Original Article

CRM technology use and implementation benefits in an emerging market

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ABSTRACT Against a backdrop of growing popularity of Customer Relationship Management (CRM) systems globally, this study empirically examines CRM awareness, perceptions and extent of CRM technology adoption among organizations in an emerging market – Saudi Arabia. It also examines the specific uses of analytical CRM and the perceived benefits of CRM technology among adopting organizations. Data for the empirical analysis come from 118 responses provided by key informants to a structured self-administered survey. The empirical results show a reasonably high level of CRM awareness and a relatively high CRM technology adoption rate, particularly among large organizations. Contrary to expectations, however, service organizations are no more likely to adopt CRM technologies than their non-service counterparts. The results also show that adopting organizations mainly use the customer analytics capabilities of CRM technologies to obtain insights about current customers and for customer value assessment and information tracking. Analytics relating to potential and past customers and to customer cost determination are relatively less prevalent. Finally, CRM technology-adopting organizations report the greatest implementation benefits in improved customer insight and employee productivity. With a few exceptions, the findings endure irrespective of organization size, industry sector and CRM technology duration in the organization. Implications of the results are outlined and discussed.

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INTRODUCTION

Academic discourses on Customer Relationship Management (CRM) make an important distinction between its strategy

and information technology (IT) components. The strategy component addresses CRM's philosophical theme of selectivity in building and maintaining

long-term collaborative relationships with key customers. The IT component addresses the particular combination of computer hardware and software systems for capturing, storing and analysing customer data to enable identification of those profitable customers with whom to build and maintain relationships.¹ Although CRM technology is neither a sufficient condition nor panacea for CRM implementation success, the technologies can nevertheless play important roles in organizations' CRM programmes, particularly for those with large customer bases. Indeed, CRM technology constitutes the backbone of many operational aspects of CRM, such as call centre operations and sales force automation. Accordingly, it is important both from academic and managerial standpoints to understand how organizations implement, use and benefit from these technologies, and there have been calls for academic studies of CRM technology adoption.²

As with many other modern business concepts, CRM has its origins in the developed, Western world. However, owing to the marketing efforts of CRM technology vendors, organizations in developing parts of the world are increasingly becoming aware of, and adopting, CRM principles and technologies to manage relationships with their customers. However, there are indications that how these organizations view and use CRM may vary across cultural and national contexts.³ Therefore, it is also important to understand how CRM technology systems are viewed, adopted and used in non-Western contexts.³ The present study contributes to this understanding by examining CRM awareness, CRM perceptions, CRM technology adoption, use and perceived implementation benefits, as well as organizational and industry differences in these variables among organizations in Saudi Arabia. In doing so, it contributes

to the growing literature on Global CRM (GCRM) and the literature on CRM technology adoption, use and implementation benefits across national contexts,^{4,5} providing an emerging market perspective.

However, the study also has managerial relevance. By cataloguing the experiences of organizations that have implemented CRM technology systems, the results will provide pointers and guidelines for managers in other Saudi organizations, and indeed other emerging markets, that are contemplating adopting these systems. The results will also benefit CRM technology vendors by helping them understand how adopters are using and benefitting from their systems and further their efforts to foster corporate adoption and market diffusion of CRM technologies in Saudi Arabia. As noted in an industry report by the IDC:

[EAS] Vendors often make the mistake of creating regional go-to-market strategies, which they roll out in each country [of the MENA region]. But the MENA region consists of countries at different levels of market maturity and thus a region-wide marketing message may not be relevant in all countries. Vendors need to look at each country individually, understand the EAS maturity of the key segments they are targeting, and map out the evolution of their ERP adoption accordingly.⁶

The rest of the article is structured as follows. In the next section, the relevant CRM literature is reviewed. From this, implications for the present study are derived and hypotheses developed for empirical testing. In the section after that, the study methodology is described, followed by the analysis and results. A detailed discussion of the results is undertaken in the penultimate section. The final section outlines limitations of the study and offers suggestions for future research.

LITERATURE

CRM is a marketing paradigm whose central theme is the idea that organizations need to shift their thinking away from short-term, transactional exchanges with all customers to building long-term collaborative relationships with key customers. It has been defined as 'a strategic approach that is concerned with creating improved shareholder value through the development of appropriate relationships with key customers and customer segments' (p. 168).⁷ A key characteristic of CRM is its ability to unite the potential of relationship marketing strategies and IT to create profitable, long-term relationships with customers and other key stakeholders.⁷ There is a large literature on the strategy component of CRM, including discussions of the philosophical foundations, examination of strategic underpinnings and identification of organizational conditions conducive to successful CRM implementation.⁷⁻¹⁶

However, a small but growing stream of research has focused on the role of CRM technology either as a central study focus^{2,17,18} or as part of a larger CRM study.^{1,2,19-21} Issues addressed in these studies include the extent of CRM technology adoption,² the uses to which adopting organizations put their CRM technology systems¹⁹ and the benefits they have derived from implementing CRM technologies.^{2,21,22} These are examined in this section. However, first we address the broader issues of organizational awareness of CRM as a concept, and their perceptions of what the concept entails.

