



# Adoption of CRM technology in multichannel environment: a review (2006-2010)

Adoption of  
CRM technology

445

Preeti Awasthi and Purnima S. Sangle

*National Institute of Industrial Engineering, Mumbai, India*

## Abstract

**Purpose** – The purpose of this paper is to review state-of-art literature on adoption of CRM technology, including the CRM in multichannel environment and provide a comprehensive view of insights gained in this area of research through the bibliography.

**Design/methodology/approach** – All together, nine databases were searched on the basis of four main descriptors which provided identification of 812 articles. A close review of the abstracts of these articles led to selection of 123 articles which were found relevant. Each of these articles was further reviewed and classified based on the main channel of CRM implementation. The articles were further classified in sub-categories under each main channel theme.

**Findings** – The selected articles were categorized under four main themes based on the channel – CRM, multichannel CRM, eCRM, mCRM. The articles in the CRM category were mainly focused on the strategic alignment along with research on increasing customer loyalty and use of data mining in CRM. Under the multichannel CRM theme the articles were further classified under eight categories – CRM (articles focusing on overall CRM implementation on multiple channels and related issues), eCRM (articles related to CRM implementation on online channel and its impact in multichannel environment), IT, Marketing, Sales, Service, Strategy, and Mixed (articles addressing two issues simultaneously: Marketing and IT).

**Originality/value** – The bibliography provides a comprehensive academic literature published between 2006 and 2010 covering all the channels of CRM implementation – traditional, electronic and mobile – along with studies specifically focused on issues dealing with multichannel environment.

**Keywords** Customer relationship management, Information technology, Multichannel, Traditional CRM, eCRM, Mobile CRM, Multiple channels

**Paper type** Literature review

## 1. Introduction

Customer relationship management (CRM) has been one of the greatest technological contributions to enterprises in the twenty-first century (Chao *et al.*, 2007). This technology surged into the market rapidly. Though CRM technologies have matured in the last decade, their implementation failure rates are high, ranging from 55 to 75 percent. Approximately 70 percent of CRM projects result in either losses or no bottom-line improvement in company performance, raising the issue of factors affecting their successful usage (Dimitriadis and Stevens, 2008). The main reason for the lack of success of CRM systems is stated to be the lack of adequacy of existing methodologies in approaching the CRM project implementation. It is so because the methodologies do not satisfactorily integrate and complement the strategic and technological aspects of CRM (Chalmeta, 2006).

Further in past few years, the extension of services on multiple channels has become one of the integral needs of CRM and efficient utilization of customer preferred channels is earnestly desired to avoid cannibalization effect of the multichannel environment



Business Process Management

Journal

Vol. 18 No. 3, 2012

pp. 445-471

© Emerald Group Publishing Limited

1463-7154

DOI 10.1108/14637151211232641

---

(Peterson *et al.*, 2010). Also it can be seen that in multichannel environment the role played by integration of channels in presenting the unified view of the customer is quite crucial as in today's era different expectations from customers can require different information and contact strategies for better customer centricity of the firm (Albesa, 2007). Along with this analyzing and understanding customer behavior and characteristics is the foundation of the development of a competitive CRM strategy, so as to acquire and retain potential customers and maximize customer value (Ngai *et al.*, 2009).

During the past decade research in CRM has attracted attention from both academia as well as industry. From technology driven view of CRM to strategic CRM, there seems to be a lot of evolution in this area. Though a number of researchers have attempted the review of literature in CRM from different perspectives and for different time periods (Romano and Fjermestad, 2001; Boon *et al.*, 2002; Ngai *et al.*, 2009) yet none of these researchers have focused on the evolved multichannel scenario of CRM specifically. Thus, looking at the present day environment for CRM a review of literature is attempted to highlight the issues regarding implementation of CRM on multiple channels. This is accomplished through a literature study of more than 123 peer-reviewed journal and conference publications published between 2006 and 2010. The papers published in various disciplines and journals were chosen for analysis and thus the selection was not just limited to papers published "only" on CRM as a technology solution. The purpose is to assist scholars with an insight not just into one notion of CRM field but also into complementary forms and channels for CRM in multichannel environment.

The review is expected to provide insights into the latest research done in CRM domain and explain degree of understanding achieved in different relevant areas. The purpose of this paper is threefold. The first aim is to develop a methodological framework for conducting an extensive literature study on a global phenomenon based on a good number of papers published spanning across different disciplines. The second purpose is to use this framework to gain an understanding of the current state of the CRM field across established disciplines. The third objective is, based on the literature review identifying areas of concern pertaining to multiplicity of the channels. Furthermore, the review is also done to understand the issues from organization as well as customers' perspective as in the successful implementation of CRM, both the organization itself as well as its customers play a crucial role.

The paper is organized as follows. In the following section we present existing literature reviews on CRM to position our own literature study, clarifying those questions which we would like to address. In Section 3 the research methodology for carrying out the literature review is presented. In Section 4 the findings of the review are discussed and finally suggestions for further research directions are outlined in Section 5. In the last section the conclusion and limitations are presented.

## 2. Previous literature reviews in CRM

This section is dedicated to extant literature reviews done in the field of CRM till 2010. The purpose of this section is to position our literature review with regard to existing knowledge about the CRM field, and to formulate specific research questions to be asked and issues to be discussed on the basis of our findings. After an individual presentation of the seven CRM literature review publications that we have been able to find, we will

discuss the methods used and the limitations of the publications with regard to the ability of the papers to give an overview of the CRM field from chosen perspective (Table I).

The first review on CRM which we were able to find was published in 2002 (Boon *et al.*, 2002). The purpose of this review of literature was to provide insight for conceptualization of requirement of CRM from organizational perspective. Taking the base of requirement engineering, the authors outlined three requirement streams of CRM for an organization – front end systems (linked to sales and marketing processes), data-handling technologies (linked to data warehousing and data mining techniques) and back end systems (linked to enterprise resource planning (ERP), supply chain management (SCM) and other enterprise wide applications). Referring CRM as a maze of cross discipline perspectives the authors concluded that an efficient and effective integration of backend, front-end and data-handling technologies is required along with enhancement of organizational capabilities to gain the strategic and economic benefits.

Another literature review was presented in 36th Hawaii International Conference on System Sciences (HICSS) by Ocker and Mudambi (2003). This review was primarily focused on assessment of organizational readiness for CRM and suggested three types of alignment (intellectual, social and technological). It was anticipated in the study that, at a minimum, an organization can benchmark its capacity for CRM against the proposed states of the alignment model. The model had nine readiness sub-categories namely strategy, structure and planning under intellectual dimension, culture stakeholder interactions, domain knowledge under social dimension and CRM application, IT capability, knowledge management under technology dimension.

Both of the above studies presented a completely theoretical and a very general appraisal of few selected studies of past to address the issues concerning to CRM implementation at that time. A methodological approach for conducting the literature review was not adopted. Moreover, the authors did not present any method for the selection of the publications included in the review which raises the question whether the studies actually provided the review of the literature in general or just an overview of the publications and disciplines randomly selected by the authors themselves. Along with this it seems that the publications were undertaken as an intermediary step in ongoing research on indicated topics instead of literature review being the main objective of the study.

The first systematic literature review found in CRM was done by Ngai (2005). This study presented a comprehensive review of CRM research conducted between 1992 and 2002. A total of 205 publications were included from 89 reputed academic journals. Each article was carefully reviewed, separately classified in five categories

Year	Author	Paper	Span	Central theme	
1	2001	Romano and Fjermestad	369	1984-2002	Electronic commerce CRM maturity
2	2002	Boon <i>et al.</i>	Not specified	Not specified	CRM conceptualization
3	2003	Ocker and Mudambi	Not specified	Not specified	Readiness of organization for CRM
4	2005	Ngai	205	1992-2002	Compressive CRM review
5	2007	Paulissen <i>et al.</i>	510	2000-2005	IS/IT and marketing
6	2009	Ngai	87	2000-2006	Data mining
7	2010	Verhoef <i>et al.</i>	Not specified	Not specified	Marketing/retailing

**Table I.**  
Earlier literature reviews

---

(general, marketing, sales, service and support, and IT and information systems (IS)) which were further subdivided into 34 sub-categories based on the subject areas. The study indicated that most of the publications at that time were in IT and IS domain (around 37.1 percent) while sales category had the fewest published articles (6.3 percent). It was also noted that there were relatively fewer articles discussing customer privacy and most of the studies detailed CRM under general concept, planning and strategy. The authors concluded with the remark for researchers to study more specific CRM functions like marketing, sales, service and support.

Before the above stated study, Romano and Fjermestad (2001) presented a review on electronic commerce customer relationship management (ECCRM). They conducted an exhaustive literature review of 369 articles published between 1984 and 2002. The goal of their study was to assess the status and maturity of the ECCRM as an emerging subfield of management information systems (MIS). There were 135 articles in 28 IS journals, 234 articles in eight major conferences indicating a sign of relative immaturity. Along with this it was found that articles were published in many different conference tracks, mini-tracks and themes implying that a broad range of MIS research community felt the research area important and worthy of publication. Though the study presented quite a robust methodology and an exhaustive review, it was centered on a specific single channel for CRM.

Paulissen *et al.* (2007) investigated CRM literature for a period of five years from 2000 to 2005. The authors systematically reviewed the IS as well as the marketing literature. They reviewed selected publications in structured way in contrast to the previous two studies and the categorization was done according to the different phases in the CRM lifecycle: adoption, acquisition, implementation, use and maintenance, evolution and retirement. The review presented revealed that less attention was given to implementation issues and to the evolution and retirement phases. Furthermore, a difference in attention was found between the IS and marketing literature: while researchers of the latter focused mainly on the adoption and use phases, IS researchers' attention was more evenly distributed over the lifecycle.

Another latest review by Ngai *et al.* (2009) presents classification of literature according to application of data mining techniques in CRM. It provides an academic database of literature between the periods of 2000 and 2006 covering 24 journals. Overall 900 articles were identified and reviewed for their direct relevance to applying data mining techniques to CRM out of which 87 articles were subsequently selected, reviewed and classified. Each of the 87 selected papers was categorized on four CRM dimensions (identification, attraction, retention and development) and seven data mining functions (association, classification, clustering, forecasting, regression, sequence discovery and visualization). Papers were further classified into nine sub-categories of CRM elements under different data mining techniques based on the major focus of each paper. Of these, most were related to one-to-one marketing and loyalty programs, respectively. On the other hand, classification and association models were the two commonly used models for data mining in CRM. With respect to the research findings, the authors suggested more research in the customer development domain. The review also emphasized that in order to maximize an organization's profits through CRM, policy makers need to both retain valuable customers and increase the lifetime value of the customer.

