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UBIQUITOUS CUSTOMER RELATIONSHIP MANAGEMENT: UNFORESEEN ISSUES AND BENEFITS

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Abstract

Convergence of pervasive technologies, techno-centric customers and the emergence of digitized channels, overabundance of user friendly retail applications are having a profound impact on retail experience, leading to the advent of 'everywhere retailing'. With the rapid uptake of digital complimentary assets and smart mobile applications are revolutionizing the relationship of retailers with their customers and suppliers. Retail firms are increasingly investing substantial resources on dynamic Customer Relationship Management systems (D-CRM / U-CRM) to better engage with customers to sense and respond quickly (Agility of the firm) to their demands. However, unlike traditional CRM systems, engagement with U-CRM systems requires that firms be hyper sensitive to volatile customer needs and wants. Following the notions of firm agility, this study attempts to develop a framework to understand such unforeseen benefits and issues of U-CRM. This research-in-progress paper reports an a-priory framework including 62 U-CRM benefits derived through an archival analysis of literature.

Key words: Ubiquitous Retailing, Dynamic CRM, Firm Agility, CRM Benefits, U-CRM

1. INTRODUCTION

Confluence of pervasive technologies such as affordable smart-phones, sensing and analytics, social media and wireless technologies are heavily influencing the retail experience and retail landscape (Narayanaswami et al. 2011). A global shift towards “everywhere retailing” is growing as many corporations exploring ways to increase their revenues without increasing their traditional brick and mortar store-fronts by utilizing other complimentary virtual and digital store fronts¹. For an example Tesco corporation is turning to augmented reality (AR) and quick response codes (QR codes) (Shayon 2011) to improve the everyday shopping experience. QR codes let consumers scan product code or Tesco direct catalogue whilst AR lets users view 3D images both in-store and online to better evaluate the products prior purchasing. In South Korea Tesco’s HomePlus chain is testing virtual shopping via QR codes in subway stations. As mentioned in Kourouthanassis and Roussos (2003) organizations use smart phone applications to offer cognitive assistance to the customer by planning their shopping lists beforehand, help course through aisles, collecting shopping list items, alerting product discounts and promotions on associated products while shopping, and controlling the total cost by continuous tracking.

Furthermore, the respective retailer can create personal profiles, monitor mobility and offer tailored offers and personalized services while optimizing the supply-chain logistics accessing customers’ early consumption information (e.g. Coles and Woolworths mobile applications in Australia). Also the customers have the option of either picking their shopping cart from a nearby gas station or could request doorstep delivery at a time convenient for them. In essence there is a paradigm shift towards “Ubiquitous Retailing (UR)” via dynamic, pervasive, ubiquitous applications (e.g. Customer Relationship Management/CRM mobile apps), with the aid of new technologies to accommodate lifestyle changes of late. Rosemann et al (2011) apprehend proliferation of dynamic service delivery channels and invention of novel interactive customer touch points, such as social media and mobile technologies to the new technologies such as internet, smart phones, improved computers and software applications. Aforementioned channels present organizations with a great opportunity to connect with techno-powered customers with smarter use of technology. Such dynamic applications not only allow organizations to better deliver services through its traditional use, but more importantly allow identifying innovative ways of connecting with profitable techno-powered customers. Retailers’ use of UR for their customer relationship management, which we term as ubiquitous-CRM (U-CRM)² in this research, is increasingly weaving themselves into the fabric of everyday life of both corporations and individuals.

CRM enables innovative practices of communicating with customers and provide benefits (Coltman et al. 2011; Jayaganesh et al. 2004; Shanks et al. 2009). At the same time such novel initiatives could generate unforeseen issues and implications. Consequently, as conferred in Nazir and Pinsonneault (2012) such initiatives stresses organizations to be more agile and more responsive to the changing and demanding nature of customer needs in very little or no time. In other words organizational agility is explained by its ability to sense environmental changes and the capability of responding rapidly as required (Nazir and Pinsonneault 2012; Overby et al. 2006). A key purpose of U-CRM is to improve customer buying pattern in long run through sensing their changing needs and requirements promptly. However, receiving (sensing) almost real time buying patterns could yield unpredictable issues to the supply chain (due to unfathomable variance). Consequently the organization and its business partners should have the ability to manage the enormous amount of information flows in and to identify the correct priorities.

