Linking CRM Strategy, Customer Performance Measures and Performance in the Hotel Industry

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ABSTRACT

Customer relationship management (CRM) has been increasingly adopted because of its benefits of greater customer satisfaction and loyalty, which in turn, leads to enhanced financial and competitive performance. This paper reports on a study that examines the relationship between CRM strategy and performance and determines whether the use of customer performance measures plays a mediating role in the relationship between CRM strategy and performance. This study contributes to the limited literature on CRM strategy since little is known about the use of CRM strategy and customer performance measures and their relation with performance in the hotel industry in Malaysia. Data were collected through a questionnaire survey of hotels in Malaysia. Hierarchical regression analyses on a sample of 95 hotels revealed that only the information technology dimension of CRM strategy has a significant and positive effect on performance. In addition, the hypothesis concerning the role of customer performance measures as a mediator was supported.

Keywords: Customer relationship management strategy, customer performance measures, hotels, performance, mediator.

JEL Classification Codes: M41, M31.

INTRODUCTION

Economically, the tourism industry is the third economic pillar and second largest source of foreign revenue in Malaysia (The Financial Press, 31st August 2007). As the largest tourism promotion, the Visit Malaysia Year 2007 demonstrated the

Malaysian government's determination to tap the potential of the tourism industry. For 2007, the number of foreign tourists who visited Malaysia exceeded the 20 million target set by the government. In terms of revenue, this industry earned RM46.1 billion which surpassed the targeted revenue of RM44.5 billion[1]. As part of the tourism industry, the hotel sector is entrusted with a significant role to continuosly assist the Malaysian government in realizing the economic potential of the industry.

In the hotel industry, customer relationship management (CRM) becomes a strategic imperative for attracting and increasing guests' patronage (Sigala, 2005). The hotel industry is facing an increasingly competitive market which signifies the greater need for the hotels to differentiate their customers. Since the hotels can collect and integrate a significant amount of their guests' information, CRM is viewed as an opportunity for the hotels in Malaysia to use the information about their customers to improve the relationship for improving customers' satisfaction and loyalty, and consequently, for increasing the hotels' profitability.

In this paper, CRM is regarded as a strategy, which focuses on customers for the purpose of retaining them, increasing their loyalty and subsequently, improving profitability of the organization. To retain customers, the relationship with customers has to be managed in a long-term and trusting manner for mutual benefits. Thus, the adoption of CRM should enhance the hotels' performance through increasing customer satisfaction and loyalty, declining customer acquisition costs and increasing profitability by customers who are willing to pay a premium for better services (Piccoli *et al*., 2003). Although CRM is imperative for organizational survival, its implementation has resulted in mixed outcomes (King and Burgess, 2008) and prior empirical studies on CRM in the Malaysian context are still scarce.

This study explores the contribution of the adoption of CRM strategy in enhancing performance of the 3- to 5-star hotels located in various parts of Malaysia. The star rating denotes universally accepted standards of luxury. It is only within these larger establishments that an interest in CRM would likely to be expected, thus, the emphasis of this study on the 3-star and above hotels. According to the 2007 Malaysian Association of Hotels Membership Directory, there are 332 hotels which have the star rating of 3-star and above.

The objectives of the paper are twofold which are as follows:

• examine the association between CRM strategy and performance and

• determine whether the use of customer performance measures play a mediating role in the relationship between the CRM strategy and performance.

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[1] Information was obtained from the website www.tourismindonesia.com/2008/02/tourism-malaysia-statistics.html. Date of assessed was 30th June 2009.

This study aims to contribute to the limited empirical evidence on CRM practices amongst the hotel industry in Malaysia. It explores the customer perspective of CRM in the hotel industry through examining the linkages between the adoption of CRM, customer performance measures and performance. It investigates the association between the adoption of customer relationship management strategy and performance of the hotels. In addition, it addresses the question whether the use of customer performance measures mediates the relationship between CRM strategy and hotels' performance.

The organization of this paper is as follows. The next section discusses the relevant literature pertaining to CRM strategy and customer performance measures. The subsequent sections describe the research method, discuss the empirical results and conclude the paper.
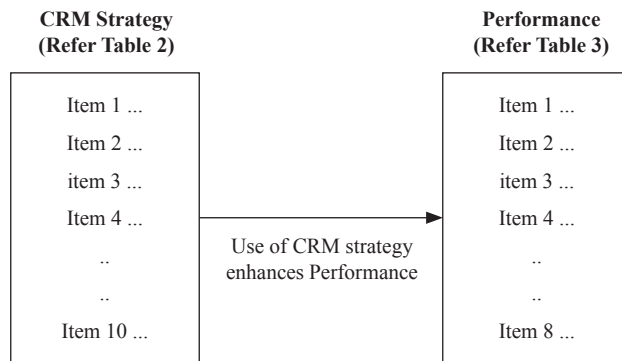
LITERATURE REVIEW