The latest review found in CRM is published by Verhoef *et al.* (2010) in retailing context. This is the first review which has focused on multichannel

---

environment of CRM. Contrary to previous reviews this study elaborated on current knowledge from the academic marketing literature. The publications were discussed under a conceptual model of six components – data, data utilization, marketing actions, customer outcomes, firm value and CRM implementation. The authors indicated that the enormous amount of customer data in retailing environments and the integration of channels, which now allow observation of online search behavior, would create new research challenges. The study concluded with direct research questions for future investigations like how do customers react to the increasing availability and use of customer data in retailing? What is the contribution of customer metrics in the valuation of a growing versus a mature firm? Which factors determine the successful application of CRM within firms? Verhoef *et al.* (2010) did not present the method for selection of the publications included in the review.

It can be noticed that none of the reviews were conducted with a key focus on multiplicity of the channels for CRM implementation except the one presented by Verhoef *et al.* (2010) which again had main theme centered on data utilization in retailing context. Additionally a defined time frame of 2006-2010 is not taken by any of the studies which leave the CRM field with a knowledge gap about publications published after 2005. Additionally, none of the reviews provide an overview of the total number of academic journal/conference publications regardless of and/or across research disciplines, leaving a knowledge gap about the CRM implementation on different channels and issues related to it. Our review sets out to fill this gap and aims at providing an overview of the CRM field by analyzing multichannel CRM publications from 2006 to 2010.

### 3. Review methodology

To be able to gain an overview of a research field and identify the research gaps, a structured review methodology is needed. The methodology is divided into two phases. First phase is the determination of review scope relevant source material search and selection of papers to include in the review, and second phase is the classification of the papers.

#### 3.1 Phase I: selection of articles

Since CRM is an interdisciplinary topic relevant articles are published in a wide variety of domains. Furthermore, new channels of CRM are still emerging, thus most of the contemporary research is published in conference proceedings. Therefore, we included both academic journal papers from various disciplines and conference proceedings in our search. Despite a potentially lower quality of the conference proceedings, they are informative for charting the current research topics in this rapidly progressing area of research, and for identifying gaps to be covered by future research. It is also expected that the best conference papers would evolve to journal articles and thus serve as leading indicators for the focus of future journal publications. From the papers identified we also went backwards by reviewing other work of the authors as well as citations in the papers (Webster and Watson, 2002). To ensure the quality of the conference papers we focused on a few established conferences in the fields of IS, electronic commerce and mobile business that are listed in Table III.

An initial keyword search for articles containing any of the terms in phrase “customer relationship management” revealed more than 14, 10,000 articles reported

in published literature. Brief review of initial listing indicated the mention of this phrase in different domains for myriad purposes and also the articles had a research objective other than CRM itself. To increase the relevance, exact phrase “customer relationship management” was searched in the next iteration. The search revealed 51,100 articles published in last two decades. This search result also included previous literature reviews done in CRM area. To increase the focus more on latest developments and the gaps, without leaving any important piece of work, it was decided to appraise the results of former literature reviews in CRM first. We could find seven such studies (Table I) with latest review published in year 2010 (Verhoef *et al.*, 2010). After analyzing these review studies (Romano and Fjermestad, 2001; Boon *et al.*, 2002; Ocker and Mudambi, 2003; Ngai, 2005; Paulissen *et al.*, 2007; Ngai *et al.*, 2009; Verhoef *et al.*, 2010) we could draw two conclusions:

- (1) Though CRM literature published from 1984 to 2006 was reviewed from a number of perspectives, yet there was a paucity of literature on the developments happened from 2006 to 2010.
- (2) The latest reviews conducted mainly focused on very specific areas like data mining (Ngai *et al.*, 2009) and retailing (Verhoef *et al.*, 2010) leaving a major development of multiple channels untouched.

Though articles (Payne and Frow, 2004, 2005; Neslin *et al.*, 2006; Cassab and MacLachlan, 2009) mentioned the advantages, strategies and challenges related to multiple channels, any review on such topic was not found. This guided us to narrow the time span of review to five years, i.e. from 2006 to 2010 and center our attention on multiplicity of the channels for CRM.

Furthermore, keeping up with the latest technological developments in the field of CRM, three main channels for customer contact are reported in the research, i.e. traditional CRM channel (involving mailers, telephone, facsimile, telex, and call center contact), electronic CRM (web enabled call centers, e-mail, the internet, and interactive digital television) and mobile CRM (mobile telephony, short message service and text messaging, wireless application protocol, and 3G mobile services) (Payne and Frow, 2005; Neslin *et al.*, 2006). Thus, to have a comprehensive understanding of the extant literature four main descriptors were selected:

- (1) customer relationship management;
- (2) electronic customer relationship management (eCRM);
- (3) mobile customer relationship management (mCRM); and
- (4) multichannel customer relationship management.

The literature was also searched based on abbreviations like CRM, eCRM, mCRM, multichannel CRM as there was a possibility of mention of these abbreviations in keywords list.

As it is evident that the nature of research in CRM is difficult to confine to specific disciplines, the relevant materials are scattered across various academic discipline like business and management, IS and IT, service marketing, customer strategy management, eCRM, business intelligence and knowledge discovery. Consequently, the following online journal databases were searched to provide a comprehensive bibliography of the academic literature on CRM technology published from 2006 to 2010:

- 
- ABI/INFORM Complete.
  - ACM Digital Library.
  - Business Source Complete.
  - EBSCO Open Access Journals.
  - Emerald Management Xtra.
  - IEEE/IET Electronic Library.
  - ProQuest Science Journals.
  - ScienceDirect.
  - Ingenta Journals.

After removing the duplicate entries from the obtained lists the search originally produced approximately 812 articles. This sudden reduction in the final list of research papers can be explained by the fact that, there were many papers which made a reference to CRM but did not have CRM as the primary research topic. Master's and doctoral dissertations and unpublished working papers were excluded, as academics and practitioners alike most often use journals to acquire information and disseminate new findings designating journals as the highest level of research (Nord and Nord, 1995). Book chapters were also excluded from the search as they are not peer reviewed except two cases where the published literature is as such very scarce. The search after eliminating non-relevant papers finally yielded 123 papers. In this way the current study is, a census study as each unit of the defined population is reviewed. Therefore, the findings can be generalized to the defined population. However, the findings cannot be generalized to the larger anthology of CRM literature. Further, a surge in research publications with respect to CRM can be observed in the online databases and, therefore, the findings will not hold valid in the times to come.

### *3.2 Phase II: inter-rater reliability and classification*

In the second phase of the review papers were classified into the four categories i.e.:

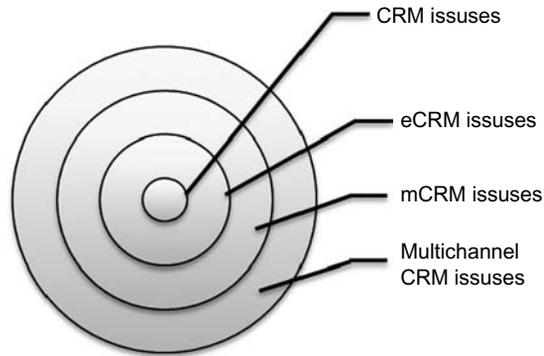
- (1) CRM;
- (2) electronic CRM (eCRM);
- (3) mobile CRM (mCRM); and
- (4) multichannel CRM (Figure 1).

according to the prominence of the theme established in the paper and communication channel used for CRM.

These categories were taken based on the description given by leading authors in CRM (Sinisalo *et al.*, 2006; Kumar *et al.*, 2009; Schierholz *et al.*, 2007; Verhoef *et al.*, 2010b). While any classification system can be challenged for levels of comprehensiveness, it was felt that the breadth of perspectives covered by the four categories was adequate to develop a sound understanding of CRM. The framework, therefore, provides a method to check for logical links and connections to verify consistency (or the lack thereof) amongst the various research activities within CRM.

The authors initially scanned the keyword list and abstracts of allotted articles and classified them under four categories. Further to ensure robustness, the classification

**Figure 1.**  
Framework for the  
classification of literature

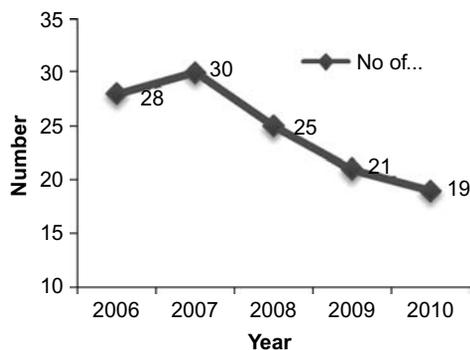


was reviewed by a group of four members including a research scholar, two professors and an industry expert having rich practical experience in the area. To ensure high inter-rater reliability the results were compared and discussed till a consensus was achieved. After the classification process, the whole group discussed articles which individual reviewers were uncertain of, until agreement was reached.

#### 4. Findings from literature review

As the previous section explained, the literature search following the established criteria ended up in a classification of 123 publications. A year wise analysis showed that maximum numbers of articles were published in year 2007. After 2007 though a decline is seen in number of publications, there was not much difference in numbers (Figure 2). Figure 3 shows the number of papers that address topics in four main categories of themes – CRM as an overall category, eCRM category covering articles related to online channel, mCRM category encompassing CRM related issues through mobile channel and papers specifically addressing multichannel issues. As a reminder, 31 reviewed papers addressed various issues particularly related to multichannel environment in detail. These issues had eight subject areas namely CRM, eCRM, IT, marketing sales, service, strategy and mixed (Figure 4).

The articles in were also analyzed to find out which journal and conferences had publications related to more than one category of classification. It was observed that 16 journals (Figure 5) and three leading conferences (Figure 6) – HICSS,



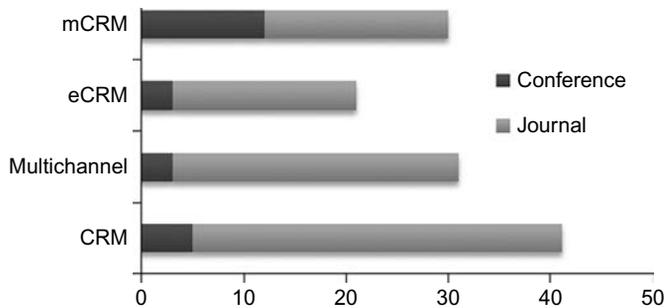
**Figure 2.**  
Number of CRM  
publications per year

Bled eConference, Pacific Asia Conference on Information Systems (PACIS) published articles on more than one categories mentioned in Figure 3 (i.e. CRM, eCRM, mCRM and multichannel CRM).