CRM awareness and perceptions – One of the interesting findings from previous CRM research is the notion that, in any national context, organizations differ in their level of awareness of CRM principles. In any given country context, some organizations may not even be aware of the concept as a framework for managing relationships with their customers, whereas those that are

aware may have different understandings of what the concept entails. For example, CRM can variously be perceived as a philosophy of business, a strategy implementation tool or simply an IT.²² Accordingly, in an emerging market such as the study context of Saudi Arabia, it is important to know the level of CRM awareness, and how organizations perceive CRM.

CRM technology adoption – A related issue that has been of research interest is the level and nature of CRM technology adoption among organizations in a particular national context. Ang and Butler study CRM technology diffusion among Australian firms and find that only 39 per cent of surveyed firms have adopted CRM software systems.² Reinartz *et al* examine the impact of CRM technology on business performance,¹⁹ Jayachandran *et al* investigate how US organizations use CRM technology for various marketing and sales support activities,²¹ whereas Mithas *et al* study the impact of CRM applications software (both legacy systems and 'modern CRM systems') on organizations' customer knowledge generation processes.²³ More recently, Kumar *et al* have quantified the global growth and diffusion of CRM technology using a modelling framework.²⁴ They find varying CRM adoption patterns across regions and propose a conceptual framework for understanding factors affecting cross-regional learning and adoption of CRM. An important result of their work is the concept of GCRM, underscoring the usefulness of examining CRM technology adoption levels in different parts of the global marketplace.

CRM technology use – CRM applications software can be used in a variety of ways in an organization's CRM programme. These range from account management applications through business intelligence systems, sales force automation and marketing automation. From a relationship process management standpoint, CRM

technology can be used to support relationship initiation, maintenance and termination activities,¹⁹ as well as to perform the analytics necessary to generate information in support of these activities. From a broader business process perspective, the technologies can be used as operational, analytical or collaborative tools in managing customer relationships.²⁵ Accordingly, Henneberg suggests two CRM implementation approaches – a ‘hard’ approach that emphasizes analytical CRM, and a ‘soft’ approach in which customer experience management (through operational and collaborative CRM) is at the core.²⁶

The literature suggests important differences in the extent to which organizations use CRM technology systems in their CRM processes and activities. Xu and Walton note that many UK companies implement CRM technologies mainly to improve the operational aspects of their CRM, and that application of analytical CRM in these companies is rather low.¹⁸ Ang and Buttle conclude that Australian companies use CRM software mostly to support customer retention and development activities rather than customer acquisition activities.² Consistent with the focus of these studies, the present study examines the usage of CRM software in Saudi organizations, focusing on the analytical uses of the systems. It specifically investigates whether and how Saudi organizations use their CRM technology systems for analytics relating to three customer categories – potential, current and past customers. The focus on analytical uses of CRM is because analytical CRM appears to be the most critical capability for organizations seeking to implement the basic tenet of CRM, that is, identifying profitable customers and developing strategies to retain and/or make them more profitable.¹

CRM implementation benefits – CRM technology can benefit an organization in

many ways. Studies that have examined the performance impact of CRM technologies have concluded that careful implementation of the technologies can significantly enhance various performance dimensions. For instance, CRM technology has been shown to moderate the impact of relational information processes on customer relationship performance.²¹ Deployment of CRM application software has also been found to significantly improve organizational customer knowledge generation and customer satisfaction,²³ and to positively impact the development of durable customer relationships and customer-linking capabilities.²⁷ CRM software also positively impacts company return on investment through its impact on customer retention,² revenue growth, better customer information and insights, cost reduction and improved employee productivity.²² The present study examines the extent to which CRM technologies have benefitted Saudi organizations on a number of dimensions drawn from this literature.

INFLUENCES ON CRM TECHNOLOGY ADOPTION, USE AND BENEFITS

Three factors examined in this study that can potentially influence the nature and extent of CRM technology adoption, use and implementation benefits in an organization are company size, industry sector (that is, service versus non-service sectors) and CRM technology duration. In the subsections that follow, the potential impact of each factor is reviewed and hypotheses are developed for empirical testing.

