



# The relationship between CRM, RM, and business performance: A study of the hotel industry in Taiwan

Shwu-Ing Wu\*, Chien-Lung Lu

Department of Business Administration, National Chin-Yi University of Technology, No. 35, Lane 215, Section 1, Chungshan Road, Taiping, Taichung 411, Taiwan, ROC

## ARTICLE INFO

### Keywords:

Customer relationship management  
Relationship marketing  
Business performance

## ABSTRACT

This study aims to investigate the implementation of customer relationship management (CRM) and its effect on relationship marketing (RM) and business performance, through an analysis of the hotel industry in Taiwan. A survey on hotels, including general and tourist hotels, and bed and breakfasts (B&Bs) was conducted, and a total of 560 questionnaires were returned. The results showed that implementing CRM has a significant and positive influence on the RM effect, positively affecting business performance for both hotels and B&Bs. However, a comparison of the influential paths of relationship models between hotels and B&Bs showed that, for hotels, the Internet service and customer support functions of the CRM strategy are the main sources of influence on the RM effect and business performance, whereas for B&Bs, the marketing support function of the CRM strategy alone influences the RM effect and business performance. To achieve higher performance, the different types of hotel enterprises should understand their main advantage before implementing key CRM strategies.

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## 1. Introduction

### 1.1. Research background and motivation

Since the implementation of the five-day work week by the Taiwanese government, short-term and diversified tours have become a new trend in the tourism industry. The Tourism Bureau of the Ministry of Transportation and Communications of Taiwan has announced new directions for the Taiwan tourism industry. It is hoped that the number of foreign tourists visiting Taiwan will increase, thus benefiting the tourism industry. Currently, it is uncertain whether the hotel industry in Taiwan will be able to integrate its resources to meet consumer needs. This has become one of the greatest challenges faced by suppliers in the hotel industry, including general and tourist hotels, B&Bs, etc.

Hotels and B&Bs are part of the service industry, owing to their direct contact with customers; therefore, their quality of service and customer relationships significantly influence their business development. For high-quality hotel enterprises, the application of customer relationship management (CRM) is a great opportunity to increase customer value, enhance customer satisfaction, and achieve business excellence and high profits (Lin and Su, 2003; Daghfous and Barkhi, 2009). Therefore, enhancing the effect of CRM has become a key factor for the success of hotel industries. How-

ever, only a few studies explore in detail the implementation of CRM in the hotel industry and its impact on various performance perspectives, making it a unique subject for study.

Kotler et al. (1999) discuss the tourism and service industries, pointing out the importance of customer orientation. They indicate that the main purpose of an enterprise is to create and retain customers who bring profit to the enterprise. According to the 80/20 Pareto Rule, 80% of an enterprise's income comes from 20% of its main customers (Berry, 1995). Peppers and Rogers (1993) also find that the cost of developing new customers is six times that of retaining old customers. Therefore, using CRM to ensure customer loyalty and further enhance business performance is a wise strategy for hotel industry suppliers.

CRM originates from the concept of customer orientation and has gradually been applied to the tourism industry to enhance the relationship between enterprises and their customers. Suppliers in the hotel industry who set up CRM systems to find and retain their best customers and develop long-term relationships with loyal customers will acquire greater profits (Liu et al., 2007). The businesses in the hotel industry can be broadly divided into two types: hotels and B&Bs. What are their methods of implementing CRM, and what results do they achieve? Are there any differences between them? These questions are worth investigating.

Kalakota and Robinson (1999) view CRM as an organization's integrated action to develop sales, marketing, and service strategies. An enterprise needs to identify actual customer needs by integrating its processes and technology, and it needs to improve service connections to enhance customer satisfaction and loyalty

\* Corresponding author. Tel.: +886 4 23924505; fax: +886 4 23929584.  
E-mail address: [wusi@ncut.edu.tw](mailto:wusi@ncut.edu.tw) (S.-I. Wu).

(Bruhn, 2003; Buttle, 2004; Egan, 2008). Hotel enterprises should implement CRM primarily to provide better services to meet customer needs, attract and retain customers, and establish good interactive relationships. Hotel enterprises that use CRM systems to find the best customers and serve target segments more effectively will enhance the effects of relationship marketing (RM) and reinforce business performance (Meryl, 1999; Swift, 2001).

CRM is the core business strategy that integrates internal processes and functions and external networks to create and deliver value to targeted customers and, finally, increase profits (Buttle, 2004). The final goal of conducting CRM is to enhance business performance, and therefore, businesses need an objective performance scale to enable a detailed evaluation. The balanced scorecard (BSC) is an overall performance management system; it evaluates business performance according to the following four perspectives: financial, customer, internal processes, and learning and growth (Kaplan and Norton, 1990, 1996a,b). The BSC uses both financial and non-financial indicators to evaluate business performance and gives enterprises an overall in-depth understanding of business operation and performance (Kaplan and Norton, 2004; Wu and Hung, 2007, 2008). Thus, this study uses the four perspectives of the BSC to measure business performance.

This study focuses on hotels and B&Bs in Taiwan to explore the CRM influence on the RM effect and business performance. It also compares the differences in the influence paths of CRM strategies between hotels and B&Bs.