CRM Strategy and Performance

Several empirical studies have shown that CRM brings benefit in terms of improved performance (e.g. see Zablah *et al*., 2004; Coltman, 2007). This positive relationship between CRM and performance is due to the use of CRM as a business strategy not only to acquire new customers but also to retain existing customers for competitive advantage. CRM can enhance organizational performance through improving customer satisfaction and loyalty, reducing customer acquisition costs and increasing profitability by customers (Piccoli *et al*., 2003).

Performance is improved since CRM involves the ongoing process development of market intelligence for building and maintaining a profit-maximizing portfolio of customer relationship (see Zablah *et al*., 2004). Its customer-centric rather than product-centric should enhance interaction with customers, add value to the products and services and generate customers' loyalty and profitability. Although not all CRM strategy implementation brings about these desired benefits (Richards and Jones, 2008), effective management of customer relationships through the use of CRM strategy is expected to have a positive relationship with performance. Through its customer differentiation and retention, CRM aims to retain and engage in long-term relationships with profitable customers in order to enhance profits. Thus, the first hypothesis to be tested in this study is as follows:

> *Hypothesis 1: There is a positive relationship between CRM strategy and performance.*

CRM Strategy (Refer Table 2)		Performance (Refer Table 3)

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┌─────────────────┐                           ┌─────────────────┐
│   Item 1 ...     │                           │   Item 1 ...     │
│   Item 2 ...     │                           │   Item 2 ...     │
│   item 3 ...     │                           │   item 3 ...     │
│   Item 4 ...     │──────────────────────────▶│   Item 4 ...     │
│      ..          │    Use of CRM strategy    │      ..          │
│      ..          │    enhances Performance   │      ..          │
│   Item 10 ...    │                           │   Item 8 ...     │
└─────────────────┘                           └─────────────────┘
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Customer-related Performance Measures

With increasing competitiveness, hotels are concerned with customer satisfaction and profitability, both in the short as well as in the long-term. Long-run profitability can be achieved in CRM through the new focus on customer retention which resulted from an effective management of customer relationships. Thus, the competitive pressures are demanding that hotels not only adopt the customer-focused CRM strategy, but also the customer-related measures of performance.
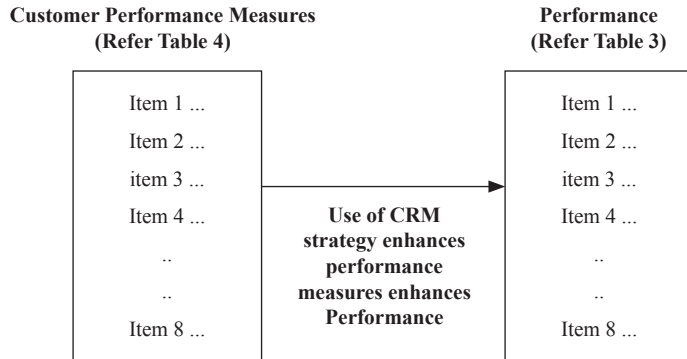
Thus, the hotels are expected to use strategy that focused on customers in order to sustain their competitive advantage. For these hotels, the use of the financial measures is not only short-term oriented but also inadequate to capture the customer perspective of performance (Kaplan and Norton, 1996). Customer-related performance measures are therefore needed to quantify customer relationships (Shoemaker and Lewis, 1999) and to differentiate customers who are worthy of the CRM efforts (Noone *et al*., 2003).

Customer differentiation requires hotels to identify their customers, differentiate them, interact with them and customize their services. Through customer rather than product differentiation, CRM is an enabler for the hotels to concentrate on strategic customers who add value and increase profitability. For the hotels to concentrate on fewer but profitable customers, they need to use customer-related performance measures to measure, evaluate and control performance. Hence, within the context of CRM, the use of customer-related performance measures for evaluation is expected to enhance performance.

In this paper, the measures on customers which should affect performance are percentage of repeat customers, ratings from customer surveys, percentage of market share, percentage growth of existing customers, number of new customers, total sales to new customers, customer profitability and customer lifetime value. The hotels were asked to rate their actual use of these measures. In other words, this

study distinguishes between adoption and actual use of the performance measures. Thus, the second hypothesis to be tested is:

Hypothesis 2: There is a significant positive relationship between the use of customer performance measures and performance.