Organization Size – Research on the adoption of innovations suggests that size is a critical determinant of the likelihood that an organization will adopt an innovation in the marketplace.²⁸ Specifically, it has been argued that, compared with small organizations, larger organizations are more

likely to adopt innovations because they have good risk management abilities, are relatively more resource-endowed and have stronger infrastructural foundations.²⁹

Accordingly, it is expected that organization size will impact CRM technology adoption. Larger organizations should be more likely to adopt these technologies because they are more likely to have larger customer numbers and more complex business processes that can benefit from the efficiency and effectiveness that CRM software can bring to an organization's customer management processes. They are also more likely to have the financial, human and infrastructural resources to acquire, manage and maintain CRM software for all modules (including analytics). Empirically, Ko *et al* find that larger Korean fashion firms are more likely to have adopted CRM strategies and to have implemented CRM technologies than smaller ones.³⁰ Similarly, Starkey and Woodcock find a positive association between organizational size and CRM software adoption.¹⁷ On the other hand, Ang and Buttle find that larger Australian organizations are no more likely than smaller ones to adopt CRM software, and cite falling software prices as a possible explanatory account of this surprising finding.²

Larger organizations are also more likely to use the analytical capabilities of CRM software to understand potential, current and past customers. This is because they are more likely to have larger customer portfolios, larger customer-related databases and greater difficulties in managing their customers, conditions that favour using the analytical capabilities of CRM software.¹⁸ For the same reasons relating to size and complexity of their customers and databases, larger organizations are also more likely to realize the sanity that CRM software can bring to their operations and efforts at customer understanding. Consequently, they are more likely to reap greater benefits

from CRM software implementation. Therefore, the following hypothesis is suggested:

Hypothesis 1: Larger organizations are more likely than smaller ones (a) to have adopted formal CRM software, (b) to use their CRM software for analytics relating to the entire customer spectrum (that is, potential, past and current customers) and (c) to have benefitted in all aspects of CRM technology implementation.

On CRM awareness and perceptions, there is no compelling theoretical, analytical or empirical rationale to expect that larger organizations are more likely than smaller ones to be aware of CRM concepts or to perceive CRM in a particular way. Accordingly, we leave these to be examined empirically.

Industry sector (service versus non-service) – Historically, the principles of relationship marketing are rooted in the business-to-business and service industry sectors where one-to-one contact between organizations and their customers are the norm. Accordingly, the need for effective CRM has been greater in these sectors than in, say, business-to-consumer industries. Furthermore, the services marketing literature suggests that customers generally experience higher perceived risk for services because of their intangibility and variability, and to account for this service firms have a greater predisposition to relationship-building than their non-service counterparts. Consequently, all other things being equal, service firms should be more predisposed towards adopting CRM technologies than non-service firms. Empirically, Ang and Buttle find evidence in support of this, as service firms in Australia are significantly more likely than non-service firms to adopt CRM software.²

The analytical capabilities of CRM software offer adopters the ability to

identify strategically significant customers, to segment customers and to track and model customer behaviour patterns, all with a view to better serve customers through personalization and customization.¹⁸

Although these goals are equally important for both service and non-service firms, the greater relevance of personalization and customization in service delivery speaks in favour of a greater need by service firms for the analytical capabilities of CRM software compared with non-service firms.

Accordingly, service firms are more likely to use these capabilities and to benefit from CRM software implementation, leading to the hypothesis that:

Hypothesis 2: Compared with their non-service counterparts, service organizations are more likely (a) to have adopted formal CRM software, (b) to use their CRM software for analytics relating to the entire customer spectrum (that is, potential, past and current customers) and (c) to have benefitted in all aspects of CRM implementation.

Again, there is no compelling theoretical or empirical rationale to expect that service firms will be more likely than non-service firms to be aware of CRM concepts or to perceive CRM in a particular way. We therefore leave these for empirical examination.

Duration of CRM technology in the organization – The length of time an organization's CRM software has been in operation can impact what uses it is put to, and the likely benefits it will derive from the software. The reason is that, for any particular organization, as time passes initial employee resistance wears out, and employees become more likely to explore and use the full potential of the organization's CRM system. Furthermore, learning curve theory suggests that with the passage of time employees will become more familiar with their organizations'

CRM technology and therefore become more accustomed to using it, further increasing the likelihood that they will explore and use its full potential. Evidence in the literature suggests that among the operational, analytical and collaborative potentials of CRM software operational efficiency (and possibly collaborative capabilities) is probably usually the first main concern of CRM-adopting organizations,^{2,18} whereas concern for the analytics often kicks in later. Consequently, we would expect CRM system duration to positively impact the likelihood of using the system for customer analytics.

Learning curve theory also suggests that as time passes employees will not only become accustomed to using their organizations' CRM technology, they will also become more likely to know how to use it to improve their own performance. Empirically, Ko *et al* find that information systems maturity positively impacts perceived CRM implementation benefits for Korean fashion firms.³⁰ Accordingly, it is expected that the perceived benefits of CRM technology in an organization will be positively related to the time elapsed since its adoption.

Hypothesis 3: The longer the time elapsed since an organization's CRM software implementation, the more likely it is (a) to use the software for analytics relating to the entire customer spectrum (that is, potential, past and current customers) and (b) to have benefitted in all aspects of CRM implementation.

