International Journal of Innovative
Computing, Information and Control
Volume 10, Number 6, December 2014
 ISSN 1349-4198
pp. 2295–2307

COMPLEMENTARITY ROLE OF INFORMATION TECHNOLOGY APPLICATION ON CUSTOMER RELATIONSHIP MANAGEMENT IN THE BANKING SERVICE

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Received January 2014; revised May 2014

Abstract. *This study explores the impact of human resource (HR) capability and information technology (IT) application, and their potential complementarity effect on the development of customer relationship management (CRM) performance in the banking industry. The empirical analysis was carried out with two samples, the sales personnel and the customers, and the multiple interaction regression analysis was implemented to test and validate the complementarity effect on CRM performance. The findings suggest that firm's two service capabilities in the service context are considered as complementarities when one capability enhances the value and effect of another capability. In addition to three direct influences of the resources, the main result is in the direction of investigating the complementarity effect of these capabilities, which leads to the predictions of its CRM advantage.*
Keywords: Customer relationship management, Human resource capability, Information technology application, Complementarity effect

1. **Introduction.** The resource-based theory (RBT) has been found far more significant in explaining competitive capabilities in relation to capability and sustainable competitive advantage [1-4]. Accordingly, the study interconnects the theoretical relationship between the capabilities and competitive advantages of the physical, human, and technology resources. The new insights suggest that a firm's dynamic competitive capabilities are considered as complementarities when one capability enhances the value and effect of another capability. The primary result of this study is in the direction of investigating the complementarity effect, in addition to individual influences of these capabilities. This leads to the predictions of its CRM advantage that prepares and assures movement towards a sustainable advantage objective.

Empirically, in a rapidly changing business environment, when firms are able to change quickly, they can possibly gain a sustainable competitive advantage [5], since they can adapt to the changing market rapidly. [6] suggested that firms should merge technology with human dimensions. Consistent with these studies, research found that human competitive capabilities and technology were clearly not developing in isolation, since effective performance was determined by how well structure, technology, human competitive capabilities fit together and supported each other [7].

Studies mostly agree that customer-service outcomes have become a major topic of frequent study [8,9]. For example, banking services generally incorporate sales service

divisions including financial specialists, meet and greet officers, operators, customer service officers, cashiers, and business specialists. These individuals come into close personal contact with their customers, with the objectives to ensure customization, quick service/response time, mutual communication, and reliable information. Accordingly, banking units can be viewed as CRM organizations, since CRM activities particularly enable them to respond to customer needs [10]. Given the necessity of CRM activities, prior literature in this area has explored service capabilities and their interactions on CRM performance, specifically through the main, dyadic, and conjoint effects of HR and IT capabilities [8,9]. Going beyond prior studies, it is postulated that there are positive effects of IT and HR capabilities, and the complementarity of them on CRM performance.

Going beyond prior studies, however, the RBT study related to capability views on sustainable competitive advantage has not been taken into account in the association between service capabilities and CRM advantage. For example, RBT studies suggested complementary capabilities are essential to experience synergistic performance impact because a firm is viewed as a unique bundle of tangible and intangible capabilities and emphasizes the protection of a firm's core competencies comprising these capabilities. Therefore, this study views firm capabilities as complementarities when one resource enhances the value of another resource [6]. We intend to provide the complementarities, in addition to individual influences of these capabilities. This will lead to predictions of its CRM competitive advantage toward a sustainable competitive advantage objective. In terms of resource complementary [11], both HR and IT service elements are correlated in relationship marketing. Their cooperation reinforces the sales personnels' ability to offer customized services and products that satisfy their customers' personal preferences.