Customer Performance Measures (Refer Table 4)		Performance (Refer Table 3)
Item 1 ...		Item 1 ...
Item 2 ...		Item 2 ...
item 3 ...		item 3 ...
Item 4 ...	**Use of CRM strategy enhances performance measures enhances Performance**	Item 4 ...
..		..
..		..
Item 8 ...		Item 8 ...

Another important insight of CRM is the importance of customer interactions that are relationship rather than transaction-based. Interaction-based relationships entail retaining customer through delivering quality service to satisfy the customers over time rather than over a single transaction. The key for success is to focus on measuring and managing customers with the intention to create loyal and profitable customers. In this respect, the key thrust of CRM is to build lasting relationships with customers through identifying, understanding and meeting their needs. Customer loyalty can be measured over a long period of time using the customer lifetime value (Shoemaker and Lewis, 1999). Thus, the ultimate aim of CRM is to maximize the lifetime value of customer relationships.

As mentioned earlier, the measures of customer performance are needed to reflect the importance of customer perspective in the CRM strategy. Perera *et al*. (1997) found that the use of customer-driven strategy is associated with the use of non-financial measures of performance in manufacturing firms. Their study provides evidence that the emphasis on quality, flexibility, dependability and low cost in their strategy is supported by the use of non-financial measures of performance. Their study suggests that organizations modify their performance measurement system to fit and support their strategy. Furthermore, for implementation of CRM to be effective in terms of enhancing performance, hotels should effectively align the customer performance measures with the CRM strategy.

The focus of CRM on customer differentiation and relationship-based customer relationships requires the use of customer performance measures in order to both support the CRM strategy and to enhance the hotels' performance.

CRM is expected to drive performance through the improvements such as greater customer satisfaction, customer loyalty, profitability and new businesses. Thus, performance-driven CRM emphasizes the use of customer measures such as the percentage of customer retention to indicate loyalty, ratings of surveys to indicate customers' satisfaction, customer accounting to measure profitability by customers, and new businesses by measures of number of new customers, total sales to new customers.

Given the importance of aligning the measures to support strategy, and its use to enhance performance, the third hypothesis predicts that the use of customer performance measures mediates the relationship between CRM strategy and performance:

Hypothesis 3: The use of customer performance measures mediates the relationship between CRM strategy and performance.

When the CRM strategy is related to customer-related performance measures and to performance, the mediational model hypothesizes that the adoption of CRM strategy causes the customer performance measures to be used, which in turn, causes performance to improve. It is therefore hypothesized that the relationship between CRM strategy and performance is not a direct causal relationship.

The above three hypothesis are summarized in the conceptual model which is depicted in Figure 1 below.
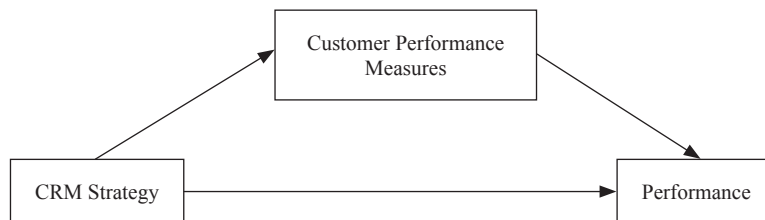

Figure 1 The mediational model

RESEARCH METHOD

Data Collection

A questionnaire survey was employed to solicit responses on the use of CRM strategy, customer performance measures and performance from all the 3-star and above hotels in Malaysia. The star rating denotes universally accepted standards of luxury. It is only within these larger establishments that an interest in CRM would be more likely to be expected, thus the emphasis of this paper on hotels with rating of 3-star and above. According to the 2007 Malaysian Association of Hotels

Membership Directory, there are 332 hotels which have the star rating of above 3-star. The reasons for this specific focus on the hotel industry are:

- the potential of CRM in hospitality industry, in which the hotel industry is a part, has been widely recognized in the literature (see Piccoli *et al*., 2003). In the hotel industry, CRM becomes a strategic necessity for attracting and increasing guests' patronage (Sigala, 2005);

- the tourism industry which comprises the hotels is an important economic contributor to and a fast growing economic sector of Malaysia. Under the 9th Malaysian Plan (2006-2010), the Malaysian government aims to generate RM59.4 billion from tourism with 24.6 million tourists expected to visit the country by the year 2010;

- the hotels face an increasingly competitive environment making the focus on customers in terms of marketing and accounting essential and

- the hotels are expected to have access to large database which stores information on their hotel guests.