## 1.2. Research objectives

The benefits of CRM and RM and their effects on business performance have been studied extensively (Buttle, 2004; Egan, 2008). However, few studies focus on the comparison of hotels and B&Bs or explore their differences. Thus, this study investigates the differences between hotels and B&Bs in the relationship between CRM, the RM effect, and business performance. The following are the research objectives:

1. To investigate the correlation between implementing CRM and the RM effect.
2. To investigate the correlation between the RM effect and business performance.
3. To construct relationship models between CRM, RM, and business performance for hotels and B&Bs.
4. To investigate the differences between the relationship models for hotels and B&Bs.
5. The results of this study could help hotel and B&B enterprises understand the advantages of CRM strategies and implement effective decisions on the basis of these strategies.

## 2. Literature review

### 2.1. Customer relationship management (CRM)

CRM has been defined as a method that uses software and related technology to achieve automated management in order to improve operation processes aimed at sales, marketing, and customer service (Bhatia, 1999). Greenberg (2001) points out that CRM is a series of extensive processes and information technology adopted to manage potential and existing customers and enhance an enterprise's relationship with its partners. CRM is also an information system that helps enterprises understand customer needs and behaviors and is associated with operation processes and technology (Christopher, 2003). Chen and Chen (2004) identified the success factors of CRM strategies including champion leadership, internal marketing, knowledge management, business-IT align-

ment, system integration, and culture/structure change. Zablath et al. (2004) proposed five dominant perspectives on CRM that include process, strategy, philosophy, capability, and technology.

CRM provides an understanding of consumer behavior on the basis of multiple perspectives (Amrit, 2001). Assisted by technology and information, CRM integrates the internal and external activities of an enterprise to develop positive and interactive customer relationships in order to achieve enterprise goals.

### 2.2. Measuring CRM actions

Berson et al. (1999) divided a complete CRM system into three main functions: operation, analysis, and integration. Swift (2001) divided CRM actions into four perspectives, namely, information collection, data storage, data summarization, and data display and application. Ming and Chen (2002), on the other hand, summarized CRM actions into three major functions: Internet service, customer support, and marketing support.

The CRM functions and items summarized by Ming and Chen (2002) cover all the classifications and functions proposed by Swift (2001). Thus, this study uses the three functions of Internet service, customer support, and marketing support and their items as evaluation perspectives and indicators to measure the actions of implementing CRM in hotels and B&Bs.

### 2.3. Relationship marketing (RM)

RM – the relationship between an organization and its customers – is reinforced through attractions brought about by multiple marketing actions (Berry et al., 1983), which also lead to customer retention. RM represents key strategic as well as tactical implications in a firm (Gronroos, 1996). Landry (1998) defines RM as a long-term database system application by an enterprise to understand a customer's profile and further develop relationships through various communication channels to deliver value and service. Armstrong and Kotler (2000) point out that RM is a relationship process for creating, retaining, and enhancing mutual value between enterprises and customers or other stakeholder groups. RM emphasizes a long-term process, with the goal of transferring long-term value to customers. Essentially, the marketing concept is about win-win outcomes, with both parties deriving benefit and value from a mutually satisfying exchange relationship (Baker, 1975, 2009; Gummesson, 1999). The vision of RM is to enhance an enterprise's value to and long-term relationship with its customers (Bruhn, 2003).

### 2.4. Measuring the RM effect

Berry (1995) divided the RM effect into three layers of financial, social, and structural association. Williams et al. (1998) divided RM relationship associations into two types: social and structural. However, both studies proposed that a higher RM effect has greater potential for maintaining a competitive advantage. RM found ready acceptance in a marketing world where it had become obvious that corporate profitability and competitive advantage were beginning to be associated with existing-customer satisfaction (Egan, 2008).

Chien and Moutinho (2004) proposed the URLeP model for evaluating the RM effect that includes the concepts proposed by Berry (1995) and Williams et al. (1998). In the URLeP model, four perspectives measure the RM effect: (1) utility, a necessary condition for implementing further mutual-interest relations so that the customer will be willing to maintain long-term and positive relations with the original supplier (Berry and Thompson, 1982; Bitner, 1995); (2) projectability, defined as expected future exchanges (Chien and Moutinho, 2000); (3) legitimacy, which will reduce the risk of future uncertainty (Smith and Barclay, 1997; Chien and

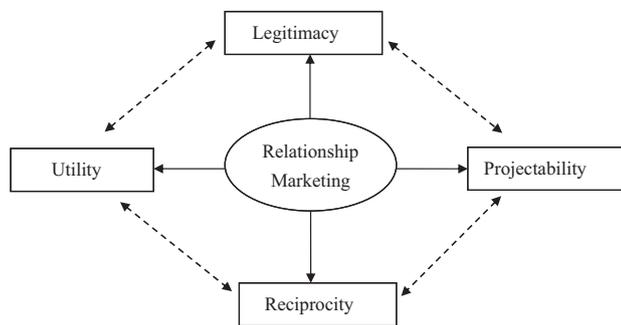


Fig. 1. URLeP model.

Chien and Moutinho (2004).

Moutinho, 2000); and (4) reciprocity, a continuing exchange relation based on mutual trust (Morgan and Hunt, 1994). Fig. 1 shows the URLeP model's concept framework.

Since the URLeP model offers an overall evaluation of the RM effect, this study adopts the four perspectives of utility, projectability, legitimacy, and reciprocity for evaluating the RM effect.

### 2.5. Measuring business performance

Business performance is an overall concept used to display the final result of the operation activities of an organization (Szilagyi, 1984); it is also an index for evaluating the level of project achievement (Duquette and Stowe, 1993). Evans et al. (1996) suggest that performance evaluation is a key to helping an organization manage its resources and effectively control its goals.