Focusing on traditional CRM as dynamic capability Coltman et al., (2011), lament on the lack of studies on CRM benefits. This dearth of studies on CRM benefits will further amplified with the shift in

¹ Rosemann et al Rosemann, M., Andersson, M., and Lind, M. 2011. "Digital Complimentary Assets," in: *Thirty Second International Conference on Information Systems (ICIS)*. Shanghai. defined this as the digital complimentary assets.

² The term DCRM, dynamic CRM systems and U-CRM use as synonyms whilst the term not restricted to the concept “CRM”

ubiquitous retailing. To the best of our knowledge there are no studies published on CRM in ubiquitous retailing (which we term U-CRM). The aforementioned new paradigm and the facts provide the background and the motivation to the current study.

Thus, this study is aiming towards developing a better understanding of the unforeseen issues and benefits of U-CRM. Specifically, we investigate the characteristics and salient benefits of contemporary U-CRM, issues those are significant to contemporary U-CRM, and the way contemporary corporations manage these issues in order to realize business benefits to the firm. The novelty of research domain requires that an inductive, grounded approach be conducted in order to derive multifaceted benefits and issues of U-CRM. This research in progress paper provides the initial insights from the first phase of two-staged research approach. In the first phase, content analysis is employed to derive the expected list of benefits (mainly based on Shanks et al, (2009) CRM benefits framework). The second phase of the study employs a case study to explore the characteristics and salient benefits of U-CRM and to identify the issues and business benefit realization process.

The remainder of this paper is organized in the following manner. The paper begins with a discussion on previous concepts similar to ubiquitous retailing summarizing benefits, issues and contexts, followed by a discussion on theory “IT and firm agility”. Then we introduce our a priory benefits list before concluding the paper with a summary and a research outlook.

2. HISTORY OF UBIQUITY: EXAMPLES FROM RETAILING AND BANKING

‘Ubiquity’ is not new to retailing. Over the years, we have witnessed ubiquity in now familiar facilities on vending machines (VM), and automated teller machines (ATM). VM and ATM are two of the most influencing developments in retail industry (traditional and retail banking respectively). They allowed organizations to step aside from traditional service/product delivery channels to new channels to connect better with customers. They compliment the traditional channels by increasing reach and intensity (DeYoung et al. 2007; Goode and Moutinho 1995; Lassar et al. 2005; Lee 2003; Polasik and Wisniewski 2009). Paradigm shift made by ATMs in banking industry meant that customers could withdraw funds at outlets other than the bank branches, outside the banking hours. Banks become more astute and responsive with U-retailing and have brought substantial benefits as well as substantial issues to the both customers and banking. ATM has created issues such as cash management/cash replenishment (Ranković 2012), servicing (Polasik and Wisniewski 2009), security (Polasik and Wisniewski 2009; Rugimbana and Iversen 1994), maintenance costs (Clark 1998), and selecting appropriate service combination. Similarly VM brought-in some issues such as product replenishment (Lin et al. 2011; Rusdiansyah and Tsao 2005), service and maintenance (Lin et al. 2011), transaction security (Lee 2003), selecting an appropriate product/service blend. Inability in service accompaniment, handling unsatisfied customers/product returns are possible alienation factors (Leaner 2002; Lee 2003) in both VM and ATM retailing models.

Organizational benefits such as remote monitoring, data-based menu planning, slashing costs (by eliminating physical branch maintenance, marketing and labour), reduction of overhead expenses, creating cross selling opportunities, providing improved visibility, branding and target marketing are being discussed in both VM and ATM literature (Hernando and Nieto 2007; Lee 2003; Maras 2007; Polasik and Wisniewski 2009). Time saving, electronically secured cashless transactions, 24/7 accessibility and instant gratification are being discussed as consumer benefits in both VM and ATM (Lee 2003; Maras 2007; Polasik and Wisniewski 2009). Escalated pricing in VM (Lin et al. 2011) viewed as an issue whilst offering lower fees or better rates by passing down cost savings to customers, and providing better access to information and sense of complete control over one’s account considered as significant benefits in the case of ATM (Black et al. 2001; Karjaluoto et al. 2002; Polasik and Wisniewski 2009). In other words both ATM and VM in their respective industries enabled the respective organizations ability of acquiring new knowledge from their immediate environment whereby they respond better.