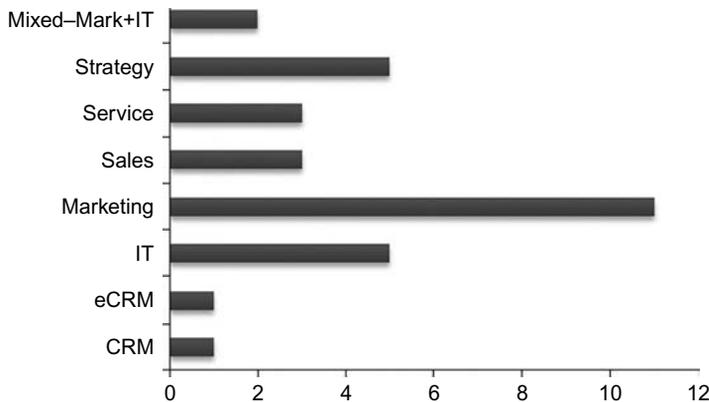
The classification in Figure 3 indicates that CRM has the maximum number of studies with 41 publications, followed by 31 papers focusing on multichannel environment with a close reach of mCRM having 30 papers and 21 studies in eCRM. The studies in CRM category encompassed different areas and channels but the main focus was on CRM as a whole set of activities. The papers in rest of the three categories, i.e. multichannel, eCRM, mCRM had corresponding category as the main theme of study and dealt with the issues pertaining to that particular category.

Some articles presented interaction of many areas simultaneously, which may be important to discover how the one area influences the other and thus such papers were classified in CRM category. A close look at the numbers reveals that in last four years the research interest has shown almost equally in all the three different channels of CRM – traditional, electronic and mobile and researchers have also taken the multiplicity of the channels for their studies.

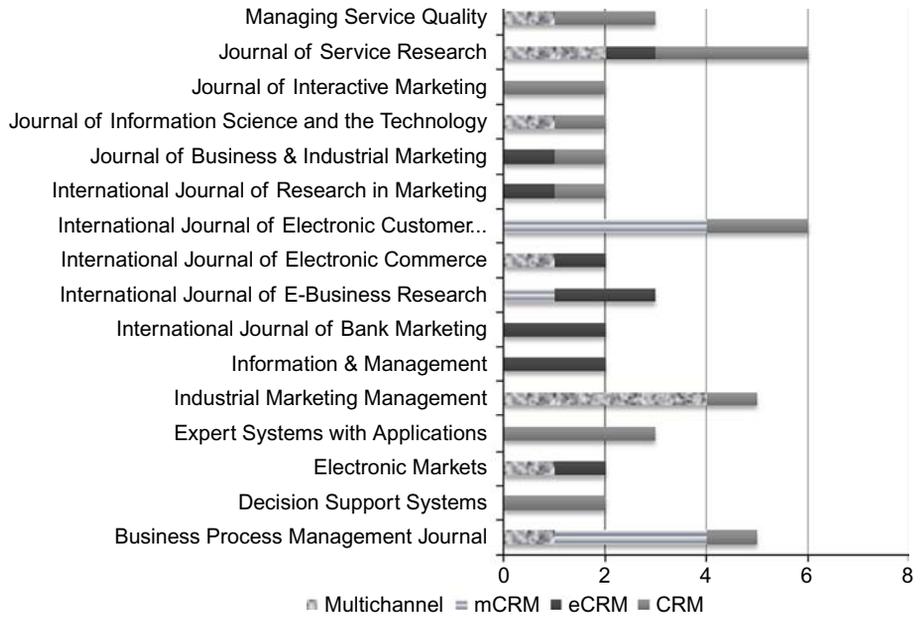
In addition to the classification of articles based on their main focus area, this literature review also revealed how many papers have been published in journals, as opposed to conference proceedings. The summary is shown in Figure 3. Of all the papers reviewed, 31 were published in conference proceedings and 92 in journals. Maximum journal publications were in CRM in general. The central theme of these



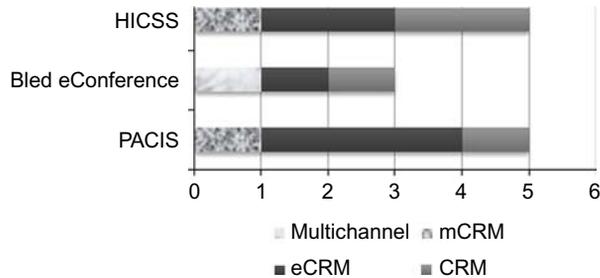
**Figure 3.** Article distribution in journal and conferences



**Figure 4.** Distribution of articles according to objectives in multichannel environment



**Figure 5.**  
Journals publishing  
articles of multiple  
categories



**Figure 6.**  
Conferences publishing  
articles of multiple  
categories

publications was mostly driven towards management planning and strategy along with utilization of IT tools for making better customer segmentation and marketing strategies. Few other publications in same area were focused on performance, process and service quality measurement.

Further analysis revealed that 64 publications were based on empirical research methods; while 55 were conceptual and rest four were reviews (Figure 7). CRM and multichannel themes had equal number of empirical and conceptual studies. It can be seen that most of the empirical studies were done in CRM and eCRM categories, which shows a little more maturity of the subfield. The papers on eCRM theme were mostly empirical verifications of proposed constructions (17 in no) with only four conceptual studies. On the other hand the papers in mCRM theme had nearly equal number of conceptual (17) and empirical studies (13).

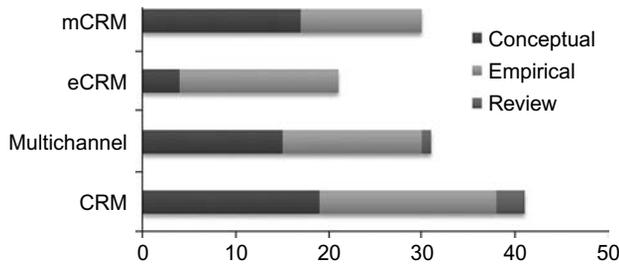
The analysis of all the publications further revealed five main perspectives of research:

- (1) organizational;
- (2) customer’s view;
- (3) conceptual framework;
- (4) future research directions; and
- (5) market view.

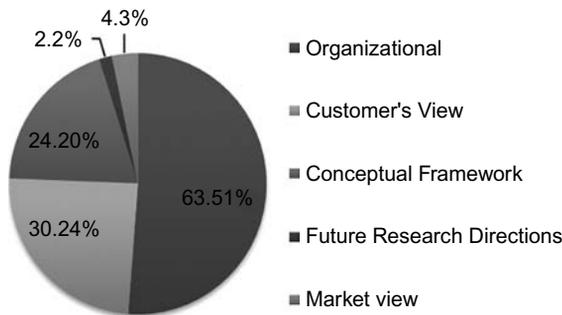
Among all the publications the organizational perspective dominated (51 percent) followed by 24 percent studies based on the customer perspective (Figure 8). A good number of studies (20 percent) elaborated frameworks with different objectives to be achieved. Four studies (3 percent) presented the market view presenting the various opportunities in the market along with two studies presented the directions for future research.

A detailed analysis of papers in multichannel theme showed the distribution of articles according to objectives from various subject areas (Figure 4). The majority of articles were related to marketing objectives (11 publications) while sales and services saw the fewest published articles (three in each). IT and strategy related issues were addressed equally (five in each subject area). While two publications addressed both marketing and IT related issues together, one more paper emphasized over the use of CRM systems in multichannel environment and other empirically tested the impact of multichannel integration on customer trust (Figure 9).

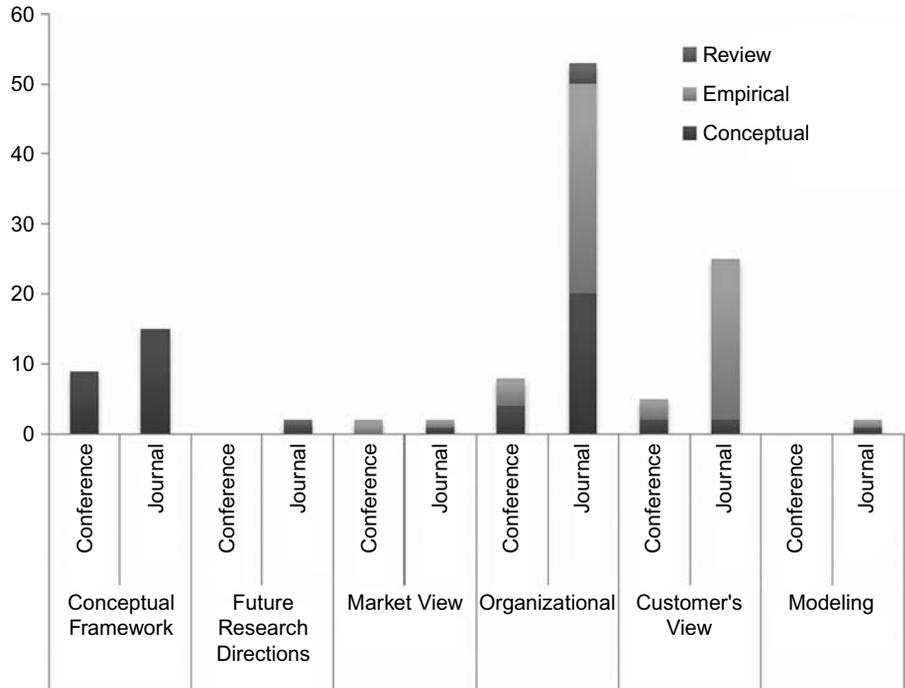
Table II presents the number of articles by journal and year. The total number of journal publications was found to be 92 in 61 different journals. The publications



**Figure 7.**  
Article distribution by approach



**Figure 8.**  
Distribution of articles based on perspective of study



**Figure 9.**  
Detailed distribution of  
articles based on  
perspective

appeared in wide range of journals covering purely IS, marketing, finance, project management, retail and electronic commerce topics, etc. which illustrates the breadth of the research in this area. More than 51 percent of the publications appeared in 15 major journal (Figure 10) namely *Journal of Service Research*, *International Journal of Electronic Customer Relationship Management*, *Business Process Management Journal*, *Industrial Marketing Management*, *Expert Systems with Application*, *International Journal of E-business Research*, *Decision Support Systems*, *Electronic Markets*, *International Journal of Bank Marketing*, *International Journal of Research in Marketing*, *Journal of information Science and Technology*, *Journal of Interactive Marketing*, *Managing Service Quality*, *Journal of Business and Industrial Marketing*.