Venkatraman and Ramanujam (1986) proposed three perspectives for performance evaluation: (1) financial performance, including profit gain rate; (2) enterprise performance, the sum of financial performance and operation performance, which includes market share; and (3) organization performance, including the abovementioned two perspectives and conflict resolution, such as enhancing employee morale. Barney (2002) divided performance measurement into four perspectives, namely, enterprise survival, stakeholder interest, simple accounting index, and accounting index after adjustment.

The BSC is a famous performance measurement concept proposed by Kaplan and Norton (1996a,b, 2004) that considers both financial and non-financial aspects and further divides performance measurement into the four perspectives of financial, customer, internal process, and learning and growth. The BSC not only maintains traditional financial perspectives to evaluate tangible assets, but also includes non-financial perspectives to evaluate intangible assets or intellectual property. It emphasizes data and evaluation completeness, comprising an overall performance evaluation system (Pineno, 2002). Thus, this study utilizes the four perspectives of the BSC to evaluate business performance.

## 3. Research hypotheses

### 3.1. CRM influence on RM

Many enterprises implement CRM strategies and functions to enhance the RM effect on target consumers, such as in the online business and service industries (Lawler, 2005; Roy, 2008). The direct purpose of CRM is to achieve RM effects (Meryl, 1999). RM is often cited as the philosophical basis of CRM (e.g. Zablah et al., 2004; Christopher et al., 2002; Ryals and Knox, 2001). The CRM strategy helps enterprises create long-term and mutual-interest relationships with their customers to develop loyal relationships

and higher profits. Thus, CRM and RM have a mutually assisted relationship. All CRM activities are directed toward establishing, developing, and maintaining successful relational exchange and enhancing RM effects (Morgan and Hunt, 1994). Swift (2001) suggested that CRM enhances the "relationship" between an enterprise and its customers. Through effective communication and understanding, an enterprise can affect customer behaviors and support the organization to acquire and retain customers and enhance customer value. CRM strategies can help enterprises select appropriate channels to provide suitable products or services to valuable customers, and then to build good customer relations to achieve RM effects.

To sum up, implementing CRM strategies leads to positive RM effects. On the basis of the abovementioned three functions for implementing CRM strategies, Internet service, customer support, and marketing support, this study proposes the following hypotheses:

**H1a.** Implementing Internet services in the CRM system will have a positive influence on the RM effect.

**H1b.** Implementing customer support in the CRM system will have a positive influence on the RM effect.

**H1c.** Implementing marketing support in the CRM system will have a positive influence on the RM effect.

### 3.2. RM influence on business performance

Stone et al. (1996) pointed out that RM, through its use of technologies in marketing, sales, communication, and customer management, builds customer relationships with continuing transactions and enhances customer value so that both the company and customer benefit. A profit-maximizing of RM was identified as the desired output of the CRM (Zablah et al., 2004). Zablah et al. (2004) and Evans and Laskin (1994) proposed that RM generates four types of business performance: providing the highest service quality to customers to satisfy their needs, assuring that employees can satisfy customer needs to generate higher customer satisfaction, and increasing customer loyalty and sales profits. Christy et al. (1996) suggest that a superior RM effect enhances customer loyalty; increases product quantity, market share, cross sales opportunities, and direct contact with customers; reduces advertisement expenses; and balances channel member power. Alrubaiee and Al-Nazer (2010) also establish that RM had a significant impact on customer loyalty. Jang et al. (2006) determine evidence of a strong canonical correlation between RM and financial performance in the hotel industry. Thus, RM has a positive influence on overall business performance, especially in service industries (Sin et al., 2005; Gordon et al., 2008).

Using the four BSC perspectives (Kaplan and Norton, 1996a, 2004) to evaluate the business performance of hotels and B&Bs, this study proposes the following hypotheses:

**H2a.** RM has a positive influence on the financial aspect of business performance.

**H2b.** RM has a positive influence on the customer aspect of business performance.

**H2c.** RM has a positive influence on the internal process aspect of business performance.

**H2d.** RM has a positive influence on the learning and growth aspect of business performance.

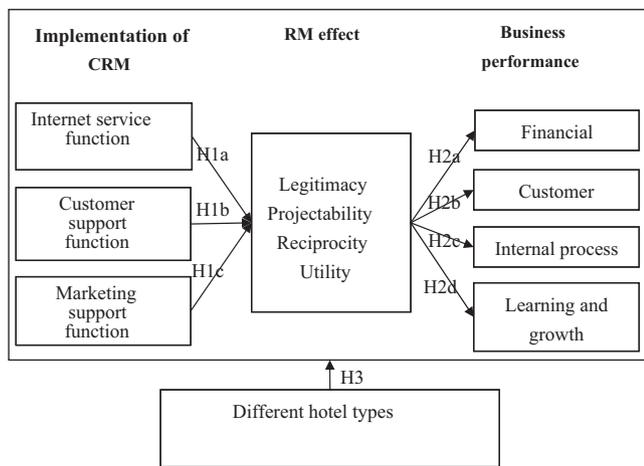


Fig. 2. Research framework.

### 3.3. Differences between hotel types

Chan (1992) proposes that a hotel is a public facility that provides meals, lodging, and services to obtain a reasonable profit. The Tourism Bureau of the Ministry of Transportation and Communications, Taiwan (2008), classifies hotel industry suppliers into three types: the general hotel, which is a business with the purpose of providing lodging and rest for tourists; the tourism hotel, which is a business with the main purpose of providing lodging, related services, and leisure to tourists; and the B&B, which lets out extra rooms in a residential house associated with local life, the natural landscape, environmental or agricultural resources, forestry, fishing, or grazing production activities to provide rural lodging to tourists. Unlike the general and tourism hotel, the B&B is a family-run business; breakfast is usually included in the price of the room, and occasionally some other meals are provided to tourists (Lubetkin, 1999). Therefore, there are differences between the CRM activities of hotels and B&Bs.