For the data collection, a questionnaire was developed based on adaptations from earlier studies (Brown and Gulycz, 2002; Malmi *et al*., 2004).   The questionnaire consisted of three sections. Section A solicited information regarding participants' profile while Section B was designed to measure management relationship practices and Section C comprises\d questions which measure performance management. To ensure that the questions were not ambiguous, the questionnaire was discussed with three Faculty's colleagues who specialized in hospitality management and was pre-tested with a general manager of a local hotel.

The respondents of the study comprised all of the 332 hotels listed in membership directory of 2007 Malaysian Association of Hotels Directory Membership which has the status of 3-star and above. Due to their relatively high rating status, these hotels are more likely to store large database on hotel guests which they can use to formulate and implement the strategy of managing customer relationships. In addition, these hotels have sufficient resources to be mobilized for managing the profitability of customers more formally.

To improve the response rate, a combination of various delivery modes such as the postal mail, electronic mail, fax and using enumerators, was used. Some of the modes reflected the choice made by the respondents themselves. A total of 95 hotels participated in the questionnaire survey, giving a response rate of 28.6%.

Measurement and Data Analysis

The predictor variable in this study is CRM strategy while the criterion or dependent variable is performance. The dependent variable is performance measured using

ten items adapted primarily from Brown and Gulycz (2002). The responses to the ten items were made on a five-point Likert scale from 1= "extremely poor" to 5 = "extremely good". CRM strategy was measured using ten items adapted from Brown and Gulycz (2002) and Malmi *et al*. (2004). Responses to the ten items were made on a five-point Likert scale from a minimum of 1="not used at all" to the maximum of 5 = "greatly used".

The mediating variable, the use of customer-related performance measures, was measured using eight items adapted from Brown and Gulycz (2002). In the questionnaire, the respondents were asked to indicate the extent of use of the eight items of customer performance measures. The non-financial aspects of customer performance measures which were included in this study were customer retention, ratings from customer surveys, market share and growth of existing customers.

Mean scores and standard deviation were calculated for each of the study variables. Factor analysis was initially undertaken to examine the dimensionality of the study variables, which were CRM strategy, performance and customer performance measures. The first two hypotheses were tested using hierarchical regression (Cohen *et al*., 2003). To test the third hypothesis on the mediating role of customer performance measures, a four-step procedure as suggested by Baron and Kenny (1986) was undertaken.

RESULTS AND DISCUSSION

Descriptive Analysis

This paper explores the customer perspective of CRM in the hotel industry in Malaysia by examining the extent of usage of CRM strategy and customer performance measures. Descriptive statistics such as the means and standard deviation are used to describe the hotels' background and their extent of use of CRM strategy and customer performance measures. This paper also examines the relationships between these variables and performance. Performance was not absolute but a comparison with that of the hotel's competitors by using the five-point Likert-scale from a minimum of 1="extremely poor" to the maximum of 5="extremely good" performance.

Hotels' Profile

The hotels' profile provides a general background on the hotels which participated in completing the questionnaire. Table 1 below summarizes the respondents' profile in terms of their star rating, years of operations, number of employees and rooms, and occupancy rates. In terms of star rating, 46.3% are 3-star hotels, whilst 32.6% 4-star and the remaining 21.5% are 5-star hotels. About 60% of the respondents have been operating for more than ten years. A total of 35% of the hotels employs

more than 200 employees. Only about 17% of the hotels have more than 400 rooms. For the year 2006, the occupancy rate for about 54% of the hotels is more than 71%. Based on these percentages, the respondent hotels can be described as established organizations, which in turn, are expected to have relatively higher interests in CRM.

Table 1 Hotels' profile

	Hotel Rating			Total f (%)
	5-star f	4-star f	3-star f	
Years of Operation				
Less than 5 years	3	5	7	15 (15.8%)
5 - 9 years	2	11	10	23 (24.2%)
10 - 15 years	7	11	12	30 (31.6%)
More than 15 years	8	4	15	27 (28.4%)
Total	**20**	**31**	**44**	**95 (100.0%)**
No. of Employees				
100 and below	1	5	22	28 (29.5%)
101 – 200	3	12	19	34 (35.8%)
201 – 300	2	9	2	13 (13.7%)
301 – 400	2	3	0	5 (5.3%)
401 – 500	8	0	0	8 (8.4%)
More than 501	4	2	1	7 (7.4%)
Total	**20**	**31**	**44**	**95 (100%)**
No. of Rooms				
100 and below	1	4	8	13 (13.7)
101- 200	1	5	23	29 (30.5)
201- 300	6	13	10	29 (30.5)
301- 400	3	4	1	8 (8.4)
401 and above	9	5	2	16 (16.9)
Total	**20**	**31**	**44**	**95 (100%)**
Occupancy Rates				
50% and below	1	2	4	7 (7.4%)
51% - 60%	3	4	8	15 (15.8%)
61% - 70%	9	5	9	23 (24.2%)
71% - 80%	6	12	14	32 (33.6%)
More than 80%	1	8	9	19 (20.0%)
Total	**20**	**31**	**44**	**95 (100%)**