Table III presents the publication figures by year and conference. The analysis reveals that 31 different refereed conference proceedings have published articles on CRM in last four years. HICSS, PACIS and Bled eConference were the venues with the most articles to date (Figure 11), along with a number of new conferences coming up with special focus on various channels of CRM implementation.

The next observation that can be made from Table II CRM research field is an interdisciplinary field as suggested by Ngai *et al.* (2009). Articles are published not only in single functional discipline but also an interaction of IT (as enabler) and other functional disciplines can be seen in the research objectives. Articles published in non IS journal accounted for 41 percent of total publications.

Further following the previous literature reviews (Romano and Fjermestad, 2001; Ngai *et al.*, 2009), it seemed worthwhile to examine the frequency of research

Journal	2006	2007	2008	2009	2010	Total
<i>Business &amp; Information Systems Engineering</i>					1	1
<i>Business Horizons</i>		1				1
<i>Business Process Management Journal</i>	1	4				5
<i>Contemporary Management Research</i>		1				1
<i>Database Marketing &amp; Customer Strategy Management</i>			1			1
<i>Decision Support Systems</i>	2					2
<i>Electronic Commerce Research</i>		1				1
<i>Electronic Markets</i>				2		2
<i>European Journal of Marketing</i>	1					1
<i>Expert Systems with Applications</i>				3		3
<i>Global Business Review</i>			1			1
<i>Industrial Management &amp; Data Systems</i>					1	1
<i>Industrial Marketing Management</i>		3	1	1		5
<i>Information &amp; Management</i>		2				2
<i>Information and Software Technology</i>				1		1
<i>Information Management &amp; Computer Security</i>				1		1
<i>Information Systems and E-Business Management</i>	1					1
<i>International Journal of Bank Marketing</i>	1	1				2
<i>International Journal of Business Environment</i>			1			1
<i>International Journal of Business Information Systems</i>			1			1
<i>International Journal of Business Innovation and Research</i>					1	1
<i>International Journal of E-Business Research</i>		3				3
<i>International Journal of Electronic Business</i>					1	1
<i>International Journal of Electronic Commerce</i>			1	1		2
<i>International Journal of Electronic Customer Relationship Management</i>		3	2		1	6
<i>International Journal of Electronic Finance</i>	1					1
<i>International Journal of Engineering Studies</i>				1		1
<i>International Journal of Management and Enterprise Development</i>		1				1
<i>International Journal of Networking and Virtual Organizations</i>					1	1
<i>International Journal of Project Management</i>					1	1
<i>International Journal of Research in Marketing</i>		1		1		2
<i>International Journal of Retail &amp; Distribution Management</i>		1				1
<i>International Journal of Social Sciences</i>			1			1
<i>International Journal of Software Engineering and Knowledge Engineering</i>					1	1
<i>International Journal of Technology Marketing</i>	1					1
<i>Irish Marketing Review</i>	1					1
<i>Journal of Academic Marketing Science</i>					1	1
<i>Journal of Business &amp; Economics Research</i>			1			1
<i>Journal of Business &amp; Industrial Marketing</i>	1				1	2
<i>Journal of Database Marketing &amp; Customer Strategy Management</i>				1		1
<i>Journal of Direct, Data and Digital Marketing Practice</i>					1	1
<i>Journal of Electronic Commerce in Organizations</i>			1			1
<i>Journal of Information Science and the Technology</i>	1	1				2
<i>Journal of Interactive Marketing</i>				1	1	2
<i>Journal of Marketing Communications</i>	1					1
<i>Journal of Personal Selling &amp; Sales Management</i>			1			1

(continued)

**Table II.**  
Distribution of articles in  
journal and year

Journal	2006	2007	2008	2009	2010	Total
<i>Journal of Product &amp; Brand Management</i>			1			1
<i>Journal of Service Management</i>				1		1
<i>Journal of Service Research</i>	4	1			1	6
<i>Journal of Services Marketing</i>	1					1
<i>Journal of Strategic Marketing</i>		1				1
<i>Journal of Systems and Software</i>	1					1
<i>Managing Service Quality</i>			3			3
<i>Marketing Intelligence &amp; Planning</i>				1		1
<i>Marketing Science</i>	1					1
<i>MIS Quarterly</i>	1					1
<i>Omega</i>		1				1
<i>Research Journal of International Studies</i>					1	1
<i>Technology &amp; People</i>			1			1
Total						92

Table II.

methodologies within each type. The various methods used for empirical studies as listed below (Figure 12, Table IV):

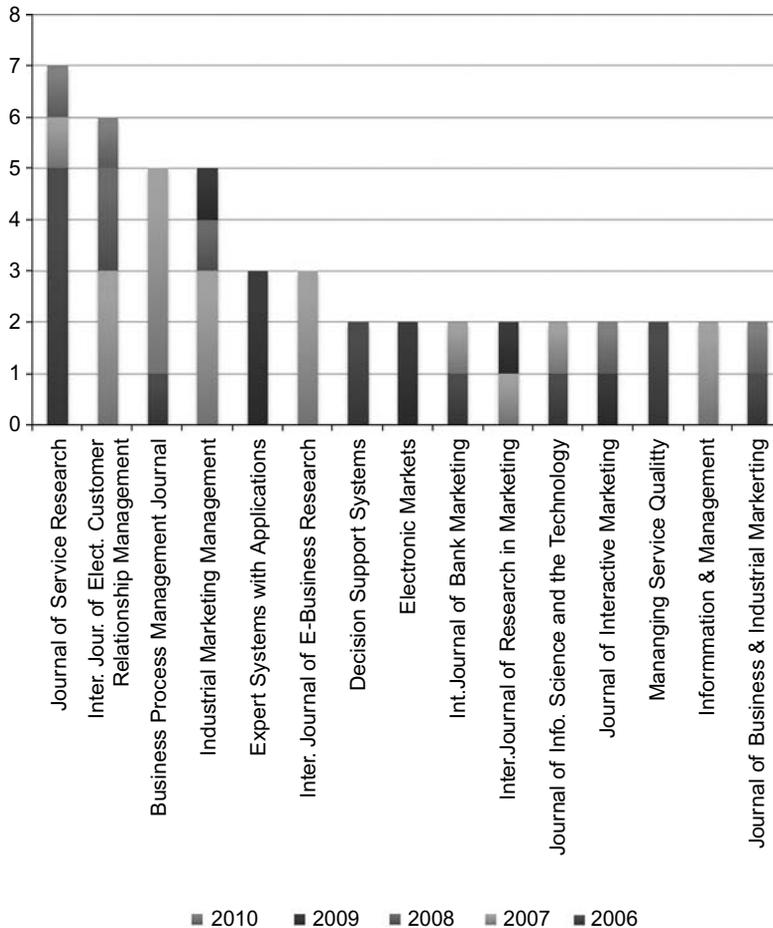
- interviews;
- focus groups;
- open-ended web surveys;
- quantitative surveys;
- experiment/simulation; and
- design research.

## 5. Discussion

The review of extant literature points out that a gamut of issues (Chen and Wang, 2006; Burr *et al.*, 2007; Leem and Hwang, 2008; Bala, 2009; Yong, 2010) has been addressed regarding the implementation of CRM in organizations. Under CRM category a common trend observed was the strategic alignment of all the inter-organizational functions towards an overall customer centric strategy. Similarly the studies under multichannel category (Neslin *et al.*, 2006; Peterson *et al.*, 2010) and eCRM (Wu and Hung, 2009) also laid emphasis on the leveraging the benefits from availability of multiple channels by designing an overall CRM strategy and aligning channel specific strategies to overall strategic aim.

Moreover, out of many organizational functions, studies were published more on marketing (Bohling *et al.*, 2006; Chen *et al.*, 2007), succeeded by adoption of CRM technology (Richard *et al.*, 2007). A large number of studies also focused on application of data mining techniques on customer data gathered through different channels (Sharma *et al.*, 2008; Liou, 2009) and how information generated through data mining can be utilized for better customer segmentation (Chang *et al.*, 2009) and understanding of customer behavior (Ranjan and Bhatnagar, 2009).

Under the category of eCRM it was found that authors have identified various issues such as managerial discretion (Coltman and Dolnicar, 2007), change management and user resistance management (Lin *et al.*, 2007) leading to an overall



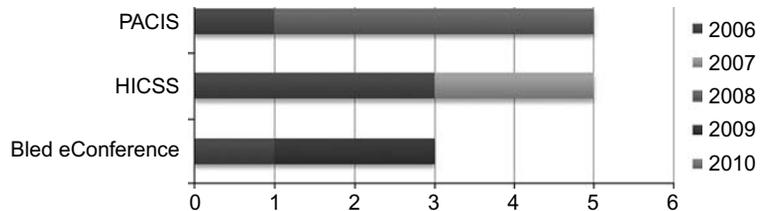
**Figure 10.** Distribution of articles in major journals

successful or failed implementation (Paul *et al.*, 2008; Kimiloglu and Zarali, 2009) yet focus on the issues generated due to dis-synergy between the electronic and traditional channel is lacking. On the customer's end factors impacting the customer satisfaction from electronic channel (Chen *et al.*, 2007; Wang and Head, 2007; Shun *et al.*, 2008) have been studied in online purchasing and banking contexts (Laukkanen, 2007).