This study divides businesses in the hotel industry into two categories: hotels and B&Bs. The hotels category includes both general and tourism hotels, since their business operations are closely connected. B&Bs and hotels have different operations and service actions, including differences in their implementation of CRM and its effectiveness. Thus, this study uses hotels and B&Bs as segmentation variables, to investigate the differences in the proposed relationship model. Hypothesis 3 proposes as follows:

**H3.** Differences exist between hotels and B&Bs in the strength of the influence path of the relationship model.

## 4. Methods

### 4.1. Research framework

This paper utilizes qualitative research including a literature review, focus group study, and in-depth interviews; and quantitative research using the survey method to collect data about CRM, RM, and business performance. Fig. 2 shows the research framework and relationship model of this study. The study investigates the relationships among CRM, RM, and business performance while also investigating the difference between hotels and B&Bs in the relationship model.

### 4.2. The questionnaire design

First, this research develops a questionnaire prototype on the basis of related literature and theory. A focus group of eight persons

including scholars, experts, and hotel managers was used to collect the information about CRM, RM, and business performance and to create an initial draft of the questionnaire. The initial draft was then used to perform pretests using in-depth interviews with twenty-eight supervisors in the management departments of twenty-four hotels and B&Bs. The purpose of this step was to ensure the objectiveness of all questionnaire indicators and to develop a formal questionnaire (as shown in Table 1).

### 4.3. Pilot

The formal questionnaire was mailed to supervisors and employees in the sales and management departments of hotels and B&Bs registered with the Tourism Bureau of the Ministry of Transportation and Communications of Taiwan as a pilot study. In this step, fifty enterprise hotels (most of which had more than thirty rooms) and fifty B&Bs were selected for the interviews. The pilot study results showed that Cronbach's  $\alpha$  of all measurement perspectives in the scale were larger than 0.7; the item-to-total correlation coefficients of all indicators were larger than 0.5. The factor analysis results showed that the eigenvalues of all measurement perspectives or factors were larger than 1 with the cumulative variations all larger than 0.6, and that the factor loading of every item was larger than 0.6. The above results all meet the standards of high reliability and convergent validity (Nunnally, 1978; Kaiser, 1958).

## 5. Data analysis and research results

### 5.1. Sampling

The hotel enterprises selected in this study were mainly those with more than thirty rooms, which distinguished them from the B&Bs. The questionnaire was mailed to all these hotel enterprises and B&Bs using the quota sampling method, on the basis of the proportion of hotels/B&Bs that registered with the Tourism Bureau of the Ministry of Transportation and Communications of Taiwan. In all, five hundred enterprises received three questionnaires each. After several follow-up calls, a total of 560 valid questionnaires were returned. The total included 336 questionnaires from hotels and 224 questionnaires from B&Bs.

### 5.2. Structural analysis of the sample

From the questionnaire analysis, the percentage of hotels that implemented CRM for more than one year was 70.8%, but the percentage of B&Bs was only 38.4%. The participants from the hotels primarily comprised supervisors in the management and customer service departments, who accounted for 84.1% of the total number of participants from the hotels; the B&B questionnaire participants were primarily owners or customer service personnel, who accounted for 79.1% of the total number of participants from B&Bs. The results indicate that the participants met the requirements as the targets of this study.

### 5.3. Reliability and validity analysis

To test the data reliability and validity, Cronbach's  $\alpha$  and correlation coefficient were calculated, and factor analyses was used. The results show high reliability owing to the fact that Cronbach's  $\alpha$  values for all measurement perspectives were larger than 0.7 (Nunnally, 1978) and the item-to-total correlation coefficients were all are larger than 0.5 (Kerlinger, 1978). The factor analysis results also show convergent validity since the eigenvalue of each measurement perspective or factor was larger than 1, the

**Table 1**  
Questionnaire content.

Questionnaire content	Evaluate items	Evaluate scales	References
CRM	Internet service Customer support Marketing support	Likert seven-point scales	Ming and Chen (2002)
RM	Legitimacy Projectability Reciprocity Utility		Chien and Moutinho (2000), Walters (1978)
Business performance	Financial perspective Customer perspective Internal process perspective Learning and growth perspective		Wu and Hung (2007, 2008), Kaplan and Norton (1996a,b, 2004)
Basic data	Survey Candidate background: gender, Age, education, department, etc. Survey company background: type of industry, location, employee, etc.	Nominal scales	Wu and Hung (2007, 2008)