3. UBIQUITOUS COMPUTING: THE CATALYST

Friedewald and Raabe (2011) termed ubiquitous computing (UC) as the ubiquity in information technology and computer power pervade in every facet of daily routines in private utilities and industrial production. UC promises to facilitate all shapes of life in longer term (e.g. work productivity through adaptive personal assistance systems, energy efficient yet comfortable private home areas, intelligent vehicles and safer roads)(Friedewald and Raabe 2011). According to them “Pervasive computing”, “ambient intelligence” and “the internet of things” are the things visible as of now in UC and promise to deliver unforeseen benefits to both corporations and individuals never anticipated before via continuous optimization and promotion of both social as well as economic processes and by integration of number of sensors and microprocessors yielding both benefits and issues. In short the above developments facilitate rich instantaneous information accrual from the immediate environment and co-creation of knowledge for anyone interested where by enabling them better exploiting the opportunities uncovered.

Smart phones, latest computers, “wearables” such as intelligent textiles & accessories and computerized implants provide classical examples for UC. UC has been in the agenda globally and making big strides in the United States, Japan, South Korea, Singapore and European Union since late 1990’s. Retail UC applications are mostly based on either economical RFID transponders (Friedewald and Raabe 2011), augmented reality (AR) or Quick Response Codes (QR Codes)(Shayon 2011). Usually are attached to product packaging or larger containers and already making huge impact to the respective corporations by reshaping procurement, picking, packing, distribution as well as in selling. Among many possibilities, they are commonly used in automatic registration and identification in goods delivery, automatic inventory recording in inventory management, recording of goods in the customer shopping basket, tracing the products via electronic ‘family tree’ as well as in protection of goods against theft (Friedewald and Raabe 2011). Participation of many stakeholders as possible in the systems, maintaining uniform standards enabling exchange of information throughout considered imperative in achieving optimum benefits of UC (Friedewald and Raabe 2011). Partnering and adoption of such in retail seems elusive due to number of practical issues. For instance, despite the promise higher relative cost compared to relative low profit margin hinder the popularity and progress of UC applications in retail. However UC is commonly used in industrial production & materials management (especially in automobile industry), transport and logistics, health care as well as in personal identification and authentication purposes in many different sectors (Friedewald and Raabe 2011).

Aforementioned notions provide the conceptual underpinning to our study context. “Everywhere retailing / Ubiquitous retailing” embrace the concepts similar to VM and ATM’s and utilized the notions of UC. Quintessence nothing new in UR, rather it is the next level of analogous retail application to VM & ATM. UC provides an ideal platform for retailers to achieve ubiquity in their desired territory with more pervasive, interactive business models providing numerous benefits to the firm, customers as well as for their business partners. Also UR share the similar notions to VM and ATM such as 24/7 operation, being complimentary to the traditional channels, lack of human interventions, higher technology dependency, comparatively higher cost of maintenance, increased reach, possibility of yielding higher profit margins, improved visibility to the consumers, and also the issues such as inability to handle returns, lack of human touch, replenishments, unevenly distributed and under developed ICT, higher maintenance cost, privacy and transaction security issues. In essence all they share is ‘organizational agility’.

4. THEORETICAL FRAMING: AGILITY IN UBIQUITOUS RETAILING

Corporations invest heavily on information technology anticipating business benefits to the firm (Mithas et al. 2012; Nevo and Wade 2011). Ability to sense and respond to the external environment with speed, ease and dexterity (a.k.a. firm’s agility) is a key determinant of firm performance in highly volatile

