

Assessing CRM strategies and their effect on customer satisfaction in Johor's hospitality industry

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ABSTRACT

Customer satisfaction is a critical challenge in the hospitality industry, where hotels face rising consumer expectations and intense competition. While Customer Relationship Management (CRM) offers a strategic solution, many hotels underutilise CRM dimensions—customer orientation, CRM organisation, knowledge management, and technology-based CRM—limiting their ability to enhance guest experiences. This study investigates the effect of CRM dimensions on customer satisfaction in Johor hotels. This study employed a quantitative, correlational, and cross-sectional survey design and successfully collected data from 200 hotel clients in Johor. Convenience sampling targeted guests who had visited Johor hotels within the past three months. Data were analysed using SPSS version 29.0, and multiple regression was applied to examine the relationships between CRM variables and customer satisfaction. The results show that CRM organisation is the most potent positive driver of customer satisfaction, emphasising the importance of well-structured CRM practices in improving customer experiences. Technology-based CRM also significantly impacts satisfaction, highlighting technology's growing role in hotel operations. However, customer orientation and knowledge management negatively affected satisfaction, suggesting misalignments between hotel practices and customer expectations. These findings provide valuable insights for hotel management, urging a focus on enhancing CRM organisation and leveraging technology while reassessing customer orientation and knowledge management strategies. This study contributes to CRM research, extending customer experience theory and supporting elements of the Expectancy-Disconfirmation Theory. It calls for an integrated approach to CRM implementation and offers recommendations for future research to explore the adverse effects of specific CRM dimensions and regional differences in customer satisfaction.

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INTRODUCTION

The hospitality industry increasingly recognises the significance of Customer Relationship Management (CRM) as a strategic approach to enhance customer satisfaction and loyalty. The evolution of consumer expectations, coupled with the competitive nature of the hotel sector, necessitates a robust CRM framework that addresses customer needs and fosters long-term relationships. CRM practices encompass a variety of strategies and technologies designed to manage interactions with current and potential customers, ultimately aiming to improve service delivery and customer experience (Mariam, 2023; Le et al., 2020; Rehman, 2023). The global market for customer experience management was estimated at USD 12.04 billion in 2023, and the project is to grow at a significant compound annual growth rate (CAGR) of 15.8% from 2024 to 2030 (Market Analysis Report, 2024). This growth reflects the industry's recognition of the importance of CRM systems in fostering guest loyalty and enhancing operational efficiencies.

CRM systems help hotels gather and analyse customer data to offer personalised services (Balamurugan et al., 2025). Technology such as contactless check-ins and mobile apps has improved customer satisfaction (Das et al., 2024). According to the American Customer Satisfaction Index (2024), guest satisfaction with lodging has bounced back to pre-pandemic levels, with a 3% increase to a score of 772. This improvement is attributed to the return to normal operations and the adoption of technological advancements. Furthermore, hotels that actively use CRM systems to track and respond to guest feedback tend to see higher satisfaction rates (Balamurugan et al., 2025). For instance, Hilton's consistent improvement in customer satisfaction scores, reaching 81 in the ACSI, highlights the importance of continuous improvement and responsiveness to customer needs (Hertzfeld, 2024).

Despite the significant advancements in CRM practices within the hotel industry, several notable gaps and issues remain that require attention. One primary concern is the lack of integration between various technological platforms. For instance, McCain (2023) reported that hotels leveraging CRM systems can achieve a 47% improvement in customer satisfaction, but many establishments still utilise technology merely as a tool for storing customer information rather than as a means to analyse data and tailor services to individual guest needs (Sofi et al., 2020). This underutilisation of CRM technology highlights a critical issue: the need for hotels to move beyond essential data management and engage in more sophisticated data analysis to enhance guest experiences. Moreover, the financial implications of inadequate CRM practices are profound. Research suggests that 75% of dissatisfied customers are likely to share their negative experiences, which can severely damage a hotel's reputation and profitability (Davis, 2023). Several studies also found that hotels that neglect effective CRM strategies may face severe financial consequences, including a potential revenue decrease (Mariam, 2023; Rehman, 2023; Danurdara et al, 2024). This situation underscores the urgency for hotel managers and organisations to adopt comprehensive CRM frameworks prioritising customer-centric approaches and operational efficiency.

Furthermore, technology has improved customer satisfaction, but the human element remains essential. Many hotels struggle to adequately train their staff to use CRM tools effectively, leading to inconsistent service quality (Monshi & Munshi, 2020). Palazzo et al. (2021) stressed the importance of human interaction in conjunction with technology. He claimed that enhancing service quality through CRM can differentiate brands in a competitive market. Additionally, the rapid pace of technological change necessitates continuous investment in system updates and staff training, which can be costly and time-consuming. This challenge is compounded by the need for hotels to balance automation with the personal touch that guests often expect (Hamedani et al, 2023).