**Table 2**  
Reliability and validity analysis for hotels.

Factor and item	Item to total correlation	Factor loading	Eigen-values	Explained variations (%)	Cronbach's $\alpha$
<b>CRM: 'Internet service function'</b>					
A1. Online registration function	0.722	0.845			
A2. Internet phone function	0.645	0.783			
A3. Online real-time human response service	0.583	0.735	2.970	59.393	0.828
A4. Email reply function	0.616	0.767			
A5. Search engine function	0.554	0.716			
<b>CRM: 'customer support function'</b>					
A6. Reservation management function	0.742	0.837			
A7. Customer profile management function	0.789	0.871			
A8. Customer type analysis function	0.805	0.881	3.636	72.723	0.906
A9. Firm information query function	0.710	0.812			
A10. Assisting internal operations function	0.777	0.861			
<b>CRM: 'marketing support function'</b>					
A11. Product/service function	0.930	0.961			
A12. New product/service function	0.940	0.966	3.724	93.091	0.975
A13. Market research and analysis function	0.917	0.953			
A14. Product/service promotion function	0.961	0.979			
<b>RM</b>					
B1. Provide exclusive services to customers	0.785	0.820	9.407	67.193	0.961
B2. Handle customer problems immediately	0.784	0.819			
B3. Offer special prices	0.741	0.779			
B4. Customers understand the outlooks of the company	0.759	0.793			
B5. Develop customer relationships	0.824	0.854			
B6. Understand the outcome of customer relationships	0.830	0.859			
B7. Customers recommend your company to others	0.818	0.846			
B8. The travel agency evaluates services of your company	0.757	0.789			
B9. Brand image among competitors	0.799	0.828			
B10. Select partners for cooperation	0.664	0.703			
B11. Establish mutual trust with customers	0.822	0.852			
B12. The provided services are acceptable to customers	0.871	0.895			
B13. Customer loyalty	0.753	0.788			
B14. Customer can react to and accept requirement of the company	0.800	0.833			
<b>Business performance: 'financial perspective'</b>					
C1. Reduce total cost of the company	0.819	0.882			
C2. Reduce unexpected losses	0.876	0.920			
C3. Increase sales growth rate	0.864	0.915	4.203	84.062	0.952
C4. Increase return on assets	0.895	0.937			
C5. Increase net profit margin	0.882	0.928			
<b>Business performance: 'customer perspective'</b>					
C6. Satisfy needs of various types of customers	0.876	0.931			
C7. Increase customer intention to purchase	0.904	0.948	3.492	87.303	0.951
C8. Increase customer satisfaction	0.906	0.949			
C9. Increase market share	0.841	0.909			
<b>Business performance: 'Internal process perspective'</b>					
C10. Increase operating efficiency	0.812	0.893			
C11. Reduce customer complaint	0.821	0.899	3.320	82.988	0.932
C12. Improve the ability to retain old customers	0.865	0.927			
C13. Improve the ability to confirm target customers	0.859	0.924			
<b>Business performance: 'learning and growth perspective'</b>					
C14. Improve employee's problem-solving ability	0.832	0.907			
C15. Improve employee's service quality	0.846	0.915	3.307	82.687	0.930
C16. Improve employee's intention to learn	0.852	0.919			
C17. Effectively promote corporate culture	0.815	0.895			

**Table 3**  
Reliability and validity analysis for B&Bs.

Factor and item	Item to total correlation	Factor loading	Eigen-values	Explained variations (%)	Cronbach's $\alpha$
<b>CRM: 'Internet service function'</b>					
A1. Online registration function	0.566	0.740			
A2. Internet phone function	0.591	0.761			
A3. Online real-time human response service	0.584	0.754	2.717	54.346	0.790
A4. Email reply function	0.518	0.690			
A5. Search engine function	0.577	0.739			
<b>CRM: 'customer support function'</b>					
A6. Reservation management function	0.728	0.832	3.401	68.025	0.882
A7. Customer profile management function	0.726	0.831			
A8. Customer type analysis function	0.720	0.827			
A9. Firm information query function	0.688	0.801			
A10. Assisting internal operations function	0.726	0.832			
<b>CRM: 'marketing support function'</b>					
A11. Product/service function	0.903	0.946			
A12. New product/service function	0.926	0.959			
A13. Market research and analysis function	0.879	0.932	3.597	89.921	0.963
A14. Product/service promotion function	0.920	0.956			
<b>RM</b>					
B1. Provide exclusive services to customers	0.719	0.786	7.365	52.608	0.927
B2. Handle customer problems immediately	0.664	0.750			
B3. Offer special prices	0.544	0.610			
B4. Customers understand the outlooks of the company	0.563	0.612			
B5. Develop customer relationships	0.739	0.803			
B6. Understand the outcome of customer relationships	0.736	0.808			
B7. Customers recommend your company to others	0.752	0.809			
B8. The travel agency evaluates services of your company	0.545	0.554			
B9. Brand image among competitors	0.704	0.753			
B10. Select partners for cooperation	0.426	0.437			
B11. Establish mutual trust with customers	0.764	0.831			
B12. The provided services are acceptable to customers	0.771	0.844			
B13. Customer loyalty	0.613	0.669			
B14. Customer can react to and accept requirement of the company	0.683	0.756			
<b>Business performance: 'financial perspective'</b>					
C1. Reduce total cost of the company	0.787	0.858			
C2. Reduce unexpected losses	0.853	0.905			
C3. Increase sales growth rate	0.877	0.925	4.148	82.955	0.948
C4. Increase return on assets	0.896	0.938			
C5. Increase net profit margin	0.876	0.925			
<b>Business performance: 'customer perspective'</b>					
C6. Satisfy needs of various types of customers	0.855	0.918			
C7. Increase customer intention to purchase	0.899	0.945	3.465	86.618	0.948
C8. Increase customer satisfaction	0.895	0.943			
C9. Increase market share	0.852	0.917			
<b>Business performance: 'internal process perspective'</b>					
C10. Increase operating efficiency	0.807	0.890			
C11. Reduce customer complaint	0.808	0.889	3.375	84.386	0.938
C12. Improve the ability to retain old customers	0.895	0.944			
C13. Improve the ability to confirm target customers	0.904	0.950			
<b>Business performance: 'learning and growth perspective'</b>					
C14. Improve employee's problem-solving ability	0.867	0.927			
C15. Improve employee's service quality	0.914	0.955			
C16. Improve employee's intention to learn	0.907	0.948	3.472	86.796	0.949
C17. Effectively promote corporate culture	0.821	0.895			

cumulative variations were larger than 0.5, and the factor loading of every item was larger than 0.6 (Kaiser, 1958) (Tables 2 and 3).

