more strategically valuable in creating and maintaining hotel competitive advantage.

Theoretically, this study contributes to hospitality marketing and service innovation literature by explaining how digital kiosk technology can become a source of competitive advantage through customer based mechanisms. The study highlights the importance of Customer Acceptance, Customer Experience, and Customer Engagement as sequential pathways that transform digital service innovation into strategic outcomes. The inclusion of Competitive Intensity as a moderating variable also extends the understanding of how market conditions influence the strategic value of customer engagement.

Practically, the findings provide several implications for hotel managers. Hotels should prioritize Digital Kiosk System Quality by ensuring that kiosk systems are user friendly, reliable, fast, secure, and integrated with hotel operations. Hotels should also provide clear instructions, staff assistance, and service support to help customers feel comfortable using kiosk technology. In addition, digital marketing strategies should focus not only on promotion, but also on educating customers, reducing uncertainty, and communicating real service benefits. Since Digital Marketing Strategy alone does not significantly influence Customer Acceptance, hotels must ensure that communication is supported by actual system performance.

Overall, this study concludes that Hotel Competitive Advantage is created through the successful transformation of digital kiosk quality into customer acceptance, customer experience, and customer engagement. Digital kiosk technology can support competitive advantage when customers accept the system, experience its benefits, and become more engaged with the hotel brand. However, digital marketing communication alone is not enough to create acceptance or improve experience. Therefore, hotels should combine high quality kiosk systems, customer centered service design, engagement strategies, and competitive market awareness to strengthen their strategic position.

This study has several limitations. First, the research focuses on hotel customers who have experience with or awareness of digital kiosk services, which may limit the generalizability of the findings to customers who are unfamiliar with hotel self service technology. Second, this study uses a cross sectional design, so it cannot fully capture changes in customer acceptance, experience, engagement, and loyalty over time. Third, the study focuses on Digital Kiosk System Quality, Digital Marketing Strategy, Customer Acceptance, Customer Experience, Customer Engagement, Competitive Intensity, and Hotel Competitive Advantage, while other relevant variables such as technology anxiety, perceived risk, service personalization, customer satisfaction, trust, and digital readiness were not included.

Future research is encouraged to examine digital kiosk adoption across different hotel categories, such as budget hotels, business hotels, boutique hotels, and luxury hotels. Future studies may also compare customers who have directly used digital kiosks with those who have only observed or heard about them. In addition, future research can include other mediating or moderating variables, such as customer satisfaction, perceived risk, technology readiness, service personalization, and digital trust. Longitudinal research is also recommended to examine how customer acceptance and engagement with hotel digital kiosks develop over time and how they influence long term hotel competitiveness.

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