CRM Strategy

As mentioned earlier, the CRM strategy is measured by the ten items adapted from Brown and Gulycz (2002) and Malmi *et al*. (2004). The respondents were required to indicate the extent of use from a minimum score of 1 to indicate "not used at all",

to a maximum score of 5 to reflect "greatly used". The overall descriptive results in Table 2 below show that using customers' feedback (mean score = 4.54) achieved the highest mean score, followed by retaining profitable customers (mean score = 4.44) and monitoring customers' satisfaction levels (mean score = 4.33).

Table 2 CRM strategy

No.	Statements	Mean	SD
1.	Uses customers' feedback to improve product and services.	4.54	0.633
2.	Retains profitable customers.	4.44	0.648
3.	Measures and monitors customers' satisfaction levels.	4.33	0.706
4.	Builds partnership with its customers.	4.23	0.856
5.	Actively solicits customers' opinions on products and services.	4.18	0.875
6.	Measures and monitors customers' defection and retention level.	4.02	0.899
7.	Marketing plan includes different budgets for customer recruitment, maintenance and development.	4.02	1.000
8.	Has designated persons responsible for developing and increasing the value of customer portfolio.	3.91	1.131
9.	Employs data warehousing for customer management.	3.33	1.372
10.	Uses data mining to understand customers' behavior.	3.26	1.378

Extent of use: 1=not used at all; 2=slightly used; 3=moderately used; 4=frequently used; 5=greatly used

By getting the customers' feedback, the hotels can gain greater insights into their customers' behavior and preferences. Thus, customers' feedback involves learning and understanding the customers' preferences so that the hotels can continue to offer appropriate products and services in the future. According to King and Burgess (2008), the key success factor is to offer value-added services to customers through understanding and meeting their needs.

The strategy on retaining profitable customers highlights the emphasis towards improving retention and loyalty from profitable customers. To support this strategy, it is important to know who the most profitable customers are and how to establish customers' loyalty from them. Monitoring customers' satisfaction is frequently used because it is widely believed to have a positive link with profitability (Yeung and Ennew, 2000).

The two bottom overall mean scores are the employment of data mining (mean score = 3.26), followed by the use of data warehousing (mean score = 3.33). The variability in the score for the use of data mining and data warehousing, however, is high with their SD of 1.378 and 1.273 respectively. The low usage but high variability indicates a large difference in the extent of use of data mining and warehousing amongst the hotels. This low usage should be a concern since these technological tools enable hotels to collect and store vast amount data on customers and their transactions. Information technology (IT) is vital in order to provide sales and marketing information about customers' requirements, expectations and perceptions in real time.

A customer-perspective CRM would emphasize meeting the customers' needs, knowing how to segment customers, and differentiating profitable customers from unprofitable ones using IT. Thus, Ryals and Knox (2001), argue for a cross-functional integration between marketing and IT as an enabler for a successful implementation of CRM. The evidence on low usage of IT amongst the hotels in Malaysia could hinder the development of CRM. Although the use of IT would not be a panacea to CRM problems, the poor quality of data and information can lead to lower quality decision-making and in turn, can affect performance adversely.

Hotels' Performance

The respondents are requested to indicate their performance relative to that of their competitors on the ten items listed in Table 3 by using the 5-point Likert score from 1 for "extremely poor' to 5 for "extremely good". Good performance was evidenced in all the ten items but the top 3 mean scores are for improvement in sales revenue, occupancy levels and room yield. There is a higher tendency to rate higher performance relative to competitors on items related to sales volume.

Table 3 Hotels' performance relative to competitors

		Mean	**SD**
1.	Improvement in sales revenue.	4.21	0.505
2.	Improvement in occupancy levels.	4.21	0.526
3.	Improvement in room yield.	4.18	0.604
4.	Growth of repeat sales (percentage).	4.14	0.477
5.	Increase in profitability.	4.14	0.615
6.	Overall improvement in performance relative to that of the hotel's competitors.	4.13	0.492
7.	Growth of existing customers (percentage).	4.12	0.546
8.	Growth in market share (percentage).	4.10	0.465
9.	Higher ratings from customer surveys.	4.09	0.599
10.	Improvement in customer lifetime value.	4.02	0.551

Relative performance: 1=extremely poor; 2= slightly poor; 3= poor; 4= good; 5=extremely good

Customer-related Performance Measures

The top three frequently used customer-related performance measures are percentage of repeat customers, ratings from customer surveys and percentage of market share. As mentioned earlier, CRM places more emphasis on relationship relative to transaction-based interactions with customers. The key thrust is to build lasting relationship with customers through identifying, understanding and meeting their needs. A longer-term relationship develops customer retention and thus, loyalty, which is critical to the success of organizations. Ratings from customer

surveys can indicate their (dis)satisfaction with the services or products, which in turn, affects retention and market share.