Therefore, the major issues addressed are as follows: do the individual service capabilities help enhance CRM performance, without any involvement of complementary capabilities? Also, while taking RBT perceptive into viewing firms' capabilities as complementarities, do the service complementary capabilities enhance CRM performance? To fill the gaps, it is important to know whether these capabilities are complementarities and provide a higher level performance and ensure sustainability. In addressing these two major issues, the study is expected to contribute to the current IT role in RBT literature on services in the several ways. First, within the RBT perspective, this paper updates the list of CRM antecedents (i.e., the two service capabilities) in the service context. Second, the paper, drawing upon the RBT concept of firms' capabilities as complementarities, particularly examines its antecedents and consequence at the same time. Third, the results help interpret and understand how the relationships between the two service capabilities individually and their complementary on CRM performance.

1.1. **The service environment.** The banking industry is a typical industry for making good use of IT in conducting business, and banking firms have spent significant quantities of money on upgrading and enhancing their IT infrastructure. Currently, IT has become recognized as a major tool for collecting and analyzing customer information. As interactions with customers are automated through the use of the latest IT techniques, banks can readily obtain customer information. They believe that this kind of information is useful and necessary in order to build and improve customer relationships. Therefore, the banks are developing CRM systems and investing significant amounts of money into top-notch information systems. On the other hand, the key to a company making the most effective use of its people, its human resources, is to align its HR functions with its overall business goals, for HR has always been central to organizations. The HR refers to well-trained, highly-rewarded, and ample well-skilled employees with professional expertise [12,13].

CRM is not only one of the most important IT applications, but it is also the key strategy to e-commerce success. Many studies have reported that banks that develop a customer-oriented strategy earn higher profits [14,15]. A survey has also shown that banks' strength is in CRM related activities, including front-office and back-office automation and integration, customer segmentation, and service [16,17]. The initial sampling frame of this study is to obtain data from five banks in Taiwan, which have applied the systems of HR and IT capabilities to their CRM performance. These are Chinatrust, Nan Shan, Taiwan HSBC, Citibank, and MassMutual Mercuries Life. These five banks have operated internationally by issuing financial products such as international stock funds and European market funds. These banks also issue many diversified products, including traditional financial merchandise such as stocks, bonds, deposits, and financial bills; popular financial merchandise such as real estate investment trusts (REITs), cash cards, and credit cards; and new financial merchandise such as high-tech industry funds, emerging market stocks, and global exquisite articles.

Advances in technology are allowing for delivery of banking products and services more conveniently and effectively than ever before, thus creating new bases of competition. However, viewing CRM as an IT service capability solution only is not likely to be successful [18]. HR service capabilities are also necessary, since it is people who are actually involved in remembering and catering to the customers' preferences and needs [9]. Thus, performance is more likely to be enhanced if a bank has all these internal capabilities. HR capability and IT application support CRM performance, providing opportunities for banks to understand their customers.

1.2. **IT roles.**

1.2.1. *Main effects.* A "main effect" is the direct effect of an independent variable on the dependent variable, while an 'interaction effect' is the joint effect of two or more independent variables on the dependent variable; this is different from what would be predicted from any of the independent variables acting alone. [19] points out the importance of human resources as the main factor for proper relationship existence.

The achievement of improved CRM performance in the banking industry is also heavily dependent on the IT application [9,20]. [21] argued that IT application is necessary to collect customer information related to the buyer-seller interface. CRM solutions must include this capability to enable the bank to acquire, store and analyze information about customers' needs and the bank's actions more easily. This capability enables information flow and analysis, and it allows the bank to focus more on acquiring new customers, maintaining current ones and fostering long-term relationships. CRM is enhanced by making use of customized communications, cross-selling and marketing segmentation capabilities [22]. Thus, CRM solutions require banks to maintain a customer relation orientation and to have IT application in place to collect, store, and analyze the required customer information. This plays a critical role in coordinating internal and external business functions, enabling easy and ready support through a broad variety of software, hardware, and core applications. Therefore, IT application can create dual value for both banks and customers and enhance CRM performance by its essential coordinating function, facilitating the banks' abilities to respond to complex marketing changes and offering interactive service marketing.