Another significant challenge is the timely response to customer feedback. Even though collecting feedback is common, many hotels fail to act on this information promptly, leading to customer dissatisfaction and a perception of unresponsiveness (Mariam, 2023). The reliance on automated systems can sometimes overlook the nuanced responses that human interaction can provide. Soares et al. (2020) note that while guests want more technology, too much can lower service quality and satisfaction. Osei and

Cheng (2023) add that staff often resist automation, fearing it removes human interaction. This situation also affects how quickly and personally customer feedback is handled—automated responses may be fast but usually lack the empathy guests expect. Additionally, research by Hamedani (2023) indicates that successful CRM implementation is vital for driving organisational performance, which includes effectively addressing customer feedback. Rehman (2023) also demonstrated in his study that CRM is fundamental in understanding customer needs so organisations can deliver better services through effective feedback responses.

Moreover, the effective management of knowledge in CRM practices remains a subject that needs further examination. According to Al-Gasawneh et al. (2022), knowledge management plays a role in CRM, yet research lacks a comprehensive understanding of how these practices enhance customer satisfaction. The combination of CRM with robust knowledge management systems, according to Lebdaoui and Chetioui (2020), improves service quality and performance, ultimately enhancing customer satisfaction. Empirical research needs to explain how hotels can strategically combine knowledge management practices with CRM strategies to boost service quality and customer satisfaction.

In light of these challenges and gaps, this study investigates how CRM practices can be optimised to improve customer satisfaction in the hotel industry. By examining the interplay between CRM dimensions and customer experiences, this research provides actionable insights for hotel managers to enhance their CRM strategies, ultimately leading to improved customer loyalty and business performance. The present study aims to investigate the effect of CRM strategies on customer satisfaction in the hotel industry. The paper follows this structure: It begins with an introduction, followed by a review of relevant previous studies. Next is the methodology section, and the results and discussion section present the findings. The paper concludes with a summary of the main conclusions and recommendations for future research or practice.

LITERATURE REVIEW

Customer Satisfaction

Customer satisfaction is a multidimensional concept that has received extensive attention in academic studies and practical applications, particularly in the hotel industry. Customer satisfaction refers to how well a product or service meets or exceeds a customer's expectations (Pozza, 2017). This definition emphasises understanding consumer wants and perceptions, which is crucial to increasing satisfaction.

Customer satisfaction stems from the customer experience theory that describes satisfaction as the outcome of all customer interactions with branding and service provision (Gastezzi et al., 2024). According to Haryandika and Santra (2021), customer satisfaction substantially impacts the implementation of Customer Relationship Management (CRM) strategies. CRM strategies help companies decode customer requirements more efficiently, enabling them to produce better satisfaction results and stronger customer loyalty. As Wahab (2010) also emphasised, customer satisfaction is a performance marker for CRM systems that directly impact customer loyalty and retention.

Theoretical frameworks usually surrounding customer satisfaction incorporate the Expectancy-Disconfirmation Theory (Oliver, 1980), a common framework in customer satisfaction research to explain satisfaction ratings through customer-perceived performance differences between expectations and results. Higher satisfaction ratings come from customers who sense surpassing or meeting their expectations. Research indicates CRM practices driven towards effectiveness lead to enhanced customer perception through delivered personalised responses (Al-Dmour et al., 2019; Mariam, 2023). Hotel CRM systems enable tracking customer behaviours and preferences while providing services that fulfil customer expectations (Erdem & Jiang, 2016).

Discussion around customer satisfaction also revealed service quality acts as an essential influencing factor. Many studies confirm that better service quality enhances customer satisfaction (Mohammed et al., 2013; Chang et al., 2010). Hotels implementing successful Customer Relationship Management practices to boost their service quality standards within the hospitality industry receive greater satisfaction from their guests. Al-Gasawneh et al. (2022) proved that CRM enables successful relationship maintenance between companies and customers to better their service quality and customer satisfaction.

Moreover, the inclusion of technology into customer relationship management practices now defines how companies operate their customer interactions. Through E-CRM systems, businesses gain the real-time communication abilities necessary for fast feedback collection and practical understanding of customer sentiments (Al-Dmour et al., 2019; Amanzhanova, 2018). Technological elements in CRM operations boost customer satisfaction levels, improving business performance through customer retention (Mohammed et al., 2014; Kariman et al., 2022).

Customer Relationship Management (CRM)

Customer Relationship Management (CRM) is an organisation's strategic approach to managing interactions with current and potential customers (Blum, 2014). It encompasses a range of practices, technologies, and strategies to analyse customer interactions and data throughout the customer lifecycle. The primary goal of CRM is to improve customer service relationships, enhance customer retention, and drive sales growth (Blum, 2014; Aulia, 2022). As such, CRM is increasingly recognised as a vital component of business strategy, particularly in hospitality sectors where customer satisfaction and loyalty are paramount (Mariam, 2023; Rahimi & Kozak, 2016).

CRM is rooted in understanding customer needs and preferences, essential for delivering personalised services that foster loyalty. CRM systems facilitate the collection and analysis of customer data, enabling businesses to tailor their offerings and communications based on individual customer profiles (Tekle, 2023; Yunita et al., 2022). This customer-centric approach enhances the customer experience and improves organisational performance by aligning business processes with customer expectations (Lo et al., 2010; Mohammed et al., 2014).