Further majority of the studies under mobile CRM category were mainly found to be centered on the basic frameworks of implementation and possibilities present in the market for mobile channel. Studies were based on single company cases (Liljander *et al.*, 2007; Bodendorf and Schobert, 2007; Chen and Ching, 2007) as well as article on formulation of mobile CRM strategy was also published (Schierholz *et al.*, 2007). Leaving the challenges regarding the initial implementation initiatives (Sinisalo and Karjaluoto, 2007; Sinisalo *et al.*, 2007) and objectives (Hartel *et al.*, 2006) other issues related to technological implementation of CRM on mobile channel were not discussed in other study. On the customer side also the studies related to the issues impacting the

Conference	No. of articles
Advances in Electrical Engineering and Computational Science	1
Americas Conference on Information Systems	1
Bled eConference	3
HICSS	5
Information Resources Management Association (IRMA) Conference	1
Inter. Conf. on Future Trends of Distributed Computing Sys.	1
Inter. Conf. on Information and Communication Technologies	1
Inter. Conf. on Information Sciences and Interaction Sciences	1
Inter. Conf. on Intelligent Comp. Tech. and Automation	1
Inter. Conf. on Service Systems and Service Management	1
Inter. Conf. on Wireless Comm. Networking and Mobile Computing	1
Inter. Sym. on Web Information Systems and Applications	1
Inter. Conf. on Information Technology Interfaces	1
Inter. Conf. on Computer Research and Development	1
Inter. Conf. on Digital Ecosystems and Technologies	1
Inter. Conf. on E-Business and E-Government	1
International Conference on Global E-Security	1
International Conference on Technology and Innovation	1
International Federation for Information Proceeding	1
PACIS	5
SKISE Spring Conference	1
Total	31

**Table III.**  
Distribution of article in various conferences



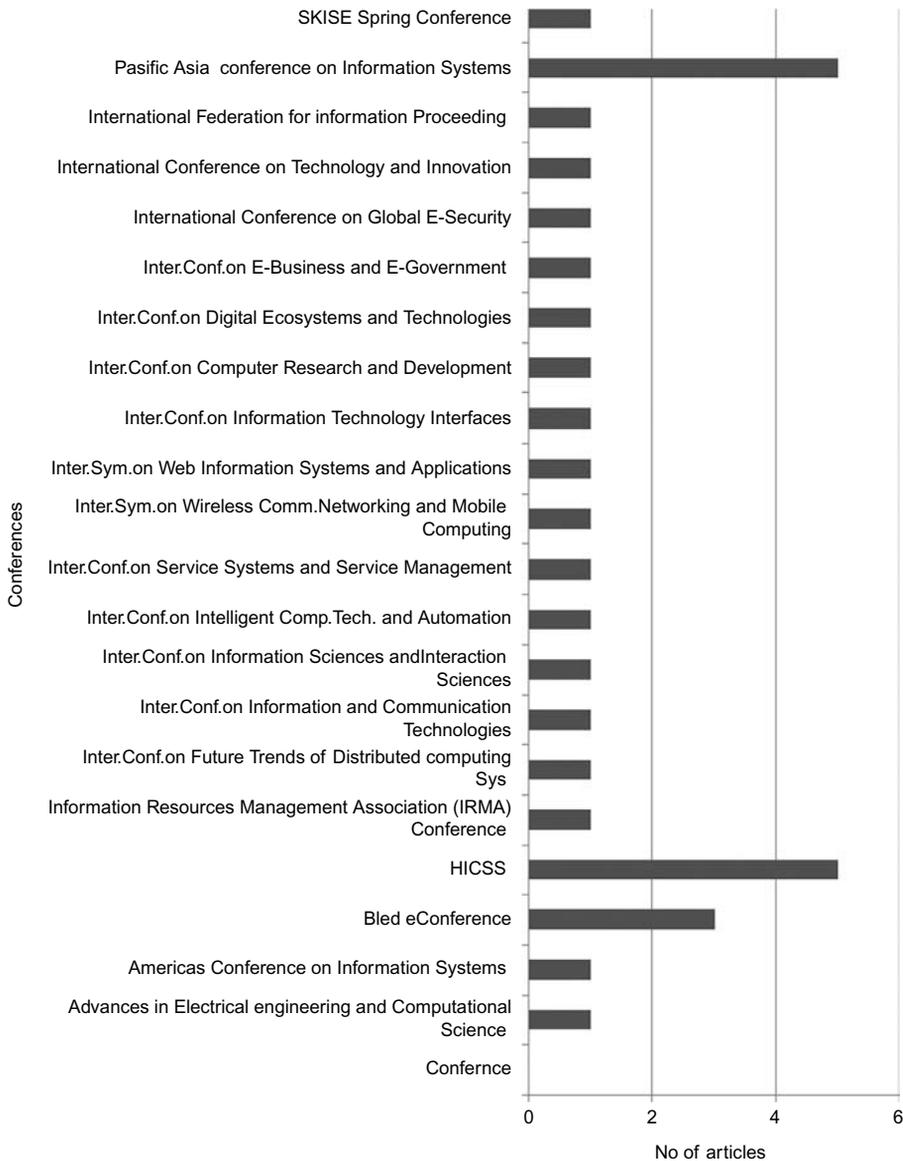
**Figure 11.**  
Articles in three major conferences on year basis

customer decision to prefer mobile channel over other CRM channels were also found to be scarce (Liljander *et al.*, 2007).

## 6. Future research directions

As the CRM technology has gradually progressed to suit different channels, organizations have also implemented their solution on different channels in a phased way. Also various CRM vendors have followed different technological standards for developing their CRM solutions. It was found from the literature that though multiple systems need to communicate to each other through a proper integration (Torkzadeh *et al.*, 2006; Batenburg and Versendaal, 2007) there was a lack of study on actual technological implementation issues arising due to the presence of multiple channels and their integration requirements.

Another gap found concerning the CRM technology adoption was that though a number of studies talked about the integration of IT implementations with the marketing strategy (Bohling *et al.*, 2006; Osarenkhoe, 2006; Piercy, 2009) and



**Figure 12.** Distribution of article in various conferences

formulation of an overall CRM strategy (Meng *et al.*, 2008) the detailed studies discussing issues related to inter-functional alignment challenges are lacking. Further in the presence of many channels the asymmetry created by the various forms of information available on different channels also poses integration needs. Such needs may be generated due to the different information available regarding the product or the service being provided (Dimitriadis and Stevens, 2008) or separate views of the customer information on various channels (Plé, 2006). There was a paucity of literature on how to

Theme	Articles
CRM	Greve and Albers (2006), Chen and Wang (2006), Bohling <i>et al.</i> (2006), Osarenkhoe (2006), Smith (2006), Torkzadeh <i>et al.</i> (2006), Ramaseshan <i>et al.</i> (2006), Kumar <i>et al.</i> (2006), Javalgi <i>et al.</i> (2006), Chalmeta (2006), Sun (2006), Plakoyiannaki and Saren (2006), Teo <i>et al.</i> (2006), Batenburg and Versendaal (2007), Tromp <i>et al.</i> (2006), Richard <i>et al.</i> (2007), Meng <i>et al.</i> (2008), Sangle and Verma (2008), Wang and Swanson (2008), Soch and Sandhu (2008), Jaiswal (2008), King and Burgess (2008), Liou (2009), Bala (2009), Ngai <i>et al.</i> (2009), Chang <i>et al.</i> (2009), Piercy (2009), Becker <i>et al.</i> (2009), Kim (2010), Haq <i>et al.</i> (2010), Verhoef <i>et al.</i> (2010a), Ernst <i>et al.</i> (2010), Lim and Khoo (2010), Cunha <i>et al.</i> (2010), Lin <i>et al.</i> (2010), Zhongke (2010), Beldi <i>et al.</i> (2010), Yong (2010), Greenberg (2010), Gneiser (2010) and Habul and Pilav-Velic (2010)
Multichannel CRM	Kauffman <i>et al.</i> (2009), Valos (2008), Leem and Hwang (2008), Cassab and MacLachlan (2009), Pant and Wagner (2006), Neslin <i>et al.</i> (2006), Sharma and Mehrotra (2007), Teo and Liu (2007), Verhoef <i>et al.</i> (2010b, 2007), Ernst <i>et al.</i> (2010), Moutot and Bascoul (2008), Schemm <i>et al.</i> (2006), Duran (2010), Cruz <i>et al.</i> (2010), Falk <i>et al.</i> (2007), Yaning <i>et al.</i> (2008), Ma <i>et al.</i> (2009), Dimitriadis and Stevens (2008), Albesa (2007), Plé (2006), Ali and Brooks (2009), Chevrin <i>et al.</i> (2006), Peterson <i>et al.</i> (2010), Schierholz <i>et al.</i> (2006a), Rosenbloom (2007), Hughes (2006), Sousa and Voss (2006), Müller-Lankenau <i>et al.</i> (2006), Wilson and Daniel (2007) and Neslin and Shankar (2009)
eCRM	Chen and Vargo (2008), Kimiloglu and Zarali (2009), Padmanabhan <i>et al.</i> (2006), Sigala (2006), Kennedy (2006), Lin <i>et al.</i> (2007), Tsai and Huang (2007), Burr <i>et al.</i> (2007), Coltman and Dolnicar (2007), Wang and Head (2007), Chen <i>et al.</i> (2007), Greci and Watts (2007), Kim <i>et al.</i> (2008), Horppu <i>et al.</i> (2008), Harrigan <i>et al.</i> (2008), Shun <i>et al.</i> (2008), Matti (2008), Wu and Hung (2009), Hadaya and Cassivi (2009), Simons <i>et al.</i> (2009) and Hwang (2009)
mCRM	Faed <i>et al.</i> (2010), Silberer and Schulz (2010), Reinhold and Alt (2009), Kumar <i>et al.</i> (2009), Ranjan and Bhatnagar (2009, 2010), Sanayei and Mirzaei (2008), Hsu and Lin (2008), Steimer and Steimer (2008), Alawairdhi <i>et al.</i> (2008), Cho (2008), Basole (2007), Chen and Ching (2007), Akkanen <i>et al.</i> (2007), Sinisalo <i>et al.</i> (2007), Schierholz <i>et al.</i> (2007), Valsecchi <i>et al.</i> (2007), Sinisalo and Karjaluto (2007), Bodendorf and Schobert (2007), Liljander <i>et al.</i> (2007), Chen and Ching (2006), Hartel <i>et al.</i> (2006), Schierholz <i>et al.</i> (2006b), Le and Zhang (2009), Unnithan <i>et al.</i> (2007), Bhatnagar and Ranjan (2010), Lee <i>et al.</i> (2008) and Sinisalo <i>et al.</i> (2006)

**Table IV.**  
Bibliography of the  
articles classified under  
four main themes

resolve the impact created by this asymmetry on customer's expectations in the presence of multichannel environment of CRM 2.0.

Along with this the evolution of CRM 2.0 is indicating the dominance of social customer. The future research studies may also take up the opportunity to explore deeper customer insight into the how the customers utilize the unstructured information available on multiple social channels to take a decision. The need to tap the customer knowledge about the products and services that he/she is using has been magnified exponentially due to the willingness of the customer to converse openly through social media.

Along with this there are few more questions which need to be addressed for example:

- How can the process of channel integration be reviewed during the post-implementation phase.
- How can various channels of CRM be integrated with ERP and SCM systems so that better cooperation and collaboration can be fostered across the entire value chain.