Customer profitability, total sales to new customers and customer lifetime value are moderately used. Customer lifetime value refers to the potential monetary value of repeat and referral business both over time and over a range of products and services. Although the scores in Table 4 reflect that hotels used a combination of financial and non-financial aspects of customers' performance, the non-financial aspects are more dominant. In addition, the results on the low usage of customer profitability and lifetime value measures may reflect the lack of measuring profitability by customers and over the lifetime of the relationship respectively. CRM focuses on customer retention (Verhoef, 2003) for the purposes of retaining them, increasing their loyalty and subsequently, improving profitability of the hotels. With the moderate use of customer profitability measure, hotels might have limited information for making decisions on retaining only profitable customers.

The relationship-based interactions in CRM entail retaining customer through providing the customers with what they want over time rather than over a single transaction. Relationship with the customers needs to be managed over a longer period of time. This low response on the use of customer lifetime value might be affected due to the low use of IT in the CRM strategy. Nonetheless, the lowest mean score for customer lifetime value does not augur well with the thrust of CRM that views long-term relationship management involves maximizing long-term customer value.

Table 4 Use of customer performance measures

		Mean	SD
1.	Percentage of repeat customers	4.09	0.876
2.	Ratings from customer surveys	4.09	0.876
3.	Percentage of market share	4.04	1.010
4.	Percentage growth of existing customers	3.97	0.983
5.	Number of new customers	3.92	0.907
6.	Customer profitability	3.87	0.959
7.	Total sales to new customers	3.85	0.989
8.	Customer lifetime value	3.56	1.146

Extent of Use: 1=not used at all; 2=slightly used; 3=moderately used; 4= frequently used 5= greatly used

Besides the descriptive analysis, regression analysis was conducted in order to address the first objective of the study which is to ascertain whether the use of CRM strategy has a positive association on performance, and the second objective of whether the use of customer-related performance measures play a mediating role the CRM strategy-performance relationship.

Factor Analysis of Study Variables

The study variables for factor analysis are CRM strategy (refer to the ten items in Table 2), performance (refer to the eight items in Table 3) and use of customer-related performance measures (refer to eight items in Table 4). A principal component factor analysis with varimax rotation was conducted to examine the dimensionality CRM strategy, performance and customer-related performance measures. For the CRM strategy, a two-factor solution was obtained explaining 70.15% of the total variance in CRM strategy. Due to the high cross loading, the item "builds partnership with customer" was excluded. The KMO measure of sampling adequacy was 0.877 indicating sufficient inter-correlations while the Bartlett's test of Sphericity was significant (chi-square=466.521, p<0.0001). These two factors are grouped as CRM1 and CRM2 respectively. The reliability coefficients for CRM1 (five items) and CRM2 (four items) are 0.874 and 0.861 respectively which concur with Nunally's (1978) minimum suggested level of 0.70.

The five items in CRM1 or the management dimension of CRM are: Measure and Monitor Customer Satisfaction; Use Customers' Feedback to Improve Product and Service; Solicit Customers' Opinions on Products and Services; Measure and Monitor Customer Defection and Retention; and Retains Profitable Customers. This factor is labelled as the customer management dimension of CRM strategy to reflect the five items which are the essential activities that the management has to perform with regard to retaining profitable customers. In other words, these five items are considered as part of the process of managing the relationship with customers.

CRM2 or the IT dimension of CRM consists of four items which are: Uses Data Mining to Understand Customers' Behavior; Employs Data Warehousing; Budgets for Customer Recruitment, Maintenance and Development; Designates Person Responsible for Develop and Increase Value of Customer Portfolio. Most of these items involve the use of IT which is important for building a longer-term relationship between the hotels and the customers.

A principal component factor analysis with varimax rotation was repeated with the dependent variable construct, performance. Only item with loading of greater than 0.50 on one factor and less than 0.35 on the other factor is considered (Igbaria *et al*., 1995). A single factor emerged explaining 62.553% variance in performance. The KMO measure of sampling adequacy was 0.907 while the Bartlett's test of Sphericity was significant (chi-square = 657.510, p<0.0001). The Cronbach alpha value is 0.931 indicating a high reliability of the measure.