METHOD

Data for the study were collected through a structured survey conducted using a self-administered questionnaire. The directory of top-1000 Saudi companies was used as sampling frame to draw a stratified random sample of 750 companies for the data collection. Stratification was used to ensure adequate representation of larger companies,

as these were considered relatively more important to reach, given the study's objectives. Targeted individuals in responding companies (that is, survey key informants) were top management and middle-level line managers in marketing, sales and IT.

Measures

To ascertain *CRM perceptions*, in the questionnaire all respondents were asked to indicate whether or not the term 'CRM' is used formally in their organization to describe a particular aspect of their operations or business processes. Those who answered in the affirmative then indicated what the term means in their particular organization by selecting among the following response options (adopted from Bohling *et al*)²²: (a) an IT tool, (b) a strategy development tool, (c) a way of life, (d) useful, but not critical. For *CRM technology adoption*, all respondents indicated whether or not they have a formal IT-based system for managing relationships with customers. A simple dichotomous response (Yes/No) was provided. Those who answered in the affirmative then indicated whether it is part of a broader corporate ERP system or an independent system. They also indicated, in open-ended format, how long the system has been in operation.

CRM usage was ascertained by asking respondents whose organizations have adopted formal CRM technology systems to indicate to what extent the systems are used in six customer analytics activities relating to potential, current and past customers (See Table 2 for the activities). The activities were adopted from Reinartz *et al*,¹⁹ and responses were solicited on a 7-point semantic differential scale (1 = Rarely, 7 = Extensively). Finally, for *CRM implementation benefits*, respondents with formal CRM technology systems indicated to what extent the systems have benefitted their organizations in five areas

drawn from Bohling *et al*²² – see Table 3 for the list of benefits. Responses were also on a 7-point semantic differential scale (1 = Not at all, 7 = Very much).

Respondents also provided classification information – type of organization (partnership, corporation and so on), nature of business/industry sector (manufacturer, distributor and so on), number of employees and so on.

Data collection

Three hundred fifty paper versions and 400 electronic versions of the questionnaire were distributed using a combination of regular mailing, electronic mailing, fax and drop-off/pick-up methods. The latter was particularly useful for sampled companies located in the Eastern Province of the country, where the author resided at the time of the data collection. Research assistants visited these companies to personally hand out the questionnaires and either waited to collect the completed questionnaires or returned later to pick them up. The regular mail, e-mail and fax distribution methods were used for companies located in other regions of the country. In all cases, an introductory letter explained the study purpose as academic, promised anonymity of responses, and promised summary results for interested respondents.

Realized sample

One hundred and eighteen completed usable questionnaires were received, for a response rate of around 16 per cent. Responding individuals come mainly from sales (21.2 per cent), marketing (8.5 per cent), IT (20.3 per cent) and operations (15.3 per cent). Their organizations are distributed as follows: service providers (47.4 per cent), manufacturers of industrial products (18.1 per cent), manufacturers of consumer products (4.3 per cent), distributors of industrial products (10.3 per cent), distributors of consumer products

(7.8 per cent) and others (12.1 per cent). As measured by number of employees, the size distribution of responding organizations is: 34 per cent small (up to 200 employees), 34 per cent medium (201 to 1500 employees) and 32 per cent large (more than 5000 employees).

Of the completed questionnaires returned, 77 (65.25 per cent) were received electronically and 41 (34.75 per cent) by regular mail or collected by drop-off/pick-up method. χ^2 analysis and independent samples *t*-tests were used to test for possible organizational and/or industry differences in questionnaire return modes, as well as possible differences in responses to key study constructs across the return modes. For all but one study variable, there were no statistical differences. Only for existence of formal CRM software in the organization did we find a significant difference. Respondents who returned their questionnaires electronically were more likely to have such formal systems (65 per cent) than those who returned them by mail. Neither organization size nor industry sector significantly influenced how respondents chose to return the questionnaires.

ANALYSIS AND RESULTS

CRM awareness and perceptions

Sixty-four respondents (55.7 per cent of the sample) indicated that the term 'CRM' is used in their organizations to describe a specific aspect of their operations or a specific business process, that is, that they are aware of the concept of CRM. Table 1 shows these respondents' answers on what the term means in their organizations. The majority indicates that CRM is viewed as a philosophy of business (50 per cent), whereas sizable percentages indicate that it is viewed as a strategy development tool (37.5 per cent) or as an IT tool (21.9 per cent). Five respondents who selected the 'Other' response option listed attaining

Table 1: CRM perceptions in organizations that use the term

	Frequency	Percentage
1. As a philosophy of business	33	48.5
2. As a strategy development system	24	35.3
3. As an IT tool	14	20.6
4. As a way of life	6	8.8
5. Other	6	8.8

Notes: Frequencies do not add up to 64, and percentages do not add up to 100 per cent because respondents could choose more than one alternative. To be read as follows: 48.5 per cent of respondents indicate that CRM is a philosophy of business in their organization, whereas 51.5 per cent do not indicate that this is the case.

customer satisfaction, communication with end-users, and an important part of business as alternative views of CRM in their organizations.

