

Value Creation from CRM Systems: Resources and Processes

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Abstract

Building on the RBV and the process-oriented view, we develop a conceptual model to study the value creation process of CRM systems. Analyzing a dataset of 82 Chinese firms, we find that the value of CRM resources stem from operational benefits (e.g. marketing cost reduction and efficiency gains in customer-oriented business processes) and strategic benefits (e.g. increased customer satisfaction and retention, product and service improvement, and improved sales forecast accuracy). Especially, Chinese firms use CRM systems to improve their firm performance mainly through reaping operational benefits.

Keywords: Customer Relationship Management, Business Process, Operational Benefits, Strategic Benefits, Firm Performance

1. Introduction

As firms are competing for customers more than ever, they invest heavily in customer relationship management systems [36]. *Customer relationship management* (CRM) systems are enterprise applications that manage business interactions with customers through integrating customer-oriented business processes, including marketing, sales, and customer services [13, 19]. Firms use CRM systems not only to automate customer-

oriented business processes to reduce costs, but also to collect and analyze customer data to better fulfill customer needs and improve customer satisfaction, leading to increased selling opportunities [19]. Although firms are boosting their CRM investments, it remains unclear whether such investments can generate significant business payoffs [36]. In fact, firms have seen vastly different outcomes of CRM investments [37]. A significant portion of firms have failed to derive business value from their million-dollar CRM initiatives, partly due to the difficulty in managing organizational changes required by CRM implementation [36]. A survey of more than 1,500 firms finds that 41% of the firms with CRM projects were either experiencing significant difficulties or close to failure [42]. CRM practice has provided mixed evidence on the business value of CRM, calling for research on this important issue [25, 39]. Two studies have empirically found that CRM use significantly increases customer satisfaction and retention [25, 18]. However, evidence on the performance effects of CRM tends to be mixed. Aral et al. [1] found that CRM go-live events are significantly associated with productivity and profitability improvements based on a dataset of 623 firms. Another study by Hendricks et al. [16] analyzed 80 companies that announced CRM implementations, but found no significant effects of CRM on profitability or stock returns. Therefore, it is important to further investigate the

business value of CRM through large-scale empirical analysis.

Motivated by the above considerations, our study focuses on two key research questions: (1) Does CRM create business value in terms of business process and firm performance improvement? (2) What are the key factors driving CRM value? To better understand these issues, we draw upon the resource-based view (RBV) for theoretical guidance.

2. The RBV on IT Value

The *resource-based view* (RBV) attributes differences in firm performance to distinctive resources and resource combinations that are valuable, firm specific, and difficult to imitate [3, 28]. To understand IT-related resources and firm performance, information systems (IS) researchers have applied the RBV to analyze the business value of IT [44, 24]. It has been noted that firm performance depends on the *combination* of technologies and organizational support in IT management. Brynjolfsson et al. [9] suggested that intangible assets, especially managerial capability and organizational capital, are complementary to IT resources and can enhance IT's capability of creating value at the firm level. Other studies have shown that firms can achieve competitive advantage only when they combine IT with business and human resources [32], whereas IT *per se* is unlikely to provide an advantage to firms due to imitation by competitors [23, 8]. Although specific resources vary among previous studies, there is a consensus that IT business value stems mainly from "fitting the pieces together" [12]. Thus, our review of the literature leads us to believe that the combination of *technological resources* and *complementary resources* is a promising path to CRM value creation.

Using the RBV to study the business value of IT, researchers have attempted to

develop a typology of IT-related resources. For example, Melville et al. [24] suggested two types of IT-related resources that may contribute to firm performance: (a) IT resources, which include physical resources (such as IT infrastructure and enterprise systems) and human resources (such as technical skills), and (b) complementary organizational resources (such as organizational alignment in business processes and strategies). This classification is consistent with the prior literature [32, 8]. Extending this line of inquiry, our study covers both categories and investigates specific resources related to CRM value creation.

3. The Process-Oriented View

The process-oriented view suggests that the first-order impacts of IT investment take place at the business process level [5, 27]. It posits that IT creates business value for the organization by improving various business processes. Consequently, greater impacts of IT on firm-level performance would result from the higher capability of IT to achieve process-level benefits. These process-level benefits include operational benefits (e.g. cost reduction and improved internal efficiency) and strategic benefits (e.g. improved product/service and an enriched understanding of customers and suppliers) [27, 41]. Applying this process-oriented view, researchers have empirically confirmed the business value of IT at the process level, supporting that IT improves firm performance through enhancing business processes [5, 34]. Extending this to the CRM context, CRM-related resources would first generate process-level operational and strategic benefits, and consequently firm-level performance improvements.