- Are there any better practices for channel integration and whether these practices are applicable for all the sectors or specific set of practices should be developed for various sectors.

## 7. Conclusion and limitations

In this study we attempted to conduct an extensive literature review on CRM in multichannel environment based on articles published in a wide variety of journals between 2006 and 2010. To be able to conduct such a review we developed a classification framework, consisting of four categories – general CRM (comprising of all the issues of CRM), eCRM (issues specifically related to online channel), mCRM (issues related to mobile channel) and multichannel CRM (issues related to implementation of CRM on multiple channels simultaneously). Using this framework for conducting the comprehensive literature review provided us with an overview of the CRM research field regardless of research disciplines, research topics and research traditions. It was found that the focus on CRM has grown in marketing domain with strategic alignment at various levels being the prime concern. Another indication found was that the issues (both technical and nontechnical) arising due to the multiplicity of the channels for CRM are yet to be addressed with a support of empirical studies.

Though an effort has been made in the current study to provide an extensive overview of the literature published on multichannel CRM in the selected period, i.e. between 2006 and 2010 it might have been affected by some limitations. First, the study was conducted for a limited period of time, i.e. considering only last five years. Therefore, in cases where only a limited amount of research on a certain topic could be revealed, it could be possible that this topic had already been covered in the past. Furthermore, though a variety of journals were considered it may occur happen that certain phases had been covered to a greater extent in other journals or conferences or in trade publications.

## References

- Akkanen, J., Demeter, H., Eppel, T., Ivanfi, Z., Nurminen, J.K. and Stenman, P. (2007), "Reusing an open source application – practical experiences with a mobile CRM pilot", in Feller, J., Fitzgerald, B., Scacchi, W. and Sillitti, A. (Eds), *IFIP International Federation for Information Proceeding, Open Source Development, Adoption and Innovation*, Vol. 234, Springer, Boston, MA, pp. 217-22.
- Alawairdhi, M., Yang, H. and AL-Akhras, M. (2008), "BlueCRM: a new trend of customer relationship management systems", *12th IEEE International Workshop on Future Trends of Distributed Computing Systems, Kunming*, pp. 226-32.
- Albesa, G. (2007), "Interaction channel choice in a multichannel environment, an empirical study", *International Journal of Bank Marketing*, Vol. 25 No. 7, pp. 490-506.
- Ali, M. and Brooks, L. (2009), "Cultural aspects of multi-channel customer management: a UK case study", *Proceedings of the Fifteenth Americas Conference on Information Systems, San Francisco, CA*, pp. 21-32.
- Bala, P.K. (2009), "Data mining for retail inventory management", *Advances in Electrical Engineering and Computational Science*, Vol. 39, pp. 587-98.
- Basole, R.C. (2007), "The emergence of the mobile enterprise: a value-driven perspective", *Sixth International Conference on the Management of Mobile Business (ICMB 2007), Toronto, July 9-11*, p. 41.

- Batenburg, R. and Versendaal, J. (2007), "Business/IT-alignment for customer relationship management: framework and case studies", *International Journal of Electronic Customer Relationship Management*, Vol. 1 No. 3, pp. 258-68.
- Becker, J.U., Greve, G. and Albers, S. (2009), "The impact of technological and organizational implementation of CRM on customer acquisition, maintenance, and retention", *International Journal of Research in Marketing*, Vol. 26, pp. 207-15.
- Beldi, A., Cheffi, W. and Dey, P.K. (2010), "Managing customer relationship management projects: the case of a large French telecommunications company", *International Journal of Project Management*, Vol. 28, pp. 339-51.
- Bhatnagar, V. and Ranjan, J. (2010), "Principles for successful mobile CRM in organisations from data mining perspective", *International Journal of Electronic Customer Relationship Management*, Vol. 4 No. 3, pp. 280-301.
- Bodendorf, F. and Schobert, A. (2007), "Enhancing e-CRM in the insurance industry by mobile e-services", *International Journal of Electronic Customer Relationship Management*, Vol. 1 No. 3, pp. 269-78.
- Bohling, T., Bowman, D., LaValle, S. and Mittal, V. (2006), "CRM implementation: effectiveness issues and insights", *Journal of Service Research*, Vol. 9 No. 2, p. 184.
- Boon, O., Brian, C. and Craig, P. (2002), "Conceptualizing the requirements of CRM from an organizational perspective: a review of the literature", *Proceedings of 7th Australian Workshop on Requirements Engineering AWRE, Melbourne, Australia*, December 2-3.
- Burr, L.C., Patterson, R.A., Rolland, E. and Ward, K.F. (2007), "Integration of E-CRM in healthcare services: a framework for analysis", *International Journal of E-Business Research*, Vol. 3 No. 2, pp. 1-12.
- Cassab, H. and MacLachlan, D.L. (2009), "A consumer-based view of multi-channel service", *Journal of Service Management*, Vol. 20 No. 1, pp. 52-75.
- Chalmeta, R. (2006), "Methodology for customer relationship management", *Journal of Systems and Software*, Vol. 79 No. 7, pp. 1015-24.
- Chang, C.-W., Lin, C.-T. and Wang, L.-Q. (2009), "Mining the text information to optimizing the customer relationship management", *Expert Systems with Applications*, Vol. 36, pp. 1433-43.
- Chao, C.-C., Jen, W.-Y., Chi, Y.-P. and Lin, B. (2007), "Determining technology trends and forecasts of CRM through a historical review and bibliometric analysis of data from 1991 to 2005", *International Journal of Management and Enterprise Development*, Vol. 4 No. 4, pp. 415-27.
- Chen, H.-M. and Vargo, S.L. (2008), "Towards an alternative logic for electronic customer relationship management", *International Journal of Business Environment*, Vol. 116, p. 132.
- Chen, J.H.F. and Wang, E.T.G. (2006), "Internalization in technology innovation: a case of CRM adoption", *Proceedings of 39th Annual Hawaii International Conference on System Sciences, HICSS '06*, p. 111a.
- Chen, J.-S. and Ching, R. (2006), "The study of mobile customer relationship management and loyalty", *International Conference on Service Systems and Service Management, Troyes*, pp. 67-72.
- Chen, J.-S. and Ching, R.K.H. (2007), "The effects of mobile customer relationship management on customer loyalty: brand image does matter", *40th Annual Hawaii International Conference on System Sciences (HICSS'07), Hawaii*, Vol. 40, No. 5, pp. 2502-11.
- Chen, Q., Chen, H.-M. and Kazman, R. (2007), "Investigating antecedents of technology acceptance of initial eCRM users beyond generation X and the role of self-construal", *Electronic Commerce Research*, Vol. 7, pp. 315-39.

- 
- Chevrin, V., Rouillard, J., Derycke, A. and Sockeel, S. (2006), "Multi-channel adaptive context-sensitive intermediation: reconciling marketing goals and users needs", available at: <http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.114.3755> (accessed November 15, 2010).
- Cho, Y.C. (2008), "Assessing user attitudes toward mobile commerce in the US vs Korea: implications for M-commerce CRM", *Journal of Business & Economics Research*, Vol. 6 No. 2, pp. 23-36.
- Coltman, T. and Dolnicar, S. (2007), "ECRM and managerial discretion", *International Journal of E-Business Research*, Vol. 3 No. 2, pp. 41-56.
- Cruz, P., Salo, J., Munoz-Gallego, P. and Laukkanen, T. (2010), "Heavy users of e-banking and customer experience management: evidences on intrinsic motivation", *International Journal of Electronic Business*, Vol. 8 No. 2, pp. 187-209.
- Cunha, M., Varajão, J., Santana, D. and Bentes, I. (2010), "Customer relationship management systems – why many large companies do not have them?", *Organizational, Business, and Technological Aspects of the Knowledge Society: Communications in Computer and Information Science*, Vol. 112, Springer, Berlin, pp. 353-8.
- Dimitriadis, S. and Stevens, E. (2008), "Integrated customer relationship management for service activities: an internal/external gap model", *Managing Service Quality*, Vol. 18 No. 5, pp. 496-511.
- Duran, R.E. (2010), "Extending CRM with mobile messaging: a case study", *International Journal of Business Innovation and Research*, Vol. 4 Nos 1/2, pp. 15-29.
- Ernst, H., Hoyer, W.D., Krafft, M. and Krieger, K. (2010), "Customer relationship management and company performance – the mediating role of new product performance", *Journal of Academic. Marketing Science*, Vol. 38.
- Faed, A., Ashouri, A. and Wu, C. (2010), "The efficient bond among mobile commerce, CRM and e-loyalty to maximise the productivity of companies", at *3rd International Conference on Information Sciences and Interaction Sciences (ICIS), June 23-25* pp. 312-17.
- Falk, T., Schepers, J., Hammerschmidt, M. and Bauer, H.H. (2007), "Identifying cross-channel dissynergies for multichannel service providers", *Journal of Service Research*, Vol. 10 No. 2, pp. 143-60.
- Gneiser, M.S. (2010), "Value-based CRM: the interaction of the triad of marketing, financial management, and IT", *Business & Information Systems Engineering*, Vol. 2 No. 2, pp. 95-103.
- Greenberg, P. (2010), "The impact of CRM 2.0 on customer insight", *Journal of Business & Industrial Marketing*, Vol. 25 No. 6, pp. 410-19.
- Grenci, R.T. and Watts, C.A. (2007), "Maximizing customer value via mass customized e-consumer services", *Business Horizons*, Vol. 50, pp. 123-32.
- Greve, G. and Albers, S. (2006), "Determinants of performance in customer relationship management assessing the technology usage-performance link", *Proceedings of the 39th International Conference on Annual Hawaii System Sciences HICSS '06*, p. 111b.
- Habul, A. and Pilav-Velic, A. (2010), "Business intelligence and customer relationship management", *Proceedings of 32nd International Conference on Information Technology Interfaces (ITI)*, pp. 169-74.
- Hadaya, P. and Cassivi, L. (2009), "Collaborative e-product development and product innovation in a demand-driven network: the moderating role of eCRM", *Electronic Markets*, Vol. 19, pp. 71-87.