CRM technology adoption

Sixty-three respondents (54.8 per cent of the sample) indicate that their organization has a formal IT system for gathering, analysing and disseminating customer information across functional departments. Forty-eight per cent (48 per cent) of these have it as part of a broader corporate ERP system, whereas the remaining 52 per cent have it as an independent system. A little over 50 per cent of those with formal systems have implemented their CRM systems within the past 5 years. Altogether, 95 per cent of organizations with CRM have implemented their systems within the past 10 years, a result that is consistent with the history of CRM growth in the Middle East and North Africa region.

Not surprisingly, there is a high degree of association between existence of a formal CRM system and whether or not the term 'CRM' is used in an organization. The term is more likely to be used in organizations with formal CRM technology systems than in those without. Seventy-nine per cent of organizations with formal CRM systems also specifically use the term,

compared with only 27 per cent of those without such formal systems. The difference is statistically significant ($\chi^2 = 31.06$; $P < 0.0001$).

CRM technology use

Organizations with formal CRM systems also indicated the extent to which the systems are used in performing each of the customer analytics activities listed in Table 2. The Table shows mean scores on the responses (listed in descending order), as well as one-sample *t*-test statistics for differences between each mean score and the scale mid-point of 4.

At 5 per cent level of significance, three activities have mean scores significantly above the scale mid-point. An additional two are marginally significant, whereas three are not. The results reveal a general tendency among CRM-adopting organizations to use CRM systems for analytics relating to current rather than past or potential customers. Two of the top

three activities relate to current customers. In contrast, two of the bottom three activities relate to past customers. There also appears to be some selectivity in the specific type of analytic activities performed. In this regard, it is noteworthy that customer cost determination is the least performed activity – whether this relates to cost of keeping current customers or cost of re-establishing relations with past customers. On the other hand, customer value-assessment and customer information tracking are more extensively performed.

CRM implementation benefits

In the questionnaire, respondents from CRM technology-adopting organizations indicated the extent to which they believe CRM implementation has benefited their organizations in each of the areas listed in Table 3. Mean scores on the responses (listed in descending order), as well as one-sample *t*-test statistics for differences between each mean score and the scale

Table 2: Mean scores – Extent of CRM Technology use for customer analytics

	Mean ^a	<i>t</i>	<i>P</i> ^b
1. Assessing the value of <i>current</i> customers	5.25	5.243	0.000
2. Tracking information about <i>current</i> customers	5.08	4.701	0.000
3. Assessing which <i>potential</i> customers are more valuable	4.74	2.882	0.005
4. Identifying non-profitable or low-value customers	4.53	1.933	0.058
5. Identifying <i>potential</i> customers	4.51	1.971	0.053
6. Assessing the values of <i>past</i> customers	4.31	1.132	0.262
7. Determining the cost of keeping <i>current</i> customers	3.78	−0.835	0.407
8. Determining the cost of re-establishing relationships with <i>past</i> customers	3.69	−1.102	0.275

^aResponses are on a 7-point semantic differential scale (1=Rarely; 7=Extensively).

^bTwo-sided probabilities.

Table 3: Mean scores – Perceived CRM implementation benefits

	Mean ^a	<i>t</i>	<i>P</i> ^b
1. Better information and insights about customers	5.43	6.592	0.000
2. Improved employee productivity	5.43	6.526	0.000
3. Improved customer satisfaction and retention	5.29	6.056	0.000
4. Improved revenue growth	5.16	5.333	0.000
5. Improved cost reduction	4.39	1.617	0.111

^aResponses are on a 7-point semantic differential scale (1=Rarely; 7=Extensively).

^bTwo-sided probabilities.

mid-point of 4, are also shown in the Table.

Except for cost reduction, means are significantly above the scale midpoint (4) for all the listed benefits. In relative terms, however, obtaining better customer information and insights and improved employee productivity are the top perceived benefits of CRM technologies. These are followed by improved customer satisfaction and retention and revenue growth.

Hypothesis tests

Three hypotheses were formulated addressing the impact of organization size, industry sector and CRM technology duration on CRM adoption, usage and implementation benefits. However, the impact of these same factors on CRM awareness and perceptions was not explicitly hypothesized but was left for empirical determination. To test the hypotheses and

also examine the empirical impact of organizational characteristics, a combination of χ^2 , ANOVA and *t*-test procedures were used depending on the measurement levels of relevant dependent and independent variables. The results are presented in this section, beginning first with the hypothesis tests.