Theoretical frameworks related to CRM often draw from Relationship Marketing (RM) principles, which emphasise the importance of building long-term relationships with customers rather than focusing solely on transactional exchanges. RM posits that fostering strong customer relationships increases customer loyalty and profitability (Tuamyil et al., 2022). This theoretical underpinning is supported by empirical research indicating that effective CRM practices can significantly enhance customer satisfaction and retention rates (Rehman, 2023; Rahimi & Kozak, 2016). For instance, studies have shown that hotels implementing robust CRM strategies experience higher customer loyalty and satisfaction levels, critical for sustaining competitive advantage in the hospitality industry (Mariam, 2023; Rahimi & Kozak, 2016).

Discussion around CRM also highlights the challenges associated with its implementation. While CRM offers numerous benefits, such as improved customer insights and enhanced service delivery, it can also be time-consuming, complex, and costly to implement (Tekle, 2023; Yunita et al., 2022). Organisations must navigate these challenges by effectively ensuring they have the necessary technological infrastructure, staff training, and strategic alignment to leverage CRM (Yan et al., 2020; Luck & Lancaster, 2013). Moreover, integrating CRM with other business processes, such as marketing and sales, is essential for maximising its impact on customer satisfaction and organisational performance (Mohammed et al., 2014; Luck & Lancaster, 2013).

Components of Customer Relationship Management

Customer relationship management (CRM) has four basic behavioural components which operate as multi-dimensional constructs. CRM relies on four essential pillars, which Michael (2018) describes as

people, technology, strategy and procedures. Multiple research evidence indicates CRM strategies provide advantageous results for organisational performance. A study conducted by Sofi et al. (2020) in the hotel industry demonstrated the beneficial link between four CRM dimensions: customer orientation, CRM organisation, knowledge management, and technology-based CRM.

Customer Orientation

Customer orientation is a crucial CRM element that requires marketing organisations to take note and answer customer requirements and choices (Mathieu, 2022). The customer orientation dimension transforms from current marketing strategies toward comprehensive customer relationship development (Saarijärvi et al., 2013). In this study, customer orientation according to customer perception captures the organisation's capability to recognise, cherish and respond effectively to each participant's special requirements and tastes during service delivery. The consumer's perception of an organisation's understanding and value of individual customers stands crucial in relationship marketing while driving satisfaction decisions. Organisations need an orientation focused on customers to establish meaningful relationships that produce both loyalty and satisfaction, according to Saarijärvi et al. (2013). The hospitality industry adapts this orientation to deliver customised services that fulfil what customers anticipate in their experiences. According to Sofi et al. (2020) and Chetioui et al. (2017), hotels that focus on customer needs perform better in terms of customer satisfaction levels and retention rates. Developing strong bonds between visitors and hotel service providers is fundamental for successful customer orientation (Sofi et al., 2020). The successful implementation of CRM depends on customer orientation because it ensures organisational performance continues to increase. A company achieves better results by surpassing the competition to detect, understand, and meet customer needs of different kinds. Organisations with a customer-oriented workplace achieve better operational performance because employees focus on delivering customer satisfaction (Elmubasher & Hamid, 2020).

CRM Organisation

A CRM organisation serves as a business framework which unifies strategic CRM guidance to control and combine all activities regarding prospects and customers through integrated process optimisation (Blum, 2014). This component encompasses the processes, roles, and responsibilities that facilitate customer relationship management within the organisation (Hardjono & San, 2017). In this study, CRM organisation refers to customers' perceptions of how well the organisation delivers coordinated, consistent, and strategically aligned CRM practices across touchpoints. Effective CRM organisation ensures that all departments align towards enhancing customer satisfaction and loyalty. According to Al-Gasawneh et al. (2022), a well-defined CRM organisation positively impacts marketing performance, enabling seamless communication and collaboration across various functions. Furthermore, a strong CRM organisation fosters a customer-centric culture, empowering employees to prioritise customer needs daily. The hospitality industry demands this alignment because service delivery occurs through collaborative work between different staff (Rahimi & Kozak, 2016).

Knowledge Management

Within the CRM framework, knowledge management is an essential component that systematises customer information collection and analysis through distribution for improved decision-making and service provision (Xu, 2014). Organisations use this dimension to analyse customer information, which helps optimise their products and customer interactions (Shin et al., 2020). In this study, customers view knowledge management as an organisational capability that effectively utilises customer information to deliver valuable and personalised uniformed service. The ability of customers to perceive how well the company keeps and understands their past needs through previous interactions represents their sense of understanding. According to Al-Gasawneh et al. (2022), research findings show that effective customer knowledge management positively impacts marketing performance as such organisations better fulfil

customer expectations. Applying knowledge management within hotel businesses enables them to identify customer preference patterns and conduct behaviour analysis to develop customised marketing strategies and improve service quality (Sofi et al., 2020). Hotels can create experiences that deliver meaningful engagement to guests when they use their available customer data effectively, thus boosting guest satisfaction and loyalty.