- Haq, I.U., Ramay, M.I., Rehman, M.A.U. and Jam, F.A. (2010), "Big five personality and perceived customer relationship management", *Research Journal of International Studies*, Vol. 15, pp. 37-45.
- Harrigan, P., Schroeder, A., Qureshi, I., Fang, Y., Ibbotson, P., Ramsey, E. and Meister, D. (2008), "eCRM technologies, capabilities and SME performance benefits", paper presented at Pacific Asia Conference on Information Systems, "Leveraging ICT for Resilient Organizations and Sustainable Growth in the Asia Pacific Region". Suzhou, People's Republic of China, July.
- Hartel, M., Bulander, R. and Decker, M. (2006), "A literature survey on objectives and success factors of mobile CRM projects", *Proceedings of the EURO mGOV 2006*, pp. 223-32, available at: <http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.108.1582>
- Horppe, M., Kuivalainen, O., Tarkiainen, A. and Ellonen, H.-K. (2008), "Online satisfaction, trust and loyalty, and the impact of the offline parent brand", *Journal of Product & Brand Management*, Vol. 17 No. 6, pp. 403-13.
- Hsu, C.F. and Lin, S.-J. (2008), "mCRM's new opportunities of customer satisfaction", *International Journal of Social Sciences*, Vol. 3 No. 2, pp. 133-7.
- Hughes, T. (2006), "New channels/old channels customer management and multi-channels", *European Journal of Marketing*, Vol. 40 Nos 1/2, pp. 113-29.
- Hwang, Y. (2009), "The impact of uncertainty avoidance, social norms and innovativeness on trust and ease of use in electronic customer relationship management", *Electronic Markets*, Vol. 19, pp. 89-98.
- Jaiswal, A.K. (2008), "Customer satisfaction and service quality measurement in Indian call centers", *Managing Service Quality*, Vol. 18 No. 4, pp. 405-16.
- Javalgi, R.G., Martin, C.L. and Young, R.B. (2006), "Marketing research, market orientation and customer relationship management: framework and implications for service providers", *Journal of Services Marketing*, Vol. 20 No. 1, pp. 12-23.
- Kauffman, R.J., Lee, D., Lee, J. and Yoo, B. (2009), "A hybrid firm's pricing strategy in electronic commerce under channel migration", *International Journal of Electronic Commerce*, Vol. 14 No. 1, pp. 11-54.
- Kennedy, A. (2006), "Electronic customer relationship management (eCRM): opportunities and challenges in a digital world", *Irish Marketing Review, Special Issue on the Island View of Relationship Marketing and Networks*, Vol. 18 Nos 1/2, pp. 58-69.
- Kim, C.S., Zhao, W.H. and Yang, K.H. (2008), "An empirical study on the integrated framework of e-CRM in online shopping: evaluating the relationships among perceived value, satisfaction, and trust based on customers' perspectives", *Journal of Electronic Commerce in Organizations*, Vol. 6 No. 3, pp. 1-19.
- Kim, S. (2010), "Assessment on security risks of customer relationship management systems", *International Journal of Software Engineering and Knowledge Engineering*, Vol. 20 No. 1, pp. 103-9.
- Kimiloglu, H. and Zarali, H. (2009), "What signifies success in e-CRM?", *Marketing Intelligence & Planning*, Vol. 27 No. 2, pp. 246-67.
- King, S.F. and Burgess, T.F. (2008), "Understanding success and failure in customer relationship management", *Industrial Marketing Management*, Vol. 37, pp. 421-31.
- Kumar, R., Rawat, M. and Vashistha, A. (2009), "Automatic cluster detection for mobile customer relationship management using GA-KNN conjunction approach", *International Journal of Engineering Studies*, Vol. 1 No. 1, pp. 15-23.

- 
- Kumar, V., Lemon, K.N. and Parasuraman, A. (2006), "Managing customers for value: an overview and research agenda", *Journal of Service Research*, Vol. 9 No. 2, p. 87.
- Laukkanen, T. (2007), "Customer preferred channel attributes in multi-channel electronic banking", *International Journal of Retail & Distribution Management*, Vol. 35 No. 5, pp. 393-412.
- Le, C. and Zhang, R. (2009), "Research on implementation path and strategies of enterprise's mobile informatization", *Proceedings of the 2009 International Symposium on Web Information Systems and Applications (WISA'09) Nanchang, P.R. China, May 22-24*, pp. 041-5.
- Lee, D.-I., Sohn, C. and Lee, H. (2008), "The role of satisfaction and trust in mobile CRM activities", *International Journal of Electronic Customer Relationship Management*, Vol. 2 No. 2, pp. 101-19.
- Leem, Y.M. and Hwang, Y.S. (2008), "A study of an efficient marketing system through integration of web and wireless internet using CRM technique", *Proceedings of SKISe Spring Conference*, p. 283.
- Liljander, V., Polsa, P. and Forsberg, K. (2007), "Do mobile CRM services appeal to loyalty program customers?", *International Journal of E-Business Research*, Vol. 3 No. 2, pp. 24-40.
- Lim, C.Y. and Khoo, V.K.T. (2010), "Customer relationship management: lifecycle of predicting customer lifetime value", *Proceedings of Second International Conference on Computer Research and Development*, pp. 88-92.
- Lin, C., Huang, Y.-A. and Tseng, S. (2007), "A study of planning and implementation stages in electronic commerce adoption and evaluation: the case of Australian SMEs", *Contemporary Management Research*, Vol. 3 No. 1, pp. 83-100.
- Lin, R.-J., Chen, R.-H. and Kevin, K.-S.C. (2010), "Customer relationship management and innovation capability: an empirical study", *Industrial Management & Data Systems*, Vol. 110 No. 1, pp. 111-33.
- Liou, J.J.H. (2009), "A novel decision rules approach for customer relationship management of the airline market", *Expert Systems with Applications*, Vol. 36, pp. 4374-81.
- Ma, X., Duval, J. and Cao, R. (2009), "New developments of CRM in theory: the integration between CRM and other business and technology orientations", *International Conference on Technology and Innovation 2009 (ITIC 2009), Xian, China*, pp. 1-5.
- Matti, M. (2008), "Exploring customer's post adoption perceptions: a study on trust, commitment and related constructs in B2C online service context", *Proceedings of Pacific Asia Conference on Information Systems, "Leveraging ICT for Resilient Organizations and Sustainable Growth in the Asia Pacific Region". Suzhou, People's Republic of China, July*.
- Meng, Q., Zou, N. and Zhang, G. (2008), "Application and model of CRM strategy map: an empirical study in China", *Proceedings of International Conference on Service Systems and Service Management*, pp. 1-5.
- Moutot, M.-J. and Bascoul, G. (2008), "Effects of sales force automation use on sales force activities and customer relationship management processes", *Journal of Personal Selling & Sales Management*, Vol. 28 No. 2, pp. 167-84.
- Müller-Lankenau, C., Wehmeyer, K. and Klein, S. (2006), "Strategic channel alignment: an analysis of the configuration of physical and virtual marketing channels", *Information Systems and E-Business Management*, Vol. 4 No. 2, pp. 187-216.
- Neslin, S.A. and Shankar, V. (2009), "Key issues in multichannel customer management: current knowledge and future directions", *Journal of Interactive Marketing*, Vol. 23 No. 1, pp. 70-81.
- Neslin, S.A., Grewal, D., Leghorn, R., Shankar, V., Teerling, M.L., Thomas, J.S. and Verhoef, P.C. (2006), "Challenges and opportunities in multichannel customer management", *Journal of Service Research*, Vol. 9 No. 2, pp. 95-112.

- Ngai, E.W.T. (2005), "Customer relationship management research (1992-2002): an academic literature review and classification", *Marketing Intelligence & Planning*, Vol. 23 No. 6, pp. 582-605.
- Ngai, E.W.T., Xiu, L. and Chau, D.C.K. (2009), "Application of data mining techniques in customer relationship management: a literature review and classification", *Expert Systems with Applications*, Vol. 36, pp. 2592-602.
- Nord, J.H. and Nord, G.D. (1995), "MIS research: journal status and analysis", *Information & Management*, Vol. 29, pp. 29-42.
- Ocker, R. and Mudambi, S. (2003), "Assessing the readiness of firms for CRM: a literature review and research model", *Proceedings of the 36th Annual Hawaii International Conference on System Sciences (HICSS'03)*, Big Island, HI.
- Osarenkhoe, A. (2006), "Customer-centric strategy: a longitudinal study of implementation of a customer relationship management solution", *International Journal of Technology Marketing*, Vol. 1 No. 2, pp. 115-44.
- Padmanabhan, B., Zheng, Z. and Kimbrough, S.O. (2006), "An empirical analysis of the value of complete information for eCRM models", *MIS Quarterly*, Vol. 30 No. 2, pp. 247-67.
- Pant, V. and Wagner, W.P. (2006), "A framework for XML-based multi-channel contact point integration", *Business Process Management*, Vol. 12 No. 3, pp. 344-60.
- Paul, H., Israr, Q., Patrick, I. and Elaine, R. (2008), "ECRM technologies, capabilities and SME performance benefits", *Proceedings of Pacific Asia Conference on Information Systems, "Leveraging ICT for Resilient Organizations and Sustainable Growth in the Asia Pacific Region"*. Suzhou, People's Republic of China, July.
- Paulissen, K., Mills, K., Brengman, M., Fjermestad, J. and Romano, N.C. Jr (2007), "Voids in the current CRM literature: academic literature review and classification (2000-2005)", *Proceedings of the 40th Annual Hawaii International Convergence on System Sciences*, p. 150.
- Peterson, M., Gröne, F., Kammer, K. and Kirscheneder, J. (2010), "Multi-channel customer management: delighting consumers, driving efficiency", *Journal of Direct, Data and Digital Marketing Practice*, Vol. 12, pp. 10-15.
- Piercy, N.F. (2009), "Strategic relationships between boundary-spanning functions: aligning customer relationship management with supplier relationship management", *Industrial Marketing Management*, Vol. 38, pp. 857-64.
- Plakoyiannaki, E. and Saren, M. (2006), "Time and the customer relationship management process: conceptual and methodological insights", *Journal of Business & Industrial Marketing*, Vol. 21 No. 4, pp. 218-30.
- Plé, L. (2006), "Managing multichannel coordination in retail banking: the influence of customer participation", *International Journal of Bank Marketing*, Vol. 24 No. 5, pp. 327-45.
- Ramaseshan, B., Bejou, D., Jain, S.C., Mason, C. and Pancras, J. (2006), "Issues and perspectives in global customer relationship management", *Journal of Service Research*, Vol. 9 No. 2, p. 195.
- Ranjan, J. and Bhatnagar, V. (2009), "A holistic framework form CRM – data mining perspective", *Information Management & Computer Security*, Vol. 17 No. 2, pp. 151-65.
- Ranjan, J. and Bhatnagar, V. (2010), "Information security-enabled business process architecture for mobile CRM: the role of technology, planning, training and process", *International Journal of Networking and Virtual Organizations*, Vol. 7 No. 5, pp. 452-64.
- Reinhold, O. and Alt, R. (2009), "Enhancing collaborative CRM with mobile technologies", paper presented at 22nd Bled eConference eEnablement: Facilitating an Open, Effective and Representative eSociety, Bled, Slovenia, June 14-17.

