University of Wollongong
Research Online

Faculty of Informatics - Papers (Archive)

Faculty of Engineering and Information Sciences

2006

Where Are the Benefits in CRM Technology Investment?

T. R. Coltman
University of Wollongong, tcoltman@uow.edu.au

Publication Details

This article was originally published as: Coltman, TR, Where Are the Benefits in CRM Technology Investment?, Proceedings of the 39th Annual Hawaii International Conference on System Sciences(HICSS '06), 4-7 January 2006, 111c. Copyright IEEE 2006.

Research Online is the open access institutional repository for the University of Wollongong. For further information contact the UOW Library: research-pubs@uow.edu.au

Where Are the Benefits in CRM Technology Investment?

Abstract
A common belief today is that sustainable competitive advantages are in some