Technology-Based CRM

Technology-based CRM applies modern systems along with digital tools to support the processing of customer relationship management functions (Viljoen et al., 2005). Three main technologies - CRM software, data analytics, and communication platforms help organisations run efficient customer interactions (Mohammed et al., 2014; Chadha, 2015). In this study, the assessment of technology-based CRM from a customer perspective covers how customers encounter technological advancements that enhance interaction convenience and personalise service delivery across multiple channels. Technology integration within CRM operations enables immediate data acquisition and processing, which helps organisations supply fast responses to customer questions and feedback (Mohammed et al., 2013). Technology-based CRM systems boost organisational results through better customer interaction and simpler communication practices, according to Mohammed et al. (2014). Technology-based Customer Relationship Management systems deployed by hotels result in enhanced operational performance and elevated customer interactions. These systems help hotels predict customer preferences and customise their service offerings (Hardjono & San, 2017; Rahimi & Kozak, 2016). Changing customer preferences and competitive pressures push hotels to consistently use technological methods for marketing to clients.

Hypothesis Development

Customer orientation represents a strategic business approach focused on understanding and meeting customer needs while maintaining strong importance in hotels where excellent service and experiences directly affect success. According to Tseng (2019), customer orientation plays a substantial role in improving service sector satisfaction, specifically in the hospitality and banking sectors, because workers with strong customer orientation lead to increased customer satisfaction. Sofi et al. (2020) showcased a strong positive association between hotel industry customer satisfaction and CRM dimensional customer orientation through research emphasising active customer feedback processing and personalised service delivery.

Ha (2021) demonstrated that service quality shared connections with customer orientation increase customer satisfaction through positive impacts on hospitality service delivery. Furthermore, Shrestha (2020) explored how customer orientation in relationship marketing develops strong customer retention and satisfaction that drives long-term hotel guest relationships. Studies conducted by Aslam et al. (2021) also proved that customer-oriented worker approaches lead to higher customer satisfaction, thus emphasising staff requirements for excellent customer need management skills. Additionally, the research conducted by Lestari et al. (2019) also revealed how employee-customer orientation produces significant results in health service satisfaction, which pertains to hotel industry relationships. Consequently, it is reasonable to hypothesise that:

H₁: Customer satisfaction is positively influenced by customer orientation

CRM organisation refers to an organisation's structural and strategic alignment to effectively implement customer relationship management practices, encompassing processes, roles, and responsibilities that enhance customer engagement and service delivery. Mariam (2023) proved that hotels implementing organised CRM frameworks meet customer satisfaction targets and promote guest loyalty through effective responses to customer requirements. Similarly, Kerdpitak (2021) confirmed that strong CRM execution spanning sales, marketing, and customer support functions helps businesses perform better because satisfied customers act as the relationship mediator to indicate the value of systematic CRM

approaches in delivering impressive results. Additionally, Al-Gasawneh et al. (2022) and Amril et al. (2019) revealed that well-structured CRM frameworks enable staff members to provide customer-focused practices that improve service quality while building stronger customer interactions, resulting in enhanced satisfaction. This evidence supports the formulation of the hypothesis that:

H₂: Customer satisfaction is positively influenced by CRM organisation

Knowledge management (KM) describes the systematic organisational process of gathering information, which is distributed and utilised to enhance service delivery. Hotels use this system to accumulate customer data for better product analysis to improve their services and engage better with clients. Lemy et al. (2019) demonstrated that frontline employees hold essential status when creating customer satisfaction, but effective KM systems supply employees with crucial knowledge tools to deliver superior customer service. Nguyen and Malik (2021) also stressed that enhanced employee knowledge sharing leads to exceptional service quality that boosts satisfaction because employees understand customer expectations correctly. Hotel performance benefits from customer feedback analysis through KM methodology because it improves quality by addressing guests' perception and preference dynamics (Nguyen and Malik 2021; Sinha et al. 2019). Jawabreh (2023) also emphasised trust as an essential hospitality industry factor that can strengthen effective KM practices.

Furthermore, Baquero's (2022) research showed that staff commitment and satisfaction lead employees to create unforgettable customer experiences that drive better satisfaction rates. Mandlik (2023) also established that knowledge management develops continuous improvement through knowledge exchange systems, which enable hotels to serve customers better and with more excellent responsiveness. The research findings support the development of the following proposition:

H₃: Customer satisfaction is positively influenced by knowledge management

Hotel industries benefit from technology-based CRM (TCRM) by using customer relationship management software with data analytics and communication platforms alongside other digital tools to manage customer relations effectively. According to Al-Dmour et al. (2019), electronic CRM systems boost customer satisfaction through better service quality and engagement. Implementing technology leads to faster operation handling while improving speeds to address customer questions and gather feedback. Mwirigi (2019) explains that TCRM enables businesses to detect customers more efficiently and engage with them successfully, allowing for personalised service delivery, improved guest satisfaction, and enhanced guest loyalty. Similarly, Ahmed and Siddiqui (2019) argue that TCRM practices are crucial for developing innovative solutions tailored to customer needs, thereby improving satisfaction. Technology integration produces superior service quality because Al-Gasawneh et al. (2022) discovered that CRM technological innovations adapt to changing customer needs to generate satisfying interactive service interactions.