turbulent business environment (Nazir and Pinsonneault 2012). Theoretical underpinning relevant to the firm success in turbulent environment (agility) includes dynamic capabilities (Teece et al. 1997), absorptive capacity (Cohen and Levinthal 1990; Zahra and George 2003), market orientation (Kohli and Jaworski 1990; Kohli et al. 1993; Narver and Slater 1990), and strategic flexibility (Ansoff 1980; Hitt et al. 1998). However, extant literature on IT and firm agility is not complete as current literature mostly discussed IT value based on standard firm performance metrics but overlooked agility as a potential outcome (Nazir and Pinsonneault 2012; Oh and Pinsonneault 2007). Meantime, the limited number of studies on IT and agility suggest a positive relationship (Sambamurthy et al. 2003; Tallon and Pinsonneault 2011) whilst some literature discussed on the benefits of agility (Galliers 2007; Hitt et al. 1998; Nazir and Pinsonneault 2012; Overby et al. 2006; Rai et al. 2006; Sambamurthy et al. 2003). In the interim some suggests that the degree of electronic integration achieved in a firm is the key determinant of relationship between IT and firm agility (Nazir and Pinsonneault 2012).

Even though the aforementioned theories share the common theme “firm success in turbulent environment”, taking in to account the differences in focus we argue that the enterprise agility is better described by sensing and responding capabilities as discussed in the theory of agility (Nazir and Pinsonneault 2012; Overby et al. 2006; Sambamurthy et al. 2003). Culled from the existing literature we define agility as “firms ability to sense rapidly changing customer needs, anticipate, identify and respond to the opportunities and threats with ease, speed and dexterity” in this study. Furthermore, taking the integration perspective, Overby et al. (2006) has decomposed agility in to two components; sensing (market intelligence) and Responding (adjusting the existing venture accordingly) based on prior academic literature as well as from field-based perspectives. Consequently Nazir & Pinsonneault (2012) elucidate the degree of firm’s agility using electronic integration. Concurrently, extant literature considers the internal integration (IEI) and external integration (EEI) as the two types of primary constituents of EI (Barki and Pinsonneault 2005; Nazir and Pinsonneault 2012). External integration enable firms sensing capability by improving firms ability in exploring, probing and appropriating new knowledge through environmental scanning as it allows firms to connect often seamlessly with their external stakeholders such as customers, retailers and suppliers (Nazir and Pinsonneault 2012). On the other hand, the internal integration improve firm’s responding capability by better coordinating the different units within through making them more adaptive to one another (Malhotra et al. 2007; Nazir and Pinsonneault 2012). By combining the two types of EI in a matrix Nazir & Pinsonneault (2012) classified firms into four distinctive groups similar to the groupings of Overby et al. (2006). They organize firms in to four categories; stagnant firms (low internal and external integration with low sensing and responding capabilities) responding firms (low external integration, higher internal integration hence with low sensing but higher responding capabilities), sensing firms (higher external integration, low internal integration hence with higher sensing but lower responding capabilities), and agile firms (higher internal and external integration hence with higher sensing and responding capabilities) based on degree of EI. The four quadrants represent a unique combination of integration types and explain differential effects of integration on firm’s agility. Thus level 4 firms (fourth quadrant) can be considered as highly integrated and agile which is the focus of this study. Meanwhile, Roberts and Grover (2012) emphasizes the importance of aligning sensing and responding capabilities (responding capabilities should support its sensing capabilities and vice versa to capitalize) because, unless the two doesn’t compliment attaining agility becomes unrealistic and possibly hinder the firm performance.

Moreover, the two types of integration are not mutually exclusive and typically IT applications facilitate both but at varying degrees (Barki and Pinsonneault 2005). For example stagnant firms use many legacy systems with minimum or no integration. Responding firms are with ERPs and integrate modules and mainly supports integration within an organization and less on external integration. Sensing firms are externally oriented and their traditional CRMs and SCMs support more of external integration and less internal integration. whereas more dynamic, pervasive and ubiquitous systems as in our study represents more agile fourth quadrant with higher sensing and responding capabilities (Figure 1.) via higher level of integration (both internal and external). Furthermore, U-retailing through U-CRM attempts to achieve

optimum integration via technology and achieve business benefits to the firm by aligning firms sensing and responding capabilities. The framework shown in Figure 1, below facilitates and conceptualizes our understanding of U-CRM in U-retailing context. Frameworks of Overby et al. (2006) and Nazir & Pinsonneault (2012) as well as Roberts & Grover (2012) provides the theoretical lens for our framework below and our study in exploring issues and benefits of DCRM to the firm in the context of UQ retailing. U-CRM provides the agility to the focal firm in this study providing multifaceted benefits to the organization. Many of them may have identified before but some might have not been reported in the literature, not considered as a benefit of the application hence might never anticipated or not understood the degree of improvement made possible by the application (U-CRM in this study).