1.2.2. *Complementarity.* The RBT study is one of the most widely accepted theoretical perspectives in the strategic management field [11,23,24]. Among the studies, the relationship between capabilities and sustainable competitive advantage for firms is still unclear. To uncover this study in an empirical level, some RBT research uses the service

industry as a sample. For example, [25] build the linkage between capabilities (marketing) and CRM advantage in the service marketplace. More particularly, [3,4,26] measured the capabilities of technology, human, and marketing knowledge on sustainable competitive advantage. Based on the previous studies, the present study proposes the theoretical relationships in relation to the empirical study of service industry, measuring the service capabilities of human, technology, and marketing technology on sustainable competitive advantage in terms of CRM competitive advantage. This view also follows the same logic in a resource-based view, that the interaction of complementary resources, which can be ambiguous, thus enhances the value of all resources, making it difficult for competitors to imitate.

Given the essentiality of CRM advantage, previous studies have explored capabilities on CRM issues, specifically through the main, dyadic, and conjoint effects of human, IT, and marketing knowledge elements [8,9]. Going beyond prior studies, however, the RBT studies related to capability views on sustainable competitive advantage have not been taken into account in the association between service capabilities and CRM advantage. For example, the RBT studies suggested complementary capabilities are essential to experience synergistic performance impact because a firm was viewed as a unique bundle of tangible and intangible capabilities and emphasized the protection of firm's core competencies comprising these capabilities. Therefore, this study views firm capabilities as complementarities when one resource enhances the value of another resource [6]. We intend to provide the complementarities, in addition to individual influences of these capabilities, to guide predictions of its CRM competitive advantage.

2. **Research Model and Hypotheses Development.**

2.1. **Main effects.**

2.1.1. *HR & CRM.* The three direct effects model (see Figure 1) considers how the HR-IT elements contribute to CRM performance without the involvements of any other interconnected effects. For example, studies have shown CRM performance can be enhanced by the incorporation of valuable internal resources. The HR capability is viewed as a resource comprised of the personnel's service skills, competencies, technological knowledge, business background, managerial experience, and product creativity [27]. The resources of the sales personnel ensure service specificity and reliability. CRM performance necessarily depends on such resources. It enables the development of customer services, Internet

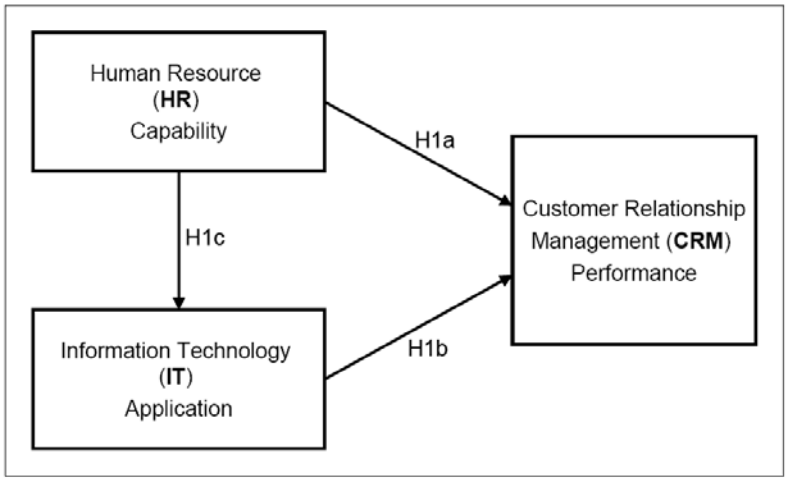

FIGURE 1. Three direct effects model

response, and face-to-face communities, which can create customer value, increase purchase experience, and fulfill customer needs [28]. The resources are closely related to the customized response application of the entire organization which needs an overall view about their customers' consumption decisions and to convey an understanding of their customer-oriented mission to their customers [29].

Accordingly, this resource takes advantage of interpersonal complexity for capturing, storing, and sharing each sales personnel member's service skills and know-how in relation to customer affairs. The resource is not restricted solely to internal organization but aligned with external relationship marketing offering customized services and products to their customers [30]. In short, the sales personnel's HR capability is associated with CRM performance. Accordingly, the following hypotheses are proposed:

Hypothesis 1a: Sales personnel's HR capability can enhance CRM performance.