The questionnaire was developed on the basis of literature reviews, focus groups, in-depth interviews, a pretest, and pilot methods, resulting in good content validity. This study also refers to theory and actual cases proposed by scholars and experts to develop a questionnaire and research framework; hence, it has nomological validity.

This study further verifies the construct validity of the measurement scale using confirmatory factor analysis (CFA) with the AMOS software.

The results of the CFA (Table 4) of the two CRM measurement models for hotels and B&Bs show that each  $\chi^2/df$  is smaller than 3 (Maciver and Camines, 1981); GFI, AGFI, NFI, IFI, CFI, and RMSEA are all greater than 0.9; and the RMSEA values are smaller than 0.05.

Therefore, the indexes all meet good fitness standards (Joreskog and Sorbom, 1989). In addition, all measurement indicators have significant correlations with their latent variables, indicating that these two CRM measurement scales for hotels and B&Bs have good construct validity.

The CFA results of RM (Table 5) also show good construct validity for the two RM measurement scales. The two RM measurement models for hotels and B&Bs meet the good fitness target value, and all measurement indicators have significant correlations with their latent variables.

The results of the CFA of the two measurement models of business performance for hotels and B&Bs (Table 6) show that all fitness indexes meet the target value of a good model and all measurement indicators have significant correlations with their latent variables. Therefore, the measurement scale of business performance also has good construct validity.

**Table 4**  
Confirmatory factor analysis of CRM.

Fitness index	Hotels (336)		B&Bs (224)	
	Estimate		Estimate	
$\chi^2$	130.789		115.984	
df	58		58	
$\chi^2/df$	2.255		2.000	
P value	0.000		0.000	
RMR	0.111		0.160	
GFI	0.947		0.934	
AGFI	0.905		0.881	
NFI	0.971		0.954	
RFI	0.955		0.927	
CFI	0.984		0.976	
RMSEA	0.061		0.067	

Measurement variables	Estimate	
	Hotels (336)	B&Bs (224)
Internet service → A1	0.806	0.780
Internet service → A2	0.718	0.673
Internet service → A3	0.613	0.568
Internet service → A4	0.720	0.537
Internet service → A5	0.608	0.570
Customer support → A6	0.752	0.737
Customer support → A7	0.719	0.860
Customer support → A8	0.834	0.778
Customer support → A9	0.770	0.727
Customer support → A10	0.949	0.808
Marketing support → A11	0.958	0.948
Marketing support → A12	0.949	0.940
Marketing support → A13	0.941	0.922
Marketing support → A14	0.975	0.934

To summarize, the measurement indicators of the questionnaire in this study have good reliability and validity.

5.4. Structural equation modeling (SEM) analysis

This study uses AMOS software to perform a relationship model analysis to understand the cause-and-effect relationship between

**Table 5**  
Confirmatory factor analysis of RM.

Fitness index	Hotels (336)		B&Bs (224)	
	Estimate		Estimate	
$\chi^2$	459.069		157.201	
df	67		67	
$\chi^2/df$	6.852		2.346	
P value	0.000		0.000	
RMR	0.078		0.076	
GFI	0.840		0.914	
AGFI	0.750		0.865	
NFI	0.892		0.924	
RFI	0.854		0.896	
CFI	0.906		0.954	
RMSEA	0.132		0.078	

Measurement variables	Estimate	
	Hotels (336)	B&Bs (224)
RM → B1	0.784	0.752
RM → B2	0.782	0.721
RM → B3	0.758	0.564
RM → B4	0.563	0.579
RM → B5	0.790	0.775
RM → B6	0.867	0.785
RM → B7	0.871	0.797
RM → B8	0.748	0.496
RM → B9	0.848	0.735
RM → B10	0.777	0.361
RM → B11	0.798	0.810
RM → B12	0.661	0.827
RM → B13	0.813	0.624
RM → B14	0.858	0.728

**Table 6**  
Confirmatory factor analysis of business performance.

Fitness index	Hotels (336)		B&Bs (224)	
	Estimate		Estimate	
$\chi^2$	212.804		201.446	
df	88		88	
$\chi^2/df$	2.418		2.289	
P value	0.000		0.000	
RMR	0.028		0.046	
GFI	0.932		0.910	
AGFI	0.883		0.843	
NFI	0.971		0.961	
RFI	0.955		0.940	
CFI	0.983		0.977	
RMSEA	0.065		0.076	

Measurement variables	Estimate	
	Hotels (336)	B&Bs (224)
Financial → C1	0.832	0.773
Financial → C2	0.890	0.851
Financial → C3	0.911	0.915
Financial → C4	0.874	0.872
Financial → C5	0.874	0.922
Customer → C6	0.905	0.885
Customer → C7	0.940	0.932
Customer → C8	0.932	0.919
Customer → C9	0.876	0.892
Internal process → C10	0.845	0.886
Internal process → C11	0.857	0.841
Internal process → C12	0.887	0.941
Internal process → C13	0.884	0.946
Learning and growth → C14	0.921	0.960
Learning and growth → C15	0.893	0.945
Learning and growth → C16	0.827	0.829
Learning and growth → C17	0.820	0.832

variables. Table 7 shows the model fitness and structural equation modeling (SEM) analysis for hotels and B&Bs.