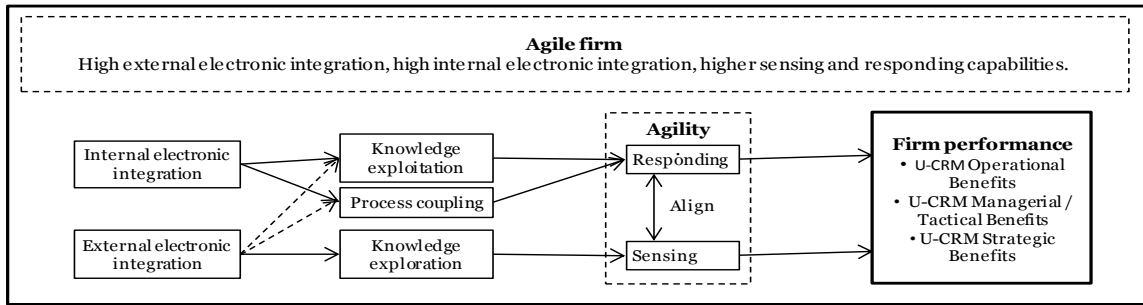


Figure 1. *Agility and U-CRM benefits (Adapted from Nazir & Pinsonneault, 2012)*

5. DERIVING BENEFITS OF CRM

A range of sources are being considered to develop a priory model of CRM benefits. They include: academic papers, commercial press and vendor associated social media available between 2005 and 2011. The main academic outlets canvassed for this study includes the top tier IS journals and conferences³. In addition popular CRM vendors, SAP, Microsoft and Oracle based YOUTUBE video clips and web-community based resources such as SAP Sapphire presentations were considered since they have the potential of providing most up to date information. Inclusion of ScienceDirect data base ensured the search results incorporate CRM studies from multiple disciplines while inclusion of commercial sources such as vendor portals and YOUTUBE ensured the most novelty and contemporary updates. The main key words employed in the academic search were restricted to a title, abstract, body text search of the term “CRM” and its alternatives. The commercial sources were scanned using advertorials and power-point presentations. Moreover, several key academic papers (Coltman et al. 2011; Richards and Jones 2008; Shanks et al. 2009; Wang and Sedera 2011) and a PhD dissertation (Dong 2007) provided much needed scope for the study. Shanks et al.,(2009) make a substantial contribution to our understanding of their listing of CRM benefits – which this study heavily rely upon.

The archival analysis yielded a total of 62 unique CRM benefits. The 62 benefits were then categorized according to classifications employed in Shanks et al (2009). Shanks et al (2009) has 14 sub categories, while our classification extends to 17 sub categories. To reduce personal bias, two researchers synthesized and categorized the CRMS benefit statements separately (with inter-coder reliability over 90%) based on the framework provided by Shanks et al (2009). Further, we identified number of individual benefits items and benefit sub categories based on the learning of VM, ATM and UC context, which are more likely to be affected by ubiquity in U-CRM context (see Table 1). The benefit sub categories and the individual benefit items highlighted in bold in the table 1 below has the highest impact for UR context. For example, the sub category improved process management and its individual items would have higher negative impact in UR context due to too much variance created by higher volume of real time

³ MISQ, ISR, JMIS, EJIS, JAIS, ISJ, JIT, JSIS, CAIS, DSS & I&M, ICIS and ECIS

information flow. The inconsistency creates unpredictability hence could yield mixed results in channel management efficiency (+ve and -ve effects on different benefit items of channel management as in table 1). At the same time some benefit sub categories experience higher positive impact due to this instantaneous information flow (e.g. categories 1.6, 2.5) whilst some benefit categories would improve further (e.g. 3.4, 3.5 and 3.6). However, it is possible to witness temporal variations of aforementioned items/categories along the benefits lifecycle due to time contingent nature of benefit realization.