2.1.2. *IT & CRM.* In technology integration and coordination theory, IT application is a core resource, which helps make suitable adaptations for service interactions [31]. This resource connects sales personnel and their customers leading to a better mutual conversation, quicker customized responsiveness, faster delivery, and more reliable service [32]. A broad variety of software, hardware, telecommunication technology, and databases are used and play an integral role in offering large-scale services and satisfying just-in-time requests [33]. This resource facilitates the association between the customers' purchase decision and repurchase intention [34]. IT service helps the user access information databases to assess marketing knowledge for product customization and offering services to the customers. It is thus beneficial for mutual bank-customer benefit. For example, banks collect and analyze customer information in order to create marketing knowledge about the customers' purchase decisions for later customized service promotions. The bank can give the customer customized knowledge about future services and product offerings. In other words the application of IT services by the sales personnel can lead to better CRM performance. IT is utilized as a tool to create service value by linking earlier service behaviors to the provision of customized services and products for positive relationship marketing. Thus, the following hypothesis can be given:

Hypothesis 1b: Sales personnel's IT application can enhance CRM performance.

2.1.3. *HR & IT.* A look at the IT literature uncovers both the elements needed for IT application and human operation and illustrates how the IT capability enhances relationship marketing [35]. IT application is truly dependent on HR capability for information and technological processes in order to achieve the relationship marketing and business competitiveness [36]. When a vital change (customization) necessarily occurs, IT application is required for synthesis of the HR capability, in order to accomplish service adaption and meet customer needs [37]. In other words, the HR capability assists in the interaction of the business with their customer and helps with marketing knowledge management. The HR capability is a significant resource for providing customized services and products to meet customer needs. Under marketing knowledge management, the HR capability and IT application enables better customer information analysis and collaboration leading toward the achieving of a customer-oriented climate. Thus, the following relationship between HR capability and IT application is proposed:

Hypothesis 1c: Sales personnel's HR capability can enhance IT application.

2.2. **Complementarity effect.** As shown in Figure 2, the view of complementarities performance can provide some possible answers. For example, while [38] defined competitive capabilities as the ability to integrate and reconfigure internal with external resources

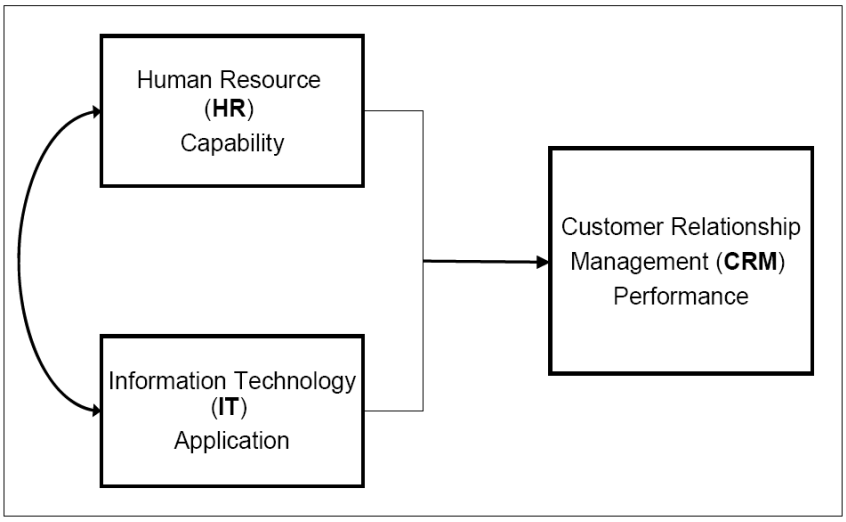

FIGURE 2. Complementarity model

to match its rapidly changing environments, [6] defined that complementarity as one capability that is enhanced by the presence of another capability [7]. Economics literature from [39,40] support evidence of complementarities with higher performance since the complementarities enhance firms' ability to learn new and valuable capabilities. Thus, this paper starts with the development of complementarities, and then tests them using the sample of the five banking institutes, which have applied these three competitive capabilities. [41] documented the synergistic process where the complementarities are most likely to occur.