The eight-item construct used to measure the extent of use of customer-related performance measures was also factor analyzed. Similarly with performance, the factor analysis of the use of customer performance measures reveals a single factor solution. The KMO measure of sampling adequacy was 0.849 while the Bartlett's test of Sphericity was significant (chi-square = 488.071, p<0.0001). The reliability coefficient for this variable is also very high (Cronbach alpha = 0.909).

Table 5 summarizes the descriptive statistics, inter-correlations and reliabilities of the four study variables. The mean score for CRM1 is 4.30, CRM2 is 3.63, customer-related performance measures is 3.92 and performance is 4.12. The highest variability in the distribution is for CRM2 followed by customer measures, CRM1 and performance. These study variables are positively associated at 1% significant level and are reliable with Cronbach alpha values ranging from 0.861 to 0.931.

Table 5 Descriptive statistics, inter-correlation and reliabilities of the study variables

	Variables	Mean	SD	1	2	3	4
1.	CRM1 (5 items)	4.3011	0.62014	(0.874)			
2.	CRM2 (4 items)	3.6289	1.03391	0.559*	(0.861)		
3.	Use of customer performance measures (8 items)	3.9250	0.75934	0.593*	0.705**	(0.909)	
4.	Performance (10 items)	4.1258	0.42038	0.477*	0.475*	0.487*	(0.931)

**p< 0.01; The values in parentheses represent Cronbach alpha.

The multi-collinearity test of the use of customer-related performance measures shows a VIF value of 2.304. Since this value is less than 10, there is no issue of multi-collinearity in the variables.

Regression Results

Hierarchical regressions were employed to test the two main hypothesis developed in the study. The results in Table 6 show that hotel star rating or the control variable is entered in the first equation as dummy variables. Since the variable star rating has three categories, two dummy variables are created. The first model indicates that star rating explains 11.2% of the change in performance. From the second model, it can be seen that only IT dimension of CRM strategy (or CRM2) is significantly and positively related to hotel performance (β= 0.327, p<0.01). The first dimension of CRM strategy (CRM1) is thus not significantly related to performance. Since only CRM2 or the IT dimension is positively associated with performance, only part of the first hypothesis is supported.

The substantial role played by technology in the implementation of CRM has been highlighted in the literature (see Karimi *et al*., 2001; Ryals and Payne, 2001; Sigala 2005). According to Sigala, (2005: 397), the use of IT enables organizations to "wade through volumes of information and decipher meaning, patterns and relationships from many seemingly unrelated bits of data, they are necessary and valuable tools for trying to determine customer demographics, buying patterns, market segments, contribution margins, customer lifetime etc." In short, IT is vital in order to obtain sales and marketing information about customer requirements,

expectations and perceptions on real time for the effective management of relationship-based interactions.

Table 6 Regression results: impact of crm strategy on performance

Independent variables	Std β Model 1	Std β Model 2
Control variables:		
Dummyvariable1	*.385***	*.269***
Dummyvariable2	*.114*	*.074*
Model variables:		
CRM1		.204
CRM2		.334**
R^2	0.130	0.347
Adjusted R^2	0.111	0.317
R^2 change		.216
F change		14.585

**p<0.01; Dummy coded: Dummy variable 1 (5 star =1 else =0),
Dummy variable 2 (4 star = 1, else =0)

The results of regression analysis in Table 7 show that both dimensions of CRM strategy contribute significantly (F = 28.37; p = 0.000) and explain 55.8% of the variation in the use of customer performance measures. The results in Table 7 also show that there is a significant and positive relationship between CRM1 as well as CRM2 and performance at 5 % level of significance. The results suggest that CRM strategy affects the use of customer performance measures. Without information on the performance from the customers' perspective, it is difficult to evaluate whether the CRM strategy is effective.

Table 7 Regression results: impact of crm strategy on customer performance measures

Independent variables	Std β Model 1	Std β Model 2
Control variables:		
Dummyvariable1	.2700*	0.092
Dummyvariable2	0.062	0.006
Model variables:		
CRM1		0.255**
CRM2		0.547**
R^2	.065	.558
Adjusted R^2	.044	0.538
R^2 change		0.493
F change		50.15

*p<0.05, **p<0.01

Table 8 shows the results of the analysis of the impact of use of customer performance measures on the hotels' performance. Customer performance measures contribute significantly and predict 16.8% of the variation in performance. There is a significant and positive association between the use of customer measures and performance at 1% significant level. Hence, based on this positive association, the greater the use of the customer performance measures the higher would be the hotels' performance.