6. RESEARCH OUTLOOK AND CONCLUSION

The CRM of U-retailing is different from the traditional version of CRM hence the benefits expected from U-CRM too is different from that of traditional CRM systems. Comparatively U-retailing is a new concept hence the extant literature on CRM benefits does not represent the benefits of U-CRM. This study attempts to develop a framework for understanding the benefits of most contemporary version of ubiquitous, pervasive dynamic U-CRM systems and to identify the issues encountered in the process of achieving business benefits to the firm. The study is two phase, and the research design facilitates multi-method research approach including a novel innovative use of social media for data collection. This research in progress paper presents the preliminary findings at the completion of content analysis phase where, the analysis was conducted with academic literature and vendor published advertorials. The process generated 62 consolidated potential CRM benefits where they regrouped into 17 logical benefit indicators in three dimensions: Strategic, Tactical/Managerial, and Operational and the impact of UR in benefit categories and individual benefit items as depicted in Table 1. Second part of the study, exploratory and explanatory in nature (Phase 2) will involve an in-depth case analysis involving an operational U-CRM. Objective of this second phase is to further explore the benefits of U-CRM, identify unforeseen benefits and issues in U-retailing context, and to understand the agility and degree of improvement achieved in each category of benefits/individual benefit item. By doing this we expect to see list of unforeseen benefits and issues with varying degree of improvements along the CRM lifecycle across multiple stake holder groups, the role of agility in deriving benefits and resolving unforeseen issues, and their relationships to benefits realization time lag. Also during this latter stage of exploratory phase we expect to identify issues and critical capability bottlenecks in issue resolution. At the end of this phase we expect to see number of new additions to the traditional portfolio of benefits listed in a priory list above, list of issues that were not anticipated before and interrelationships between them.

At the completion of this research it is expects to make several contributions both theoretical and practical. The study aims to expand the CRM knowledge base by consolidating and extending extant benefit studies in to the context of next generation of dynamic CRM (U-CRM). In addition the research fulfils the lacuna in CRM research by looking at the unforeseen issues and benefits in the new context of U-CRM and by introducing a life-cycle-wide benefits expectation management framework. Further, the application of “agility” will extend the understanding of IT and agility relationship and the role played in benefit realization process which is absent in current literature. Also the research contributes to the research methodology by employing social media (vendor based social networking sites & YouTube) as a preliminary data collection tool (Seddon et al (2010) also used a similar approach for data collection).

For the practice the study provides a list of benefits for the most contemporary version of CRMS (U-CRM), list of issues unforeseen in this new context yet practically critical, and the time-contingent nature of benefits realization for each employee cohorts. That will enable organizations to plan and understand the nature of ROI and better manage the benefit expectations along the time lag. In turn the satisfied organizations will propel the industry. For the organizations yet to consider CRM, or upgrading their current CRMS with pervasive technologies or making them ubiquitous, the benefits framework serves as a guideline to evaluate the options and organizational readiness. For organizations currently under implementation the unforeseen issues and benefits framework serves as a guideline to manage the expectations and realize the expected returns to the firm. Since the methodology used in this research

involves multi-method research design the generalization potential is strong and the resulting framework would be applicable across multiple industry verticals in global scale.