[6] suggested that firms should merge technology with human dimensions. [42] identified their "sociotechnical" study as an alignment of human, organizational and technological needs. They concluded that technological performance requires optimization of an organization's social and technology subsystems. Consistent with these studies, researches supported that technology and human competitive capabilities were clearly not developing in isolation since effective performance was determined by how well structure, technology, human competitive capabilities fitted together and supported each other [7]. Thus, many studies indicated that human and technology factors interact to positively affect the performance since the complementarities bundled with each other could create inimitability [3]. Therefore, it is hypothesized that:

Hypothesis 2: There is a positive relationship between the complementarity (HR * IT) and the CRM competitive advantage.

3. Research Methodology.

3.1. **Data collection.** The research hypotheses were tested with data gathered from five large banks in Taiwan. There are two varied groups of participants which are the bank marketing sales personnel and the bank customers. The collected data is used to gain insights about how HR-IT service elements lead to better CRM performance. A total of 400/800 questionnaires (80/160 to each bank) were issued to the subjects, from spring to summer in 2012. Participants were provided ample time to complete the questionnaires, and a total of 323/637 were considered complete and valid for data analysis.

3.2. **Research model.** We first developed a set of hypotheses specifying and expanding the different relationships for evaluating CRM performance in the banking industry as related to HR capability and IT application, as well as their interactions. The hypotheses

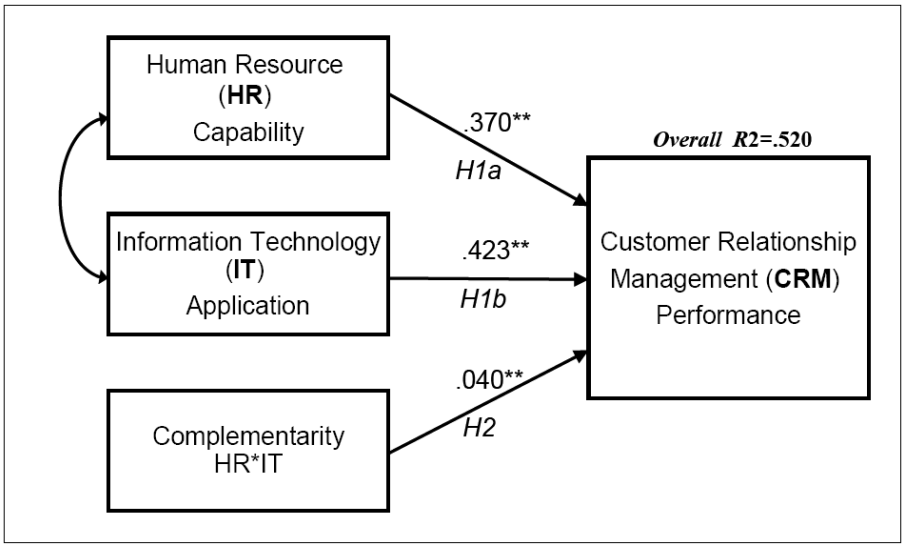

FIGURE 3. The overall research model

TABLE 1. Overall correlations between all variables

	Mean	Standard Deviation	1	2	3
HR Capability	3.320	.356	1		
IT Application	3.513	.341	.643**	1	
CRM Performance	3.346	.334	.642**	.661**	1

** $p < .01$ *level (2-tailed).*

are summarized in Figure 3. The figure illustrates that good CRM performance is truly essential in the banking industry because it helps create customer value, attracts new and return customers, and provides an integral approach for dealing with customer retention by focusing on relationship development. That shows that it is important for banks to pursue longer and better relationships with their customers, instead of simply following a transaction-oriented approach. Better CRM performance can aid banks to create value, and it is done by building stronger customer services and enhancing customer-seller relationships. CRM in this industry can be defined as the "management of mutually beneficial relationships" [43] with the core values of increasing the number of profitable customers, improving the efficiency and effectiveness of customer service, and producing individualized marketing messages [44].