Table 8 Regression results: impact of customer performance measures on performance

Independent variables	Std β Model 1	Std β Model 2
Control variables:		
Dummyvariable1	0.385*	0.272*
Dummyvariable2	0.114	0.087
Model variable:		
Customer related performance measures		0.423*
R^2	.130	.298
Adjusted R^2	.0111	0.275
R^2 change		0.168
F change		21.271

*$p<0.05$

To test for the mediation effect of customer performance measures on the association between the two dimensions of CRM strategy and hotels' performance, another regression that hierarchically regressed CRM1 and CRM2 in stage 1 and customer performance measures in stage 2, against performance was conducted. Table 9 displays the results that indicate that there is an increase in the coefficient of determination (R^2 between stage 1 and stage 2 of the regression model. On the role of customer performance measures as the mediator on the relationship between CRM strategy and performance, it is observed that CRM2 fulfilled the conditions of the mediation effect. The effect of CRM2 on performance ($\beta=0.334$, $p<0.01$) became insignificant ($\beta=0.248$, $p > 0.05$) in the presence of customer measures, thereby implying there is partial mediation. Thus, the third hypothesis posited in this study is partially supported.

Although the regression results indicate that both dimensions of CRM strategy, i.e. CRM1 and CRM2, are positively related to the use of customer-related performance measures, only CRM2 or the IT dimension of CRM strategy has a positive and significant relationship with performance. There is a partial mediation effect due to the use of customer performance measures but this effect is only for the relationship between CRM2 and performance. These findings suggest that the use of IT in CRM strategy alone will not lead to higher performance for the hotels.

The hotels also need to use the customer-related performance measures to help them effectively manage the customer relationships for improving performance.

Table 9 Mediation effect of customer performance measures

Independent variables	Beta coefficients without Customer performance measures (Stage 1)	Beta coefficients with Customer performance measures (Stage 2)
Dummy variable 1	0.269**	0.252**
Dummy variable 2	0.074	0.072
CRM1	0.204	0.165
CRM2	0.334*	0.248
Customer Performance Measures		0.155
	$R^2 = 0.347$	$R^2 = 0.357$
	F = 11.688	F = 9.675

R^2 change = 0.010; **$p < 0.05$

However, this is a single-industry study focusing on hotels which have either a 3- or 4- or 5-star rating. Thus, the findings might not be representative of the industry as a whole, and as such, there is no justification for an extrapolation of the results achieved here to smaller hotels and other industries.

CONCLUSION

As mentioned earlier, this paper has two objectives. These objectives are to examine the association between CRM strategy and to determine whether the use of customer-related performance measures has a mediating effect on the relationship between the CRM strategy and performance.

For the hotels to compete effectively in today's business environment, differentiating based on product and services is no longer adequate. Based on the insights drawn from CRM, hotels have to shift their focus from product to customer differentiation and from transaction to relationship-based management. Given this new focus on differentiating customers and relationship-based interactions, the hotels are expected to use CRM strategy and measure performance on customer in order to enhance performance. Subsequently, this study examines the relationship between CRM strategy, customer performance measures and performance.

Both dimensions of CRM strategy were found to positively and significantly predict the use of customer performance measures. According to Kaplan and Norton (1996), this positive link is due to the necessity of the measures to be aligned to, and be supportive of the strategy used. Furthermore, the use of customer performance measures was found to significantly and positively affect performance. A customer-driven CRM strategy emphasizes satisfying the customers' needs, segmenting

customers, and differentiating those profitable customers from the unprofitable ones using IT. This emphasis is needed in order for performance in both financial and non-financial terms to improve.

Only CRM2 or the information technology dimension of CRM strategy is significantly associated with performance. This finding supports the argument in the literature that information technology is important for the successful implementation of CRM. With the positive association between information technology and performance, hotels need to use information technology to improve their performance. In spite of this importance, the descriptive results show that hotels in Malaysia have a low usage and a high variability in the extent of use of data mining and data warehousing. The way forward is for the hotels to increase the use of these technological tools to help them capture sufficient, relevant and timely information for decision-making.

In addition, the use of customer performance measures partially mediates the relationship between CRM2 and performance. Although the use of IT positively affects performance, its ability to enhance performance also depends on the use of customer performance measures. The mediation effect of customer measures implies that the hotels are expected to measure how they perform from the perspective of the customers. Although the use of IT is expected to lead to a favorable impact on performance, the hotels need performance measures which are related to customers for improving performance.

In the future, research in CRM can be extended to other industries such as the banking and manufacturing industries in Malaysia. Such research can mitigate the lack of generalization of the present research findings to other industries. Qualitative research approach is also recommended to shed further insights into explaining the 'how' and 'why' on the CRM implementation in Malaysia.

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