Abdelhamid et al. (2022) found that TCRM tools improve processes while enhancing communication and delivering personalised services to maximise guest satisfaction. Electronic CRM (ECRM) systems also lead hotels to better manage customer relationships by improving service quality and promoting customer engagement (Al-Dmour et al., 2019). According to Kumar et al. (2021), ECRM systems enhance communication and service recovery capabilities, essential for customer service management in the hospitality sector with its demanding customer base.

Through customer feedback analysis, TCRM enhances customer relationships by achieving effective feedback collection. The success of ECRM systems depends heavily on trust, privacy, and service quality standards, as Dehghanpouri et al. (2020) pointed out, which leads to enhanced loyalty. According to Jarrah et al. (2020), companies integrating ECRM improve customer relationships and achieve better satisfaction with sustained collaboration. Evidence suggests the development of this hypothesis:

H₄: Technology-based CRM positively influences customer satisfaction

Research Conceptual Framework

As presented in Figure 1, the research conceptual framework shows that customer satisfaction functions as the dependent variable (DV). In contrast, customer orientation, CRM organisation, knowledge management, and technology-based CRM are independent variables (IVs). An organisation's customer-oriented strategy leads directly to improved satisfaction through effective customer need fulfilment. CRM organisation represents the strategic and structural alignment of service delivery processes that create seamless customer interactions while improving satisfaction. Service quality improvement and responsiveness become possible through knowledge management, which specialises in knowledge capture and systematic distribution to achieve better satisfaction outcomes. Technology-based CRM uses tools for personalised customer contacts and streamlined messaging and data analytics that generate better customer satisfaction results. The hospitality sector attains superior customer satisfaction through integrated CRM practices which combine these three motivational dimensions.

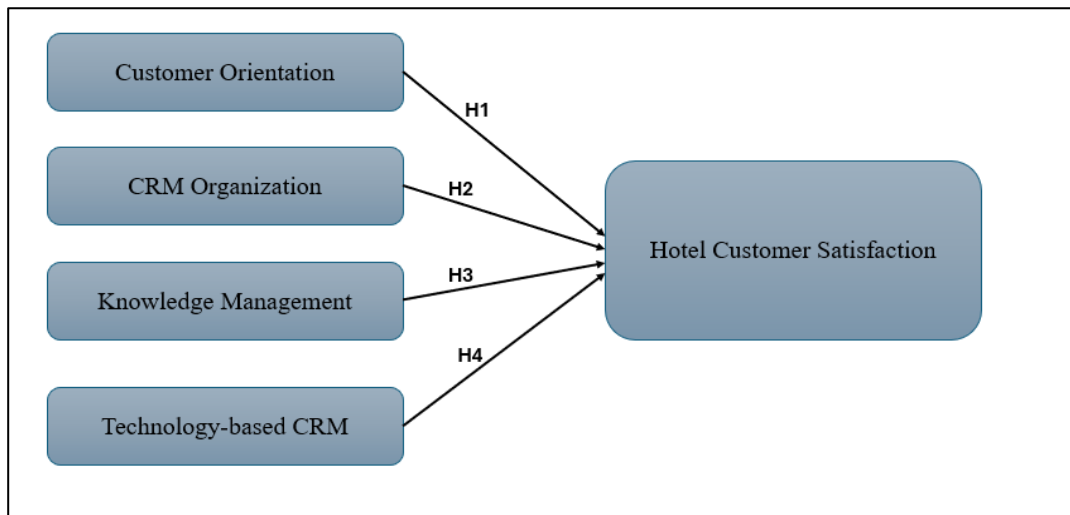


Fig. 1. Research Conceptual Framework

METHODOLOGY

A quantitative, correlational and cross-sectional survey design was used by this research to study how different Customer Relationship Management (CRM) dimensions, including customer orientation, CRM organisation, knowledge management and technology-based CRM, influenced hotel customer satisfaction in Johor. A self-administered questionnaire was used as the data collection method to acquire structured information that generated statistical findings on CRM variable impacts on customer satisfaction. The last three months saw hospitality customers from Johor hotels participate in this study. Non-probability sampling by convenience sampling method was employed because the total population remained unidentified. This method was chosen because it allowed the researchers to collect data quickly and easily from available people. Although this approach may limit how well the results apply to all hotel guests, it was suitable given the time and resource limitations. The sample size was determined based on standard guidelines for quantitative research, considering a reasonable level of precision and statistical power.

Ethical approval from the university was obtained before data collection began. Permission was also granted by the management of Sentral Hotel in Johor to conduct the study and to engage with their customers through social media platforms. Due to the nature of the hotel guests—mainly domestic and

international travellers—the survey was conducted remotely to minimise cost and logistical issues. A hotel staff member, acting as a gatekeeper, assisted in recruiting participants by sharing the survey link on social media and relevant online groups. A pilot test was first conducted with 25 participants to ensure the clarity of the questionnaire, and recruitment continued until 250 participants were reached. The survey was distributed online, and all participation was voluntary, with only those who provided informed consent included in the study. Of the questionnaires distributed, 200 complete and valid responses were retained after data cleaning, resulting in an actual response rate of 80%.