Organization size – In Hypothesis 1, organization size was expected to positively impact CRM technology adoption, use in customer analytics and implementation benefits. To test this hypothesis, χ^2 analysis was conducted to examine its impact on CRM technology adoption, whereas ANOVA procedures were used to examine its impact on CRM technology use and perceived benefits. The results are in Table 4. Organization size has a statistically significant effect only on CRM adoption. As organization size increases, the likelihood of CRM technology adoption increases

Table 4: Organization size differences in CRM technology adoption, use and benefits

CRM variable	Size			Test statistic (P) ^c
	Small	Medium	Large	
H1a: CRM technology adoption ^a (percentage of yes)				
• Is there a formal CRM system?	33.3	65.8	68.6	$\chi^2=11.80$ (P=0.0015)*
H1b: CRM system usage ^b				
1. Analysis of potential customers	4.8	4.5	4.6	F=0.050 (P=0.476)*
2. Analysis of current customers	4.8	5.4	5.0	F=0.586 (P=0.280)*
3. Analysis of past customers	4.0	3.7	4.5	F=0.975 (P=0.192)*
H1c: CRM technology benefits ^b (Means)				
1. Better information and insights about customers	5.8	5.7	5.0	F=1.203 (P=0.154)*
2. Improved customer satisfaction and retention	5.6	5.1	5.5	F=0.522 (P=0.298)*
3. Improved revenue growth	5.1	5.0	5.4	F=0.434 (P=0.325)*
4. Improved cost reduction	4.3	4.2	4.7	F=0.411 (P=0.332)*
5. Improved employee productivity	5.7	5.1	5.7	F=0.889 (P=0.208)*

^aResponses are from entire sample (*n*=118).

^bResponses are from only organizations that formally use the term CRM (*n*=66).

^c*One-sided probabilities.

[$\chi^2 = 11.80$ ($P = 0.0015$)]. However, among CRM technology-adopting organizations, its use and perceived benefits are not impacted by organization size. Larger organizations are no more likely to benefit than smaller or medium-sized ones. Thus, only hypothesis Hypothesis 1(a) is supported, whereas Hypothesis 1(b) and Hypothesis 1(c) are not.

Industry sector – Hypothesis 2 relates to the impact of industry sector on CRM technology adoption, use and implementation benefits. The results of χ^2 and ANOVA tests for this hypothesis are in Table 5. As shown, at the 5 per cent level of significance, there are no differences in either CRM technology adoption or use between service and non-service organizations. Thus, Hypothesis 2(a), Hypothesis 2(b) and Hypothesis 2(c) are not supported. However, for CRM

implementation benefits, using a one-sided P (given the directional hypothesis), service organizations report significantly greater cost reduction benefits (mean = 5.04) than non-service firms (mean = 4.13) [$F = 3.50$; $P = 0.033$] and marginally significant revenue growth benefits ($F = 2.49$; $P = 0.06$).

Duration of CRM technology – Hypothesis 3 posited that the longer the time elapsed since an organization's CRM technology implementation, the more likely it is (a) to use the technology for analytics related to the entire customer spectrum and (b) to have benefitted in all aspects of CRM implementation. This hypothesis was tested using independent samples t -tests. Organizations were classified into two categories based on system duration (less than 5 years and 5 years or more). Although system duration was measured as

Table 5: Industry differences in CRM variables

	Industry sector		Test statistic (P) ^c
	Service organizations	Non-service organizations	
H2a: CRM technology adoption ^a (percentage of yes)			
• Is there a formal CRM system?	55.4	53.1	$\chi^2=0.06$ ($P=0.420$)*
H2b: CRM system usage ^b (Means)			
1. Analysis of potential customers	4.52	4.93	$F=0.679$ ($P=0.206$)*
2. Analysis of current customers	5.29	4.89	$F=0.788$ ($P=0.189$)*
3. Analysis of past customers	4.06	4.33	$F=0.274$ ($P=0.301$)*
H2c: CRM technology benefits ^b (Means)			
1. Better information and insights about customers	5.44	5.48	$F=0.007$ ($P=0.467$)*
2. Improved customer satisfaction and retention	5.12	5.48	$F=0.628$ ($P=0.215$)*
3. Improved revenue growth	4.85	5.58	$F=2.49$ ($P=0.060$)*
4. Improved cost reduction	4.13	5.04	$F=3.50$ ($P=0.033$)*
5. Improved employee productivity	5.29	5.48	$F=0.15$ ($P=0.350$)*

^aResponses are from entire sample ($n = 118$).

^bResponses are from only organizations that formally use the term CRM ($n = 66$).

^c*One-sided probabilities.