3.3. **Measurement.** Table 1 shows all scores for means, standard deviations, and significant correlation coefficients of the latent variables. The results show that the variance inflation factor scores among the cause-and-effect relationships ranged from 1.00 to 1.71, which indicates the problem of collinearity does not exist in this study.

3.3.1. *CRM performance.* In earlier studies, [22,45] proposed the customer-centric interaction approach to CRM evaluation. [46] measured CRM activities by customer-centric interaction with dual value-creation relationships. [32] measured CRM performance by using the customer-oriented IT-CRM service systems. [47] utilized the customer aspects of knowledge, interaction, value and satisfaction reflected in a customer-centric CRM evaluation. The justification is given to the customer-centric approach, which is derived from the synthesis of internal customization designed to satisfy customer desires and maintain long-term relationships with customers. CRM performance has been measured using the

customer-centric approach (11 items, Overall $\alpha = .71$) in previous studies. Details are as follows: customization response (2 items); learning and sensing changes for customer needs (4 items); customer service quality (2 items); and acceptance for service (3 items). Bank customers were asked to indicate the extent to which they directly understand and empirically experience the CRM service. Responses ranged from 1 (very little) to 5 (extremely high). Exploratory factor analysis was performed to determine the measurement of reliability and validity (Overall $\alpha = .71$; Overall cumulative value explained (%) = 56.35; KMO = .71; Bartlett$\chi 2 = 347.67$, $p < .01$ (2-tailed); Overall Eigenvalue > 1).

3.3.2. *HR capability.* In the work of [7], personal service skills and HR specificity have been used to measure human factors for service capital; [12] measured service system quality by human factor capability from the touch-points of personnel service skills and competencies, technological usage, service experience, and management knowledge. [48] measured service system quality by multiple factors such as response time, system reliability and system accessibility. The justification is considered in the quality service approach based on sales personnel's service channels to meet customer needs. HR capability was measured using the quality service approach (16 items, Overall $\alpha = .77$) in previous studies. Details are as follows: service response time (3 items), information service accuracy (3 items), personnel service assets (3 items), people service capability (2 items), and perceived service quality (5 items). Sales personnel were asked to indicate the extent to which they related the service job experience of HR capability to IT application and CRM performance. Similar to the procedures described above, exploratory factor analysis was performed to determine the measurement of reliability and validity (Overall $\alpha = .77$; Overall cumulative value explained (%) = 54.55; KMO = .79; Bartlett$\chi 2 = 796.77$, $p < .01$ (2-tailed); Overall Eigenvalue > 1).

3.3.3. *IT application.* As firms need to respond rapidly to changes in markets, greater IT capability is then required. [49] measured IT application by determining if IT usage is available to valuable information flowing easily across service platform. [6,50] measured IT application skill by systems analysis and integration, database design, and operating systems. [7,36] measured IT core competencies by IT functional automation, information and integration in business processes. We consider the essentiality of Internet service as well as the integration of marketing information, technology and data. IT application includes a broad variety of software, hardware, and data as well as communications technology and competencies. Here we look at several factors, including the IT service approach (19 items, Overall $\alpha = .76$) used in previous studies. Details are as follows: Internet service (3 items), information integration (4 items), system integration (2 items), database integration (3 items), customer information support (4 items), information reliability (3 items). Sales personnel were asked to indicate the extent to which they related the service job experience of IT application to CRM performance. Utilizing the same procedure described above, confirmatory factor analysis was performed to determine the measurement of reliability and validity (Overall $\alpha = .76$; Overall cumulative value explained (%) = 50.83; KMO = .75; Bartlett$\chi 2 = 836.56$, $p < .01$ (2-tailed); Overall Eigenvalue > 1).