Table 1: The U-CRM a priori benefits framework for 62 CRM benefits items

	Benefits (sub categories)	Benefit items	Sources*	High Impact for UR	Medium Impact for UR	Low/No Impact for UR
1. Operational Benefits	1.1. Improved customer data management	1.1.1 Improved accuracy of customer information 1.1.2 Improved completeness of customer information 1.1.3 Decrease in the duplicate records 1.1.4 Reduction in time taken to access complete customer information 1.1.5 Increase in the timeliness of the information 1.1.6 Improved customer data history	ABCEF*		✓	
	1.2. Improved process management (-ve)	1.2.1 Reduction in number of redundant processes (-ve) 1.2.2 Increase in efficiency at different stages of managing the customer (-ve) 1.2.3 Increase in efficiency in assignment of tasks (-ve)	ABCD	✓ (-ve)		
	1.3. Improved customer service	1.3.1. Increased number of resolutions at first point of contact 1.3.2. Reduced handling time for enquiries 1.3.3. Increased access to high quality information at the point of customer contact	ABDE			✓
	1.4. Empowerment of staff	1.4.1. Increased conversion rate of prospects 1.4.2 Increased staff satisfaction level 1.4.3. Improved employee productivity 1.4.4. Reduction in administration of sales staff	BCD			✓
	1.5. Improved productivity	1.5.1. Reduction in lost opportunity costs 1.5.2. Reduction in costs for lead generation, marketing, customer service and sales 1.5.3. Increase in the number of customers handled per sales representative	ABCDE			✓
	1.6. Enabling of real-time responsiveness to trends (+ve)	1.6.1. Increase in number of cross-sales 1.6.2. Increase in number of up-sales 1.6.3. Earlier detection of trends (+ve) 1.6.4. Increased number of effective campaigns	BCDE	✓ (+ve)		
2. Managerial Benefits	2.1. Improved facilitation of market segmentation	2.1.1. Increase in campaign response rates 2.1.2. Increase in identification and utilization of business opportunities 2.1.3. Increase in target marketing driven revenue 2.1.4. Increase in profitability of market segments 2.1.5. Increase in number of target marketing initiatives	ABCE		✓	
	2.2. Facilitation of key account management	2.2.1. Increase in average customer lifetime value 2.2.2. Increase in number of customers with high life time value 2.2.3. Reduction in number of customers with credit risk	BC			✓
	2.3. Improved channel management	2.3.1. Increase in number of transactions through cost-effective channels (-ve) 2.3.2. Increase in the number of customers self-service activities (+ve) 2.3.4. Improved internal communication, information sharing and integration (+ve) 2.3.5. Reduction in channel cost per sale (-ve)	ABCD	✓		
	2.4. Improved analysis, reporting and forecasting	2.4.1. Improvements in monitoring KPI's 2.4.2. Improvements in reporting at customer rather than at account level 2.4.3. Increase in the number of relevant reports available	BDE	✓		
	2.5. Improved business management	2.5.1. Improved streamlined business processes	ACDE	✓		
3. Strategic Benefits	3.1. Improved customer satisfaction	3.1.1. Improved value perception 3.1.2. Increase in period of customer loyalty 3.1.3. Increase in the number of repeat customers 3.1.4. Reduced number of complaints 3.1.5. Increase in word-of-mouth recommendations	ABCDE			✓
	3.2. Improved business performance	3.2.1. Increase in profit 3.2.2. Increase in share of wallet 3.2.3. Increase in customer retention 3.2.4. Increase in revenue per customer 3.2.5. Increase in sales 3.2.6. Increase in gross margin and market share 3.2.7. Decrease in the time required to realize ROI from marketing activities 3.2.8. Increased market competitiveness 3.2.9. Increase in the number of customers	ABCDE		✓	
	3.3. Improved value added partnerships (+ve)	3.3.1. Improved support on worldwide growth (+ve) 3.3.2. Increase in internal and external value added linkages (+ve)	BCD	✓ (+ve)		
	3.4. Improved innovative use of CRM systems (+ve)	3.4.1. Increase in CRM system driven innovations (+ve)	ABCDE	✓ (+ve)		
	3.5. Improved organizational infrastructure (+ve)	3.5.1. Improved organizational architecture (+ve) 3.5.2. Improved organizational human analytic capability 3.5.3. Improved organizational IT infrastructure (+ve) 3.5.4. Improved organizational business architecture (+ve)	AC	✓ (+ve)		
	3.6. Improved organizational emphasis on strategy (+ve)	3.6. Improved organizational emphasis on strategy (+ve)	ACE	✓ (+ve)		

Sources*: A: PhD thesis by Shutao Dong (2007) , B: MISQ, ISR, JMIS, EJIS, JAIS, ISJ, JIT, JSIS, CAIS, DSS, I & M, ICIS and ECIS C: JIT journal paper by Coltman et al., (2011), D: IMM journal paper by Richards & Jones (2008), E: PACIS conference paper by Wang & Sedera (2011), F: Advertorials on YouTube, LinkedIn and SAP Sapphire .

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