4. Value Creation from CRM System

According to the RBV, firms' performance improvement from IT depends on the development of unique technological capabilities and skills along with complementary resources within the organization. Specifically, CRM technology can enhance firm performance through improving customer-oriented business processes such as marketing, sales and service [18, 19]. By acquiring and analyzing customer data, CRM systems allow firms to combine all customer touch points into one integrated seamless interaction, analyze customer value and needs strategically, market products or services to customers who mostly need them, and improve customer satisfaction and retention [25, 18]. Accordingly, a CRM system consists of multiple modules including: *operational* CRM, which supports a variety of customer-oriented business processes in marketing, sales and service operations; *analytical* CRM, which analyzes customer data and transaction patterns to improve customer relationships; and *collaborative* CRM, which enables the organization to work closely with selected customers and business partners through integrating CRM system with internal enterprise systems and front-end web systems [19, 13]. Operational and analytical CRM modules provide the major functions of a CRM system. Further, leveraging these CRM modules requires both IT and business managers to have sufficient technical skills for carrying out CRM-enhanced business operations [14].

More importantly, successful CRM implementation often entails significant organizational transformation due to the complexity of multiple business operations involved in handling customer relationship management [19]. Implementing a CRM system is only part of the needed change. To embrace the new ways of interacting with customers, firms need to align various organizational

aspects with their CRM systems, including business processes, strategies, top management support, and employee training [14, 18]. These alignments must take place in conjunction with technological changes. However, developing capabilities in managing organizational alignment is difficult [23]. Lack of adequate organizational alignment tends to be the most important reason for CRM failures [36].

5. The Conceptual Model

Drawing upon the above theoretical considerations, we develop a conceptual model for studying CRM value as shown in Figure 1, which also incorporates the results to save space. Consistent with our research purpose, we specify process performance and firm performance as two related dependent variables. Our conceptual model includes a set of CRM-related resources that may affect process and firm performance. Based on our earlier review of the typology of IT-related resources [24], we classify CRM-related resources into two types—*CRM technology* (*CRM functionality*, *system integration*, and *CRM skills*) and *complementary resources* (*organizational alignment*). These resources characterize the CRM-related resource endowment for conducting customer-oriented business operations.

5.1. Dependent Variables

The dependent variables in our conceptual model are *impacts of CRM on process performance* (or *process performance* for short) and *impacts of CRM on firm performance* (or *firm performance* for short). As suggested by the process-oriented view, CRM systems generate first-order impacts on customer-oriented business processes, which in turn lead to second-order impacts on overall firm per-

formance. Along this line, we conceptualize *process performance* as operational benefits and strategic benefits at the business process level generated by CRM-related resources [27, 41]. Operational benefits result from the cost efficiency of automated and streamlined business processes through CRM use, such as increased productivity, decreased marketing and sales expenses, and improved efficiency of internal communication and coordination [27]. Strategic benefits stem from firms' leverage of CRM-enabled business opportunities to enrich their understanding of customers and markets, and thus strengthen customer relationships. Such benefits include enhanced customer satisfaction and retention, product and service improvement, and increased sales forecasting accuracy, which are all based on an enriched understanding of customers [41, 27]. We conceptualize *firm performance* as CRM-enhanced firm-level financial performance and competitive advantage, including net profit and its margin rate, return on assets, and market share [8, 41]. Our earlier discussion reveals that CRM systems enhance firm performance through creating operational and strategic benefits in various customer-oriented business processes, such as marketing, sales, and customer service [18, 25]. Therefore:

H1a: *Firms with greater CRM operational benefits will achieve greater firm performance.*

H1b: *Firms with greater CRM strategic benefits will achieve greater firm performance*

5.2. Independent Variables

CRM technology refers to CRM-related technological resources including three dimensions: CRM functionality, system integration, and CRM skills. *CRM functionality* refers to the key operational and analytical functions that CRM

systems offer to enhance customer-oriented business processes across multiple business units (e.g. marketing, sales, and customer service) [15]. CRM functionality thus reflects the technological capability of CRM systems to satisfy organizational needs for managing customer relationships [21]. A review of the literature and major vendors' CRM products (e.g. Oracle-Siebel, SAP, and Oracle-Peoplesoft) reveals that four major modules are most common—marketing, sales, service, and analytical modules [15, 36].