As expected, all the hypotheses were supported. Both HR capability (Hypothesis 1a) and IT application (Hypothesis 1b) positively affect CRM performance ($\beta = .642$ and .661, $p < .01$, respectively) with significant variance ($R^2 = .412$ and .436, $p < .01$, respectively) and F values ($F = 208.71$, and 230.74, $p < .01$, respectively). Hypothesis 1c was also supported since a significant effect was found for people response capability positively affecting IT application ($\beta = .643$, $R^2 = .414$, $F = 210.20$, $p < .01$). The overall study of the full model with significant findings for HR capability, IT application, and their interaction (complementarity) on CRM performance (β=.370, .432, and .040;

TABLE 2. Hypothesis test results of the overall research model

Theoretical Relationships	Hypothesis Relationship	Regression Coefficient	Result of Hypotheses
Main Effects **1a:** HR Capability → CRM performance	+	$\beta = .642$, $R^2 = .412$, $F = 208.71$, $p < .01$	Supported
1b: IT Application → CRM performance	+	$\beta = .661$, $R^2 = .436$, $F = 230.74$, $p < .01$	Supported
1c: HR Capability → IT Application	+	$\beta = .643$, $R^2 = .414$, $F = 210.20$, $p < .01$	Supported
Complementarity **2**: HR*IT→ IT Application	+	$\beta = .040$, $R^2 = .520$, $F = 105.50$, $p < .01$	Supported

TABLE 3. Results of multiple interaction regression analysis of the hypotheses

	CRM Performance		
Steps	***Model1***	***Model2***	***VIF***
Step 1: Main Effects			
HR Capability	**.370****	**.370****	**1.00-1.71**
IT Application	**.423****	**.432****	**1.00-1.70**
Step 2: Complemetarity			
HR Capability * IT Application		**.040****	**1.00-1.01**
$\boldsymbol{R^2}$	**.517****	**.520****	
F	**105.47****	**105.50****	

** $p < .01$ (2-*tailed*).

$R^2 = .520$; $F = 105.50$; $p < .01$, respectively) are shown in Table 2. Based on the β value comparison in Figure 3, the main effect of IT application is more important than either the HR capability or the complementarity on CRM.

Moreover, from the results of multiple interaction regression analysis, these regression findings indicate that Hypothesis 2 is supported for the significant complementarity. The complementarity of HR capability and IT application ($\beta = .040$, $p < .1$) is significant with the explanation of 52.0% ($R^2 = .520$, $p < .01$) and F value ($F = 105.50$, $p < .01$). Hypothesis 2 was supported because the β value of this model was statistically significant (see Table 3). In other words, these two significant results help to clarify and support the Hypothesis 2: CRM performance was affected by the complementarity of HR capability and IT application.

4. **Discussion.** In the conclusion, the most significant findings are presented, and these are consistent with HR-IT elements and CRM performance predictions. In particular, Hypothesis 1a is supported, indicating that the HR capability of the sales personnel is considered to be a valuable internal resource for enhancing CRM performance [13]. Hypothesis 1b is supported, which is consistent with some previous research findings of the linkage between IT and CRM. The IT application is implemented to obtain and protect customer information needed to form the basis of marketing knowledge by the necessary processes of cooperation, coordination, and integration.

Hypothesis 1c is supported. Some earlier IT insights have been mentioned above for the correlation between HR elements and IT tools. IT application is strengthened by the HR capability and is one of the core internal resources for the provision of service and product customization through the Internet and network marketing communications, as well as for the preparation of a database for all the business requests. The HR capability strengthens the IT application leading toward better competition in business.