- 
- Richard, J., Thirkell, P.C. and Huff, S.L. (2007), "The strategic value of CRM: a technology adoption perspective", *Journal of Strategic Marketing*, Vol. 15, pp. 421-39.
- Romano, N. Jr and Fjermestad, J. (2001), "Electronic commerce customer relationship management: an assessment of research", *International Journal of Electronic Commerce*, Vol. 6 No. 2, pp. 61-113.
- Rosenbloom, B. (2007), "Multi-channel strategy in business-to-business markets: prospects and problems", *Industrial Marketing Management*, Vol. 36, pp. 4-9.
- Sanayei, A. and Mirzaei, A. (2008), "Mobile customer relationship management and mobile security", Global E-Security 4th International Conference, ICGeS 2008, London, UK, June 23-25, *Proceedings: Communications in Computer and Information Science*, Vol. 12, No. 5, pp. 274-87.
- Sangle, P.S. and Verma, S. (2008), "Analysing the adoption of customer relationship management in Indian service sector: an empirical study", *International Journal Electronic Customer Relationship Management*, Vol. 2 No. 1, p. 85.
- Schemm, J.W., Legner, C. and Zurmühlen, R. (2006), "Evolution of process portals to multi-channel architectures – a service-oriented approach at ETA SA", paper presented at 19th Bled eConference on eValues, Bled, Slovenia, June 5-7.
- Schierholz, R., Kolbe, L.M. and Brenner, W. (2007), "Mobilizing customer relationship management, a journey from strategy to system design", *Business Process Management Journal*, Vol. 13 No. 6, pp. 830-52.
- Schierholz, R., Glissmann, S., Kolbe, L.M. and Brenner, W. (2006a), "Don't call us, we'll call you – performance measurement in multi-channel environments", *Journal of Information Science and the Technology*, Vol. 3 No. 2, pp. 44-63.
- Schierholz, R., Glissmann, S., Kolbe, L.M. and Brenner, W. (2006b), "Mobile systems for customer service differentiation – the case of Lufthansa", paper presented at the Tenth Pacific Asia Conference on Information Systems (PACIS 2006).
- Sharma, A. and Mehrotra, A. (2007), "Choosing an optimal channel mix in multichannel environments", *Industrial Marketing Management*, Vol. 36, pp. 21-8.
- Sharma, S., Goyal, D.P. and Mittal, R.K. (2008), "Data mining research for customer relationship management systems: a framework and analysis", *International Journal of Business Information Systems*, Vol. 3 No. 5, pp. 549-65.
- Shun, C., Yunjie, X., Jie, Y. and De Souza, R. (2008), "Understanding aesthetics design for e-commerce website: a cognitive-affective framework", *Proceedings of Pacific Asia Conference on Information Systems, "Leveraging ICT for Resilient Organizations and Sustainable Growth in the Asia Pacific Region"*. Suzhou, People's Republic of China, July.
- Sigala, M. (2006), "Culture: the software of e-customer relationship management", *Journal of Marketing Communications*, Vol. 12 No. 3, pp. 203-23.
- Silberer, G. and Schulz, S. (2010), "Mobile customer relationship management (mCRM): constraints and challenges", *Handbook of Research on Mobile Marketing Management*, IGI Publications, Hershey, PA, pp. 173-89.
- Simons, L.P.A., Van Loon, J., de Koning, N.M., Kruse, J. and Bouwman, H. (2009), "Increasing the loyalty effects of eCRM across the service delivery cycle", *BLED 2009 Proceedings*, Paper 1, available at: <http://aisel.aisnet.org/bled2009/1>
- Sinisalo, J. and Karjaluoto, H. (2007), "Mobile customer relationship management: a communication perspective", *International Journal of Electronic Customer Relationship Management*, Vol. 1 No. 3, pp. 242-57.

- Sinisalo, J., Salo, J., Karjaluoto, H. and Leppäniemi, M. (2006), "Managing customer relationships through mobile medium – underlying issues and opportunities", *Proceedings of the 39th Hawaii International Conference on System Sciences*, pp. 1-10.
- Sinisalo, J., Salo, J., Karjaluoto, H. and Leppäniemi, M. (2007), "Mobile customer relationship management: underlying issues and challenges", *Business Process Management Journal*, Vol. 13 No. 6, pp. 771-87.
- Smith, A.D. (2006), "Exploring security and comfort issues associated with online banking", *International Journal of Electronic Finance*, Vol. 1 No. 1, pp. 18-48.
- Soch, H. and Sandhu, H.S. (2008), "Does customer relationship management activity affect firm performance?", *Global Business Review*, Vol. 9 No. 2, pp. 189-206.
- Sousa, R. and Voss, C. (2006), "A service quality in multichannel services employing virtual channels", *Journal of Service Research*, Vol. 8 No. 4, p. 356.
- Steimer, F.L. and Steimer, T. (2008), "Future mobile CRM – a specific kind of collaboration (concepts for the automotive and tourist area)", paper presented at Second IEEE International Conference on Digital Ecosystems and Technologies (IEEE DEST 2008), Phitsanuloke, Thailand.
- Sun, B. (2006), "Technology innovation and implications for customer relationship management", *Marketing Science*, Vol. 25 No. 6, pp. 594-7.
- Teo, T.S.H. and Liu, J. (2007), "Consumer trust in e-commerce in the United States, Singapore and China", *Omega*, Vol. 35, pp. 22-38.
- Teo, T.S.H., Devadoss, P. and Pan, S.L. (2006), "Towards a holistic perspective of customer relationship management (CRM) implementation: a case study of the housing and development board, Singapore", *Decision Support Systems*, Vol. 42, pp. 1613-27.
- Torkzadeh, G., Chang, J.C.-J. and Hansen, G.W. (2006), "Identifying issues in customer relationship management at Merck-Medco", *Decision Support Systems*, Vol. 42, pp. 1116-30.
- Tromp, S., Versendaal, J., Batenburg, R. and van Duinkerken, W. (2006), "Business/IT-alignment for customer relationship management in the telecommunication industry: framework and case study", *2nd International Conference on Information and Communication Technologies, ICTTA '06, Damascus*, pp. 262-7.
- Tsai, H.-T. and Huang, H.-C. (2007), "Determinants of e-repurchase intentions: an integrative model of quadruple retention drivers", *Information & Management*, Vol. 44, pp. 231-9.
- Unnithan, C., Smith, R. and Fraunholz, B. (2007), "Critical success factors for mobile CRM: a research framework", *Managing Worldwide Operations and Communications with Information Technology, Information Resources Management Association International Conference*, Vol. 1, IGI Publishing, Hershey, PA, pp. 261-4.
- Valos, M.J. (2008), "A qualitative study of multi-channel marketing performance measurement issues", *Database Marketing & Customer Strategy Management*, Vol. 15 No. 4, pp. 239-48.
- Valsecchi, M., Renga, F.M. and Rangone, A. (2007), "Mobile customer relationship management: an exploratory analysis of Italian applications", *Business Process Management Journal*, Vol. 13 No. 6, pp. 755-70.
- Verhoef, P.C., Neslin, S.A. and Vroomen, B. (2007), "Multichannel customer management: understanding the research shopper phenomenon", *International Journal of Research in Marketing*, Vol. 24 No. 2, pp. 129-48.
- Verhoef, P.C., Reinartz, W.J. and Krafft, M. (2010a), "Customer engagement as a new perspective in customer management", *Journal of Service Research*, Vol. 13 No. 3, pp. 247-52.

- 
- Verhoef, P.C., Venkatesan, R., McAlister, L., Malthouse, E.C., Krafft, M. and Ganesan, S. (2010b), "CRM in data-rich multichannel retailing environments: a review and future research directions", *Journal of Interactive Marketing*, Vol. 24, pp. 121-37.
- Wang, F. and Head, M. (2007), "How can the web help build customer relationships? An empirical study on e-tailing", *Information & Management*, Vol. 44, pp. 115-29.
- Wang, P. and Swanson, E.B. (2008), "Customer relationship management as advertised exploiting and sustaining technological momentum information", *Technology & People*, Vol. 21 No. 4, pp. 323-49.
- Webster, S. and Watson, R. (2002), "Analyzing the past to prepare for the future: writing a literature review", *MIS Quarterly*, Vol. 26 No. 2, pp. xiii-xxiii.
- Wilson, H. and Daniel, E. (2007), "The multi-channel challenge: a dynamic capability approach", *Industrial Marketing Management*, Vol. 36, pp. 10-20.
- Wu, I.-L. and Hung, C.-Y. (2009), "A strategy-based process for effectively determining system requirements in eCRM development", *Information and Software Technology*, Vol. 51 No. 9, pp. 1308-18.
- Yanling, L., Kai, L. and Fei, G. (2008), "Data mining approach and application in CRM project for internet-focused banking", *Proceedings of 4th International Conference on Wireless Communications Networking and Mobile Computing. WiCOM '08*, pp. 1-4.
- Yong, L. (2010), "The research of personal customer relationship management for commercial banks based on multidimensional model of customer research of personal customer relationship management for commercial banks based on multidimensional model of customer loyalty", *Proceedings of International Conference on E-Business and E-Government(ice)*, pp. 3168-71.
- Zhongke, Z. (2010), "The reconsideration and improvement tactics about the application of customer relationship management", *Proceedings of International Conference on Intelligent Computation Technology and Automation (ICICTA)*, pp. 878-81.

### Further reading

- Stone, M. (2009), "Staying customer-focused and trusted: web 2.0 and customer 2.0 in financial services", *Journal of Database Marketing & Customer Strategy Management*, Vol. 16, pp. 101-31.

### About the authors

Preeti Awasthi is a research scholar currently pursuing her fellowship at National Institute of Industrial Engineering, Mumbai. Her research interests include CRM and various perspectives of CRM technology adoption.

Dr Purnima S. Sangle is an Associate Professor of Information Technology with the National Institute of Industrial Engineering, Mumbai. Her broad research interest includes CRM, knowledge management, data warehousing and data mining. Dr Purnima S. Sangle is the corresponding author and can be contacted at: [purnima@nitie.edu](mailto:purnima@nitie.edu)

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.