The data collection instrument included a structured questionnaire divided into seven sections to assess customer satisfaction and CRM dimensions. The questionnaire consisted of 23 measurement items adapted from validated studies by Sin et al. (2005), Akroush et al. (2011), and Mohammed et al. (2013), using a five-point Likert scale. Demographic information was also collected in a distinct section. Data analysis was conducted using SPSS version 29.0, applying descriptive statistics and inferential methods such as multiple regression to test the study's hypotheses.

RESULTS

Reliability Analysis

Table 1 presents the reliability analysis, indicating that all the study variables demonstrate acceptable internal consistency, with Cronbach's Alpha values ranging from 0.620 to 0.864. This result supports the instrument's reliability for further analysis and validates its suitability for examining the relationships between the variables in this study.

Table 1. Reliability analysis

Variables	Cronbach's Alpha	No. of items
Customer Satisfaction	0.802	5
Customer Orientation	0.864	5
CRM Organisation	0.677	5
CRM based Technology	0.620	5
Knowledge Management	0.727	5

Normality Test

Based on the normality test for the variables in Table 2, the Skewness values for customer satisfaction, customer orientation, customer relationship management, knowledge management and technology-based CRM had a range of -1.448 to -0.572, and the Kurtosis values for all the variables are in the range of 1.881 to -0.219. With the justification of Kline (2011), the range values for Skewness and Kurtosis are typically assumed.

Table 2. Normality result

Variable	Skewness	Skewness Std. Error	Kurtosis	Kurtosis Std. Error	Normality Assumed
Customer Satisfaction (DV)	-1.448	0.172	1.646	0.342	Yes
Customer Orientation (IV)	-0.608	0.172	-0.219	0.342	Yes
Customer Relationship Management (IV)	-1.066	0.172	1.881	0.342	Yes
Knowledge Management (IV)	-0.628	0.172	1.084	0.342	Yes
Technology-Based CRM (IV)	-0.572	0.172	0.051	0.342	Yes

Multiple Regression Analysis

In the exploration of the determinants of customer satisfaction, this study employed a multiple regression analysis model to assess the contribution of customer orientation (X1), knowledge management (X2), customer relationship management (X3), and technology-based CRM (X4). The model specified as $Y = B_0 + B_1x_1 + B_2X_2 + B_3X_3 + B_4X_4 + \epsilon$, where Y represents customer satisfaction, aimed to comprehensively understand how these variables collectively influence customer satisfaction for hotel services.

Multicollinearity in multiple regression analysis refers to linear relationships between the independent variables. Two variables possess a nearly perfect linear relationship when such a condition exists (Belsley, 1991). Multiple independent variables simultaneously linked to a dependent variable will lead to multicollinearity (Young, 2017). Several methods can be used to assess multicollinearity, including (a) tolerance, (b) variance inflation factor (VIF), (c) condition index, and (d) correlation analysis. For this study, tolerance and VIF were used to check for multicollinearity. Tolerance indicates multicollinearity issues, with values above 0.2 suggesting no problem between the independent variables. VIF, another indicator, suggests no multicollinearity if the value is 10 or less, but values greater than 10 indicate a multicollinearity problem. According to the results, neither tolerance nor VIF showed any multicollinearity concerns for the variables. Additionally, the Durbin-Watson statistic was 1.412, confirming no autocorrelation among residuals and supporting the independence of errors. These diagnostic tests validated the key assumptions of the multiple linear regression model, establishing a solid foundation for the subsequent analysis.

The overall fit of the model was statistically significant, as indicated in Table 3 by an F-statistic of 71.592 with a p -value less than .001 ($F(4,195) = 71.592, p < .001$), suggesting that the model explains a significant portion of the variance in customer satisfaction. The multiple regression analysis model determines the p -value for the test under the Sig. (significant) column. The p -value is 0.000, less than 0.05, proving to be a substantial effect of the variables (Torres-Reyna, 2007). Therefore, the independent variables of customer orientation, customer relationship management, knowledge management, and technology-based CRM significantly influence customer satisfaction. Table 4 shows the R^2 value of 0.595, illustrating that the model can account for approximately 59.5% of the customer satisfaction variability, highlighting the included predictors' substantial impact.

Table 3. Multiple Regression Results: ANOVA

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	50.421	4	12.605	71.592	.000 ^b
	Residual	34.334	195	.176		
	Total	84.755	199			

a. Dependent Variable: Customer Satisfaction

b. Predictors: (Constant), Technology Based CRM, Customer Relationship Management, Knowledge Management, Customer Orientation

Table 4. Multiple Regression Results: Model Summary

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.771 ^a	0.595	0.587	0.41961	1.412

a. Predictors: (Constant), Technology_Based_CRM, Customer_Relationship_Management, Knowledge_Management, Customer_Orientation

b. Dependent Variable: Customer_Satisfaction

Table 5 indicates the coefficient of the regression analysis, which suggests that Customer Relationship Management (CRM) dimensions significantly influence customer satisfaction in the hotel industry.