5.4.1. Relationship model analysis of hotels

The result of an SEM analysis for hotels shows that the model fitness indexes are close to or meet the standard, confirming that this model is acceptable (Table 7). The standardized parameter estimation value in the path analysis (Table 8 and Fig. 3) shows that the Internet service function of CRM strategies has a positive and significant influence on the RM effect ( $\gamma_{1a}$  is 0.324; P value is 0.026), thereby supporting H1a. The customer support function of CRM also has a positive and significant influence on the RM effect ( $\gamma_{1b}$  is 0.382; P value is 0.00), supporting H1b. However, the marketing support function of CRM does not have a significant influence on the RM effect ( $\gamma_{1c}$  is -0.072; P value is 0.530), which does not support H1c.

RM has a positive and significant influence on the financial aspect of business performance ( $\beta_{2a}$  is 0.428; P value is 0.00), customer aspect of business performance ( $\beta_{2b}$  is 0.487; P value is 0.00),

**Table 7**  
The fitness of relationship model.

Model fit measure	Hotels (336)	B&Bs (224)
$\chi^2$	1881.165	1462.889
df	874	874
$\chi^2/df$	2.152	1.674
P value	0.000	0.000
RMR	0.243	0.254
GFI	0.814	0.791
AGFI	0.779	0.753
NFI	0.895	0.866
RFI	0.881	0.848
CFI	0.940	0.941
RMSEA	0.059	0.055

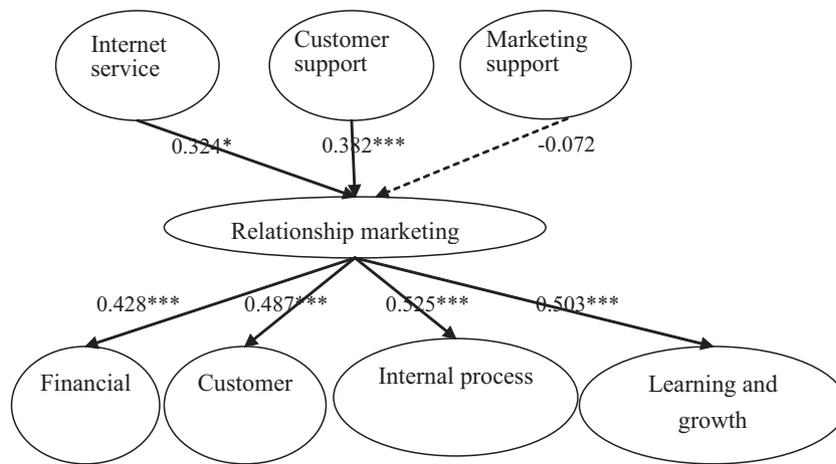


Fig. 3. The relationship model of hotels.

Table 8  
The comparison on the relationship paths between different hotel types.

Relationship path	Coefficient	
	Hotels (336)	B&Bs (224)
Internet service → RM	0.324*	0.104
Customer support → RM	0.382***	0.116
Marketing support → RM	-0.072	0.308**
RM → Financial perspective	0.428***	0.369***
RM → Customer perspective	0.487***	0.332***
RM → Internal process perspective	0.525***	0.398***
RM → Learning and growth perspective	0.503***	0.353***

\*  $P < 0.05$ .  
 \*\*  $P < 0.01$ .  
 \*\*\*  $P < 0.001$ .

internal process aspect of business performance ( $\beta_{2c}$  is 0.525;  $P$  value is 0.00), and learning and growth aspect of business performance ( $\beta_{2d}$  is 0.503;  $P$  value is 0.00). The above findings show that RM has a positive and significant influence on the four aspects of business performance, supporting hypotheses H2a–H2d for hotels.

5.4.2. Relationship model analysis of B&Bs

The SEM analysis results for B&Bs show that the fitness indexes are all close to or meet the standards, which means that this model is acceptable (Table 7). The standardized parameter estimation value of the path analysis (Table 8 and Fig. 4) shows that the Internet service function of CRM strategies does not have a significant influ-

ence on the RM effect ( $\gamma_{1a}$  is 0.104;  $P$  value is 0.538). In addition, the customer support function of CRM does not have a significant influence on the RM effect ( $\gamma_{1b}$  is 0.116;  $P$  value is 0.518). Only the marketing support function of CRM has a positive and significant influence on the RM effect ( $\gamma_{1c}$  is 0.308;  $P$  value is 0.011). This implies that only H1c is valid for the hypothesis tests of CRM influence on the RM effect for B&Bs.

Similar to the findings for hotels, the analysis results show that RM has a positive and significant influence on the financial aspect of business performance ( $\beta_{2a}$  is 0.369;  $P$  value is 0.00), customer aspect of business performance ( $\beta_{2b}$  is 0.332;  $P$  value is 0.00), internal process aspect of business performance ( $\beta_{2c}$  is 0.398;  $P$  value is 0.00), and learning and growth aspect of business performance ( $\beta_{2d}$  is 0.353;  $P$  value is 0.00) for B&Bs. The results show that all the hypotheses are supported for B&Bs.

5.5. Relationship model comparison for different hotel types

This study compares hotel and B&B models to investigate possible connections or differences between the two. The comparison results of the two models are as follows (Figs. 3 and 4):

- (1) The path analysis of CRM influence on RM shows that the two CRM functions that influence RM effects for hotels are Internet service and customer support. However, only one CRM function, that is, marketing support, influences RM effects for B&Bs.