The results of the study also suggested that HR capability had a positive effect ($\beta = .642$, $p < .01$) on CRM performance, which is necessary for banks to understand the importance of employee response time, of accurate and well-informed response to customer needs. Since HR capability depends upon well trained, highly productive, and skilled employees with professional expertise, their attitudes, appearance, and capabilities directly affect customers' opinions and contribute to customers' impressions. Thus, CRM performance will be raised when a company attributes value to training and development in order to enhance customer-related interactions. The results also showed that significant correlation emerged among HR capability, IT application, and their complementarity on CRM performance, and the higher capabilities improved CRM performance. This is important for banks to build successful long-term CRM associations with their customers, especially to adapt to a dynamic environment.

5. **Conclusions.** CRM advantage can be viewed as a sustainable competitive advantage for firms resulting from a socially complex process [51]. Like the conclusion made by [44], the development of CRM advantage depends on more interpersonal relationships between HR capability and IT application. Consistent with the prior studies, our dependent effects showed all the individual variables had the positive effects on CRM advantage. This is an important finding as it helps to build successful HR capability associated with IT application, which is in turn needed to ensure CRM performance, and helps banks adapt to whatever today's dynamic relationship marketing requires. Moreover, our empirical result supported Hypothesis 2 and indicated that the complementarity of IT application was increasing in its performance.

5.1. **Overall view.** The results from the current study demonstrated that all hypotheses were supported, with each service capability (HR and IT) having a direct influence on CRM performance. Also, it was found to have the statistical significance as complemented by HR*IT capabilities. The study interpreted the capability-performance relationship of RBT by showing the positive significant effects of the set of homogenous capabilities, i.e., HR and IT capabilities on CRM performance. Furthermore, the effect of capabilities on mutual-performance relationship from the current study helps to broaden our knowledge of the combination of the set of homogeneous capabilities and their complementarity on CRM performance. Although the study was limited to the five Taiwanese commercial banks, the findings could be applied to the field of studying relationship performances advantage in a more general commercial banks system. By applying HR and IT capabilities to enhance CRM performance, banks can establish, maintain, and enhance long-term CRM performance associations with their customers.

5.2. **Contributions to theories in services.** A brief review of the existing literature can help clarify how service capabilities can help personnel members work efficiently and effectively to ensure CRM performance. For example, while earlier arguments for an individual capability-performance linkage are shown, we note that some insights consist of service capability resolutions, through the influences of dyadic and conjoint effects, which are usually associated with productive CRM service activities. Thus, the study contributes to the literature for other research and marketing strategies applying to Taiwanese commercial banks, and for analyzing the influence of the HR and IT capabilities on CRM performance, and suggests that managers in commercial banks enhance capabilities such as HR and IT to improve CRM performance. The study also suggests that a synergic complementarity of these two capabilities enhanced CRM performance and had significantly positive effect on CRM performance. CRM performance led to a more exact forecasting of the objective of advantage that is quite important and necessary for the

banks, which need to build successful long-term CRM associations. This study found the results of the relationship between capabilities and CRM performance, and also created a more valid and appropriate questionnaire for investigating the effect of capabilities on CRM in the scope of Taiwanese banks.

5.3. **Extending CRM performance.** Going beyond the capabilities-performance linkage, a gap exists in terms of capabilities-complementarities and complementarities-performance linkages. Consistently, past research has documented ample evidence supporting the impact of HR and IT capabilities on CRM service activities, in which a great deal of emphasis is put on customized service, customer-centric interactions, and service applications, which help figure out customers' different preferences and tastes [9,32,41]. Consequently, extrapolating from the above arguments, a possible complementary between capabilities and performance is believed to exist. As such, of particular interest to the current study was to explore whether customer satisfaction acts as a complementary between the service capabilities (HR and IT) and CRM performance. As expected, our results show that HR*IT does play a complementary role in the context of banking service, which is believed to make substantial contributions to the theory in services.

6. **Suggestions for Future Study.** CRM and HR capability have significantly impacted on most organizations and each has been widely researched [52,53]. However, there is little well-founded empirical research on the relationship between them, particularly on the way in which CRM is influenced by IT application. Future studies could examine the impact of the HR capability of sales personnel and IT application, and their interaction effect shown on the development of CRM performance for improving banking performance effectiveness in a bank service environment.

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