Table 6: CRM system duration and CRM technology use and benefits

	CRM system duration		Test statistic (P)
	Less than 5 years (n=31)	5 years or more (n=30)	
<i>H3a: CRM system usage</i>			
1. Analysis of potential customers	4.9	4.3	$t=1.27$ ($P=0.105$)*
2. Analysis of current customers	5.3	5.1	$t=0.45$ ($P=0.328$)*
3. Analysis of past customers`	4.0	4.1	$t=-0.17$ ($P=0.432$)*
<i>H3b: CRM technology benefits</i>			
1. Better information and insights about customers	5.5	5.5	$t=0.08$ ($P=0.467$)*
2. Improved customers satisfaction and retention	5.4	5.2	$t=0.27$ ($P=0.392$)*
3. Improved revenue growth	5.1	5.1	$t=0.07$ ($P=0.473$)*
4. Improved cost reduction	4.7	4.6	$t=0.15$ ($P=0.439$)*
5. Improved employee productivity	5.6	5.3	$t=0.71$ ($P=0.241$)*

*One-sided probabilities.

Table 7: Organizational characteristics and CRM awareness and perceptions

	Organization size				Industry sector		
	Small (%)	Medium (%)	Large (%)	χ^2 (P)	Service (%)	Non-service (%)	χ^2 (P)
<i>CRM awareness^a(percentage of yes)</i>							
• Is the term 'CRM' used?	38.5	57.9	74.3	9.68 (0.008)	56.1	54.2	0.04 (0.841)
<i>CRM perceptions^a(percentage of yes)</i>							
1. As a philosophy of business	37.5	43.5	59.3	2.26 (0.323)	53.8	40.7	1.10 (0.295)
2. As a strategy development system	25.0	56.5	25.9	6.20 (0.045)	28.2	48.1	2.74 (0.098)
3. As an IT tool	12.5	13.0	33.3	4.02 (0.134)	25.6	14.8	1.12 (0.290)

^aResponses are from entire sample (n=118).

Note: All probabilities are two-sided.

a continuous variable, and regression procedures could have been used given the continuous dependent variables, a decision was made to group organizations into categories and compare means because of the clarity with which results can be compared to those from the previous analyses. Table 6 shows that system duration does not have a significant impact on either CRM technology use or its

perceived implementation benefits. Thus, hypotheses Hypothesis 3(a) and Hypothesis 3(b) are not supported.

On the empirical questions of whether organization size and industry sector impact CRM awareness and perceptions, results of χ^2 tests to answer these (Table 7) show that organization size has an effect on both CRM awareness and perceptions of CRM as a strategy development tool.

In the case of CRM awareness, its impact is positive, with the likelihood of using the term 'CRM' increasing as organization size increases. For perceptions of CRM as a strategy tool, the relationship is inverse V-shaped, with medium-sized organizations significantly more likely to view CRM as a strategy development tool than both smaller and larger organizations. Industry sector, on the other hand, does not have an impact on CRM awareness and perceptions. Thus, service organizations are no more or less likely to be aware of CRM than non-service firms; and they are no more or less likely to perceive CRM as a philosophy of business or an IT tool. However, at $P=0.1$ there is a marginally significant difference in perceptions of CRM as a strategy development tool, with service organizations less likely to view CRM as such (28.2 per cent compared with 48.1 per cent of non-service organizations).

DISCUSSION

The objective of this study was to examine CRM awareness and perceptions, as well as the extent of CRM technology adoption, use and implementation benefits among Saudi organizations. The study also examined the impact of organization size and industry sector on these variables, and of CRM system duration on CRM use and implementation benefits. The results show slightly greater than 50 per cent awareness and adoption rate of CRM among the sampled organizations. Majority of the organizations also appear to have the correct perception of the essence of CRM, viewing it as a philosophy of business or as a strategy development tool rather than as merely an IT tool. However, a sizable percentage still perceives CRM as an IT tool.

The results show an interesting pattern in the specific uses to which CRM adopters put the technologies. There appears to be a general tendency towards using CRM

technologies more for analytics relating to *current* customers than to potential or past customers. It is possible that this is due to the realities of data availability. For most organizations, information about current customers is often much easier to obtain than information about potential or past customers. Information relating to potential customers typically requires that an organization has in place a system for capturing the outcomes of salespeople's customer prospecting activities, and for doing so in a way that will allow building a standardized database of prospective customers. Similarly, although information about past customers may remain in an organization's database, using CRM software purposefully for analysing past customers requires that the organization has policies and an employee reward system for doing so.

The results also show a general tendency for the sample organizations to use the technologies more for analytics relating to customer value-assessment and information tracking than to customer cost assessment. Again we suspect this is attributable to the relative ease and difficulty of obtaining the necessary information for these analyses. It appears that information needed for customer tracking and customer value assessment (that is, who the customers are, what they buy, how much they buy, what revenues they generate and so on) are relatively easier to obtain than information needed for customer cost determination (that is, how much it costs to keep each customer, how much it will cost to re-establish relationships with past customers and so on). This often requires more sophisticated accounting and cost allocation systems to accurately pinpoint the costs, systems that most Saudi organizations may not yet have in place.