The *marketing module* provide functions to support marketing operations based on customer information collected, including customer targeting, pricing, and marketing campaign management. The *sales module* supports sales operations such as order management, customer account and information management, and customized sales recommendations for cross-selling and up-selling. The *service module* facilitates after-sales service operations, call center operations, and service knowledge database maintenance. These three operational modules interact with the operational database to store and extract data. The operational database interacts with the data warehouse to provide data input for the analytical CRM module, and extract analysis results to support operational CRM modules. The *analytical CRM module* conducts a variety of analyses based on customer data, including customer value analysis, customer retention rate analysis, and sales forecasting. Outputs of these analyses are used to identify the most valuable customers for targeted marketing and cross-selling, understand customer needs and preferences, and improve product offering and service quality. Together, the four modules provide the major functions to automate customer-oriented business processes, and thus improve the

efficiency and effectiveness of such processes.

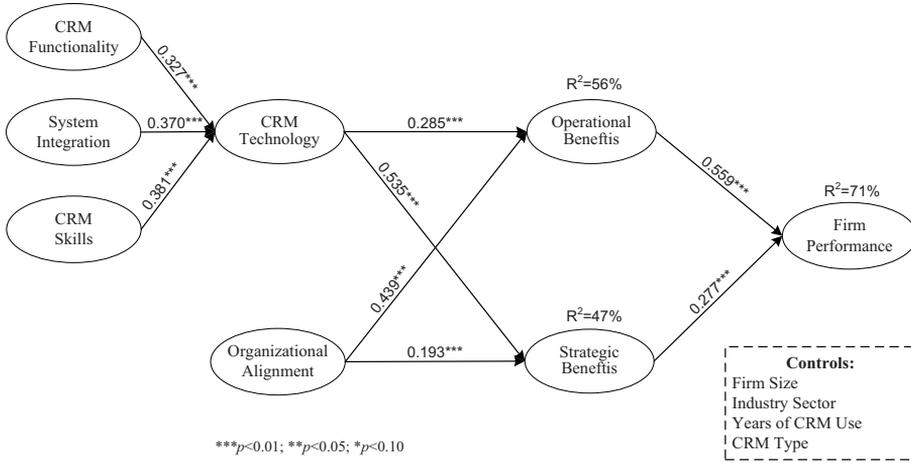


Fig. 1: The Conceptual Model and Empirical Results.

In addition to leveraging operational and analytical CRM functions, firms use CRM systems to realize *collaborative* interactions with customers and business partners through *system integration*. *System integration* links CRM systems with internal enterprise systems (such as enterprise resource planning (ERP) and legacy systems) and web-based e-business applications via Internet-based communication protocols, and further connects these systems with those of suppliers and customers based on common data standards [33]. Firms can thus build an integrated platform to synchronize customer information flow, improve coordination, facilitate transactions, and improve customer relationships [14], all of which are important dimensions of value creation.

CRM skills refer to the technical skills of using CRM technology to improve customer-oriented business processes [23]. Both IT and business managers need to have the necessary technical skills and know-how to manage and use CRM systems [24]. According to the resource-based view, such technical skills are an important determinant of business value [8]. Without sufficient technical know-

ledge and capability, it would be difficult for managers to understand and use the complex operational and analytical functions provided by CRM systems, which may raise significant user resistance to CRM use [13]. Hence,

H2a: CRM technology will be positively related to operational benefits.

H2b: CRM technology will be positively related to strategic benefits.

Organizational alignment refers to the adaptive organizational transformation in adjusting business strategies and processes, providing management support, and training and motivating employees to use CRM [14]. It has been emphasized in the literature that technology resources need to be aligned with various aspects of the organization [9]. Organizational alignment enable firms to make needed changes on business processes to accommodate CRM use, align CRM technology with business strategies and mindsets, and cultivate employees' commitment to CRM initiatives [36]. Not all firms can effectively manage the changes associated with CRM systems, due to the complexity in supporting new CRM-enabled processes with a changing tech-

nical architecture and the extensive changes in job skills [14]. The cross-department coordination for change management is often intense, partly due to the changes in strategies and processes [10]. Further, CRM interacts with a firm's customers, a large group with diverse needs; therefore, customer-oriented business processes are less standardized across customer segments, increasing the complexity of organizational configuration [13]. Hence, successful CRM implementation requires significant organizational alignment.

H3a: Organizational alignment will be positively related to operational benefits.

H3b: Organizational alignment will be positively related to strategic benefits

5.3. Controls

First, we need to control for firm size. As a surrogate measure to several dimensions of firm resources such as financial slack and IT experience [38], size might be a positive factor for value creation given the resource advantage; yet large size may also be a negative factor, as CRM implementation and value creation may be retarded by the complex organizational structure and hierarchical decision making that are typically associated with large firms [45]. We therefore control for firm size using the number of employees [45]. Second, we control for industry sectors. Third, firms' value creation from CRM is likely to be a learning-by-using process, which involves the accumulation of experience from trials and errors [23]. We thus use the temporal length of CRM use by firms to control for this learning effect. Fourth, firms may purchase a licensed CRM system from the CRM vendors, or develop their own in-house CRM system that is less standardized. We control for this difference using a dummy variable describing the type of CRM.