Table 5. Multiple Regression Results: Coefficients

Coefficients ^a							
Model	Unstandardised Coefficients		Standardised Coefficients		t	Collinearity Statistics	
	B	Std. Error	Beta			Sig.	Tolerance VIF
1 (Constant)	1.619	.254			6.376	.000	
Customer Orientation	-.301	.080	-.334		-3.750	.000	.263 3.809
Customer Relationship Management	1.132	.088	.981		12.878	.000	.358 2.793
Knowledge Management	-.810	.107	-.642		-7.596	.000	.291 3.439
Technology Based CRM	.568	.114	.452		4.970	.000	.251 3.981

a. Dependent Variable: Customer Satisfaction

Among the predictors, Customer Relationship Management ($B = 1.132$, $Beta = 0.981$, $p < 0.001$) emerged as the most substantial positive driver of customer satisfaction, highlighting its critical role in enhancing guest experiences. Similarly, Technology-Based CRM ($B = 0.568$, $Beta = 0.452$, $p < 0.001$) demonstrated a positive and significant impact, underscoring the importance of leveraging technology to improve service delivery and customer interactions. Conversely, Customer Orientation ($B = -0.301$, $Beta = -0.334$, $p < 0.001$) and Knowledge Management ($B = -0.810$, $Beta = -0.642$, $p < 0.001$) had significant adverse effects on satisfaction. These unexpected findings suggest potential issues such as misalignment between customer expectations and orientation strategies or inefficiencies in knowledge management practices that may hinder satisfaction levels.

The hypotheses were evaluated based on the results of this analysis. Hypothesis 1, positing a significant positive relationship between customer orientation and satisfaction, is rejected due to the observed significant negative relationship. This finding highlights a possible misalignment between customer orientation strategies and customer expectations in Johor hotels. Hypothesis 2, which hypothesised a significant positive relationship between CRM organisation and customer satisfaction, is accepted, as Customer Relationship Management demonstrated the most substantial positive effect. Similarly, Hypothesis 3, which proposed a positive relationship between CRM-based technology and customer satisfaction, is accepted, confirming the role of technology in enhancing customer experiences. However, Hypothesis 4, which hypothesised a positive relationship between managing knowledge and customer satisfaction, is rejected, given the significant negative effect observed.

Additionally, multicollinearity among predictors was evident, with Variance Inflation Factor (VIF) values approaching the threshold of concern (e.g., Customer Orientation = 3.809, Technology-Based CRM = 3.981). This finding suggests overlap among CRM dimensions, potentially inflating standard errors and affecting the precision of coefficient estimates. Despite these limitations, the findings emphasise the critical importance of CRM organisation and technology-based CRM in driving customer satisfaction. At the same time, the negative relationships associated with customer orientation and knowledge management suggest that Johor Hotels needs to revisit and refine these practices to better align with customer expectations and improve their effectiveness in enhancing satisfaction. Table 6 shows the summary results of hypothesis testing in this study.

Table 6. Summary Results of Hypothesis Testing

H	Statement	Result	Conclusion
H ₁	Customer satisfaction is positively influenced by customer orientation	Rejected	Customer orientation negatively affects customer satisfaction, suggesting misalignment or inefficiencies.
H ₂	Customer satisfaction is positively influenced by CRM organisation.	Accepted	CRM organisation has the most substantial positive impact on customer satisfaction.
H ₃	Customer satisfaction is positively influenced by knowledge management	Rejected	Knowledge management negatively affects customer satisfaction, indicating potential inefficiencies.

H ₄	Customer satisfaction is positively influenced by technology-based CRM	Accepted	CRM-based technology positively influences customer satisfaction, highlighting the role of technology.
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DISCUSSION

The study results provide valuable insights into the influence of CRM dimensions on customer satisfaction in the hotel industry, with significant implications for theory and practice. Among the four CRM dimensions, Customer Relationship Management (CRM) organisation emerged as the most substantial positive driver of customer satisfaction. This finding underscores the critical role of well-structured and effectively implemented CRM practices in enhancing customer experiences. This finding aligns with Hamedani (2023), who highlighted organisational structure as essential in delivering effective services. Kerdpitak (2021) also explained that CRM organisations work better when united, which leads to better service responsiveness that enhances customer satisfaction. Effectively developed hotel CRM systems let organisations link workforce activities to customer-focused objectives, leading to uniform, predictable guest experiences. CRM organisation helps hotels establish lasting consumer bonds, individualised service delivery, and high-quality interactions that result in pleased and loyal customers.

Similarly, this study established the positive effect of Technology-Based CRM on customer satisfaction, demonstrating how essential technology has become in hospitality. TCRM systems proved crucial for hotel customer satisfaction growth through their ability to use data technology effectively for service delivery enhancement. TCRM systems improve guest satisfaction by organising operations and individual custom service activities. The findings align with Al-Dmour et al. (2019), who proved that electronic CRM systems increase operational performance and deliver better guest experiences. Similarly, this finding is supported by Mwirigi (2019), who states that technology integration allows hotels to tailor services based on customer preferences, increasing satisfaction levels. The effective use of technology in CRM not only differentiates hotel services but also optimises operations to meet customer expectations.