For CRM-adopting organizations, the greatest benefits have accrued in the form of improved customer insight and employee productivity. Improved customer satisfaction

and revenue growth also score reasonably well. The dominance of improved customer insight as a CRM implementation benefit is not entirely surprising. One of the main impetuses to development of CRM application software was the need to help organizations better organize, manage and obtain strategic insights from the massive amounts of customer data generated through regular operations. Accordingly, evidence from other contexts suggest that many organizations use these systems primarily to improve operational efficiency.^{2,18} It may well be that this is also the main motivator for Saudi organizations in adopting formal CRM technology systems. In that case, greater attention might be given in CRM implementation to its potential to provide better customer insights. However, the present study did not examine motivations for CRM adoption. Future work is needed to uncover the actual nature of these motivations and to corroborate or abrogate this explanation.

Tests of hypotheses about the impact of organization size, industry sector and CRM system duration produced some unexpected results. Organization size has a statistically significant effect only on CRM adoption, as likelihood of adoption increases with organization size. This contradicts Ang and Buttle's finding that larger Australian organizations are no more likely than smaller ones to adopt CRM software.² However, they are consistent with Starkey and Woodcock¹⁷ and Ko *et al*²⁹ The lack of significant effects of size on usage or perceived benefits may be due to the fact that adopting organizations are all relatively large to start with.

On the impact of industry sector, there were no differences between service and non-service organizations in CRM adoption rates or specific uses of CRM technology. Here too the results contradict Ang and Buttle² but are consistent with Jayachandran *et al*²¹ However, service organizations are

less likely to reap cost reduction benefits from their CRM technologies than non-service firms. A plausible explanation may lie in the earlier arguments that some of the principles of modern CRM (for example, maintenance and mining of customer databases) have traditionally been part of the business processes of service firms. Thus, implementing CRM in a service organization is not likely to have the same *perceived* cost reduction impact as doing so in a non-service context. On the empirical question of whether industry sector impacts CRM awareness and perceptions, the interesting finding is that service organizations are less likely to view CRM as a strategy development tool than their non-service counterparts. An interesting question is whether this difference underscores structural differences between service and non-service organizations in their motivations for CRM adoption. Further work is needed.

LIMITATIONS AND FUTURE RESEARCH

The present study has some limitations that should be taken into account when interpreting the results or generalizing them beyond the study context. First, the CRM technology adoption rate in the study is relatively high when compared with adoption rates reported in the literature. For example, a 2001 study of US companies by Intellor Group, Inc. (cited in Anonymous³¹) found that only 14 per cent had accepted and deployed CRM initiatives, whereas a similar study by Gartner Group³² found that roughly 3 per cent of European companies surveyed had fully implemented a CRM project. The high adoption rate in the present study may be due to the stratified sampling approach adopted, and the particular sampling goal of including a large enough sub-sample of CRM adopters to enable assessment of other objectives of the research. This caveat is reinforced by the finding that larger organizations (which

were disproportionately sampled) are more likely to have formal CRM systems than smaller and medium-sized ones. Future studies may need to adopt a simple random sampling approach to establish the true rate of adoption among all Saudi organizations.

Second, three key CRM categories have been identified in the literature, namely operational, analytical and collaborative CRM. Although the CRM usage dimensions examined in the present study fall under some of the categories (particularly operational and analytical CRM), the study did not explicitly distinguish among the operational, analytical and collaborative aspects of CRM. Future studies might consider introducing this nuance into examination of CRM adoption in Saudi Arabia.

Third, with the widespread diffusion of the Internet and mobile communication technologies, operational CRM has itself evolved into two variants – eCRM (based on integrating web technologies and e-business applications with traditional CRM techniques) and mCRM or mobile CRM (based on linking eCRM with wireless tools such as mobile phones, PDAs or laptop computers).³³ The present study did not examine to what extent these technologies have been adopted by the surveyed organizations. Future studies may examine the level of adoption and usage of these technologies.

Fourth, IT's involvement in an organization's CRM can conceptually be at one of three levels³⁴ – (a) data are collected manually but IT is used for the analysis (IT-assisted CRM), (b) IT is used operationally for customer interaction (IT-automated CRM) and (c) IT is fully integrated into both operational and analytical aspects of the CRM system (integrated-CRM). Related to this is the distinction between legacy IT systems and adoption of specialized CRM technology. These were not explicitly examined in the present study. However, the questionnaire

tried to capture the adoption of specialized software systems by asking respondents to indicate whether or not they have a software system specifically dedicated to CRM. Nevertheless, an improved understanding of CRM in Saudi organizations can be gained by addressing these additional issues.

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