6. Data and Measures

To test the proposed model and hypotheses, we conducted a survey to collect data during the period of March through April 2010. Based on a comprehensive literature review and interviews with managers, we designed a questionnaire and refined it through several runs of pre-tests, revisions, and pilot tests. An expert panel reviewed each of the items on the questionnaire for its content, scope and purpose to ensure content validity. After the questionnaire was finalized, its paper version was distributed to 91 part-time MBA students randomly selected at the Business School of Renmin University of China for survey. Our final dataset includes 82 firms after teasing out inappropriate responses. The sample includes 21 small firms (with less than 500 employees), 27 medium firms (with 500 to 5000 employees), and 23 large firms (with more than 5000 employees), with the employee number of 11 firms missing. We examined common method bias by using Harman's one-factor test [29] and partial correlation procedures [22]. The results show no significant common method bias.

We conducted confirmatory factor analysis (CFA) to examine the constructs with multiple indicators. Based on the CFA results, we further refined the measurement model and fitted it again, which leads to a satisfactory measurement model. One construct deserves further explanation. We operationalize CRM technology as a second-order construct formed by CRM functionality, system integration, and CRM skills. These three dimensions collectively form the CRM technology endowment that a firm has in place.

We used partial least squares (PLS) to conduct the CFA. For *reflective constructs* (operational benefits, strategic benefits, and firm performance), we examined construct reliability, convergent validity, and discriminant validity [40,

11]. For all other *formative constructs*, the weights of measurement items are statistically significant ($p < 0.01$) and above the suggested cutoff value of 0.3 [11]. In short, our measurement model satisfies various reliability and validity criteria.

7. Results

We estimated the structural model on the sample using PLS. The results are shown in Figure 1. The R^2 of operational benefits and strategic benefits are 56% and 47% respectively, suggesting substantive data variation explained by the independent variables. To test our hypotheses, we examined the PLS path estimates. CRM technology and organizational alignment have a significant and positive path to both operational benefits and strategic benefits ($p < 0.01$). Operational benefits and strategic benefits both have a positive and significant path to firm performance ($p < 0.01$), which has a R^2 of 71%. Relatively speaking, operational benefits have a greater impact on firm performance than strategic benefits. This seems to suggest that Chinese firms are using CRM to enhance firm performance mainly by improving their customer-oriented operations, although CRM also creates significant value through strategic benefits. Overall, we find strong support for all hypotheses.

8. Discussion

Employing the RBV and the process-oriented view, this study seeks to study the business value of CRM systems. Along this line, this paper makes two major contributions. First, our conceptual model helps to understand what CRM resources are important and how they work together to create business value for firms. This study thus contributes to the literature on CRM systems, by adding both theoretical rationales underlying CRM

value creation and empirical support to such rationales. We have identified significant drivers of CRM value, i.e. CRM technology (including CRM functionality, system integration, and CRM skills) and organizational alignment. The importance of these resources speaks to the nature of CRM systems, i.e., integrated customer-oriented business processes through organizational alignment with CRM technology. Customer relationship management is viewed broadly as a business philosophy emphasizing that firms embrace the customer-centric orientation through extensive organizational transformation, rather than merely getting the technology in place [18, 7]. Our results highlight the importance of both technological capabilities and organizational capabilities in deriving business value from CRM systems. This finding extends the current IS literature by confirming in the CRM context that IT business value comes from both technology and organizational capital [9, 12].

Second, we adopt the process-oriented view and calibrate our measures of CRM resources and impacts specifically to customer-oriented processes. This process-oriented approach is different from the traditional production-function approach that examines the direct effect of IT on overall firm performance [9]. Enabled by this process-oriented approach, we find that for Chinese firms, it is mainly through generating operational benefits, compared to strategic benefits, that CRM technology and the associated organizational alignment improves firm performance. This finding reveals that Chinese firms are still in their early stage of CRM exploitation. They mainly aim to improve customer-oriented operations, while enriching their understanding of customers and markets and realizing the strategic leverage of CRM should be pursued in the next stage. This finding helps to reframe the conversation from direct rela-

tionships between IT and firm performance to intermediate operational and strategic impacts on business processes.

9. Concluding Remarks

In view of the rapid development of CRM applications, this study attempts to present a theoretical viewpoint, supported by empirical evidence, on understanding the resources and value creation of CRM technology. Our work highlights the significance of such resources as organizational alignment, together with CRM technology, in creating operational and strategic benefits and therefore performance advantage for firms. We hope these initial results will motivate further research efforts in this important area.

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