In contrast, the findings revealed unexpected negative relationships between customer orientation and customer satisfaction. The unexpected negative relationship between customer orientation and satisfaction challenges the common belief that customer orientation always leads to higher customer satisfaction. Recent studies suggest this relationship can vary depending on context. For example, Assefa (2024) argued that customer satisfaction does not always increase with expected service quality due to situational influences. Pan and Ha (2021) found that too much focus on individual preferences can confuse customers, especially in crises like the COVID-19 pandemic. Emotional factors also play a role. For instance, Shu et al. (2019) show that employee burnout can reduce service quality, even when customer orientation is high. Similarly, Riva et al. (2019) highlight that employee performance and how customers perceive it can affect satisfaction more than customer orientation alone. Harindranath et al. (2019) also noted that customer orientation might drive adaptive selling behaviours, benefiting employee satisfaction but not necessarily translating into improved customer satisfaction. These studies suggest customer orientation enhancements without adequate attention to operational and emotional factors and context produce unexpected negative satisfaction outcomes.

In addition, service quality and contextual influences substantiate the relationship between customer orientation and customer satisfaction. Teeroovengadum (2020) showed that service quality indicators are key to customer satisfaction since misalignment between customer-oriented efforts and high service quality might produce dissatisfied customers. Customer orientation positively influences service quality, yet leadership aspects will either augment or decrease these effects (Zhao et al., 2023). This study's negative findings show the complex relationship between customer orientation and benefits to customer orientation despite the consensus of its advantages. For maximum effectiveness of customer orientation on customer

satisfaction, businesses must implement competitive orientation alongside the practical implementation of service quality and leadership dynamics.

The research also uncovered contrary results demonstrating that knowledge management practices decreased customer satisfaction within the hospitality sector. Hotel operators face difficulties implementing knowledge management practices despite believing KM is a performance and competition enhancement tool. Atef and Eissa (2021) discovered hotels use temporary KM projects instead of developing extensive approaches to achieve maximum benefits. There is insufficient research and inconsistent operational practices regarding the benefits of improved performance from knowledge sharing in the hotel industry, according to Teixeira and Ferreira (2020). Irani et al. (2023) also showed that managers with proactive characteristics enhance performance through better knowledge utilisation; however, their inadequate practices of sharing knowledge restrict innovation along with service quality improvement.

The research conducted by Nor et al. (2021) also demonstrated that Malaysian hotels have worse operational performance because they lack formal knowledge management systems, which leads to missing valuable market possibilities. According to Haider and Kayani (2020), a weak customer knowledge management system makes projects less successful and decreases organisational strategic agility. Besides, Işık et al. (2021) also explained that employee turnover, which persists across hospitality, creates difficulties in knowledge management because employees depart with implicit knowledge, leading to reduced operational and service delivery quality. According to these studies, hotel performance would not improve without proper and consistent knowledge management strategies, which results in reduced customer satisfaction. Through culture development, established procedures, and robust leadership, hotels can efficiently resolve their identified problems, which leads to improved overall performance.

CONCLUSION

The research evidence showed that customer relationship management (CRM) dimensions significantly influence the hotel industry's customer satisfaction levels. CRM organisation is the primary driver for customer satisfaction because it demonstrates the need for methodical CRM procedures to improve guest interactions. Research findings show that technology-based Customer Relationship Management demonstrates progress in the field by enhancing service management and operation system efficiency. Customer orientation and knowledge management produce adverse effects that indicate potential strategy misalignments with customer expectations and operational practices thus requiring more research for a better alignment approach at Johor hotels. The study offers a fundamental understanding of the multitiered effects CRM presents on customer satisfaction within the hospitality realm.

Theoretical Implications

This research contributes to CRM literature by empirically measuring customer satisfaction outcomes from different CRM elements in hotel services. This research extends our understanding of customer experience theory by identifying structural and technological aspects inside CRM that drive final customer satisfaction levels. The research findings fit the Expectancy-Disconfirmation Theory because customers experience satisfaction or dissatisfaction depending on how expectations match their reality. Customer orientation and knowledge management bring negative effects which demand revising these CRM dimensions to match existing customer requirements and real operational needs.

Managerial Implications, Limitations, and Future Research

From a managerial perspective, hotels in Johor should prioritise improving their CRM organisation by focusing on practical implementation and ensuring a high level of personalisation in customer service. Leveraging technology to enhance operational efficiency is also critical in meeting customer expectations. However, hotel managers must reassess their customer orientation and knowledge management strategies

to align better with customer needs and expectations. The study's limitations, including the moderate multicollinearity between CRM dimensions, suggest that a more integrated approach to CRM practices is needed. Future research could explore how hotels in different regions or contexts address these challenges and further investigate the potential reasons for the negative impacts of customer orientation and knowledge management on customer satisfaction.

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CONFLICT OF INTEREST STATEMENT

The authors agree that this research was conducted in the absence of any self-benefits, commercial or financial conflicts and declare the absence of conflicting interests with the funders.

AUTHORS' CONTRIBUTIONS

Nurul Hafizah Mohd Fauzi carried out the research. Noor Aslinda Abu Seman conceptualised the central research idea and provided the theoretical framework. Arifha Mohamad supervised the research progress and ran data analysis; Noor Aslinda Abu Seman anchored the review and revisions and approved the article submission.

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