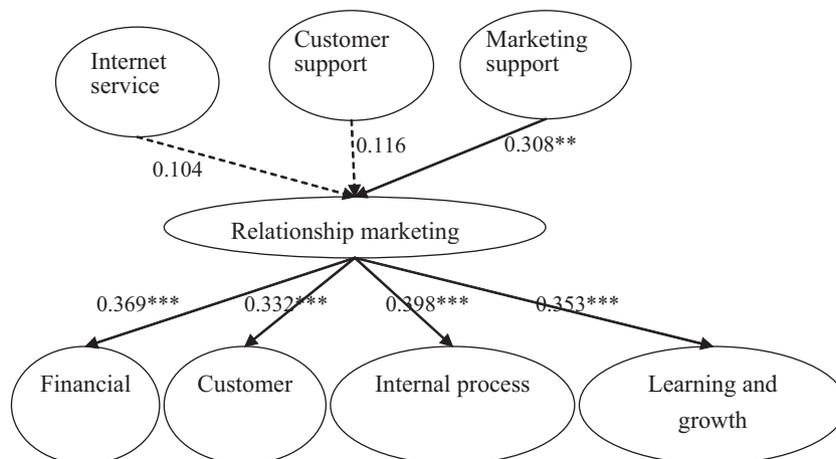


Fig. 4. The relationship model of B&Bs.

This important finding implies that different CRM functions lead to different RM effects due to different hotel types.

- (2) The analysis of RM influence on the four aspects of business performance shows that RM has a significant influence on the four aspects of business performance for both hotels and B&Bs. Differences do not exist between hotels and B&Bs on these four relationship paths, implying that there is a positive RM effect on business performance for both hotels and B&Bs, especially for hotels.

The above results show that some differences in influence paths exist between the two relationship models, thereby supporting H3.

## 6. Conclusions and suggestions

### 6.1. Conclusions and discussion

The implementation of CRM strategies may represent the difference between success and failure (Wilcox and Gurau, 2003). The developing of a CRM system is extremely complex, requiring careful planning, modeling, and implementation to identify and analyze the main advantages. This study uses hotels and B&Bs as research targets to investigate the influence of implementing CRM on RM effects and business performance, and it analyzes the differences between them. Moreover, this study establishes relationship models between CRM, RM, and business performance and sets up efficient measurement indicators, to provide evidence for the differences that exist between the relationship models for hotels and B&Bs. The results clearly show the main influence paths and their strength from CRM to RM, in addition to business performance for hotels and B&Bs, thus offering detailed and useful information. The results present academics and the hotel industry with some important research directions and managerial concepts; thus, this study has academic and practical value.

This study determined that implementing CRM strategies will have a significant and positive influence on RM effects, thus furthering the influence on business performance, and that the most advantageous CRM strategies differ for hotels and B&Bs. The results showed that implementing the Internet service and customer support functions of CRM strategies by the hotels have a positive and significant influence on RM effects; however, B&Bs should implement the marketing support function of CRM strategies, which will significantly increase the RM effect for them. These results verify the mutually assisted concept of CRM influence on RM as proposed by Stone et al. (1996), Meryl (1999), and Swift (2001). The comparison results show different effects for hotels and B&Bs when performing different CRM functions; this is an important finding. Thus, different hotel types must select different CRM actions to meet their target customers.

However, RM has a positive influence on the four aspects of business performance for both hotels and B&Bs, namely financial, customer, internal process, and learning and growth. This result strongly verifies that the RM effect has a positive influence on business performance, thus verifying the concepts proposed by Evans and Laskin (1994) and Christy et al. (1996). Therefore, irrespective of the type of enterprise in the hotel industry, the higher the RM effect, the higher the business performance.

Comparing the relationship models between hotels and B&Bs, the influence of implementing the Internet service and customer support functions of CRM on RM is positive and significant for hotels, but not for B&Bs. However, the influence of implementing the marketing support function of CRM on RM is obviously larger for B&Bs than for hotels. Therefore, marketing support should not be the key action for CRM in hotels.

The above shows that the Internet service and customer support functions of CRM are two key sources of the RM effect on business performance for hotels; however, only the marketing support function of CRM influences RM effects and business performance for B&Bs.

### 6.2. Management application

This study uses an empirical analysis to analyze the relationship models between CRM, RM effects, and business performance, and it compares the operations of hotels and B&Bs. The findings of this study show that the main difference exists in the influence of different CRM functions on RM effects. This implies that hotel type is an important interference variable.

Hotel enterprises should reinforce the Internet service function of CRM strategy (such as online registration, calls via the Internet, and email responses) and customer support function (such as reservation management, customer profile management, and customer type analysis) to enhance RM effects and further enhance overall business performance. In contrast, B&Bs should enhance the marketing support function (such as new products or service promotion and market research and analysis) to support RM effects and business performance.

### 6.3. Research limitations and future research suggestions

Since different hotel types introduce different CRM actions, this study cannot judge the influence strength of any individual action on an individual performance aspect. Future research can further investigate the effects of individual CRM actions.

Many industries (for example, the banking and aeronautic industry) implement CRM; therefore, the results of this study might not be applicable to all industries. Future research can compare the differences between different industries using the relationship models proposed by this study to gain an in-depth understanding of the similarities and differences among them. Future studies can also verify the practicality of the measurement variables and relationship models proposed by this study.

With the exception of the development of the questionnaire and implementation of the pilot study using the “convenient sampling” method, this study has employed a mixed method to gain data through a qualitative approach and quota sampling. However, the sampling method might be too subjective; hence, the drawing of deviations from the samples must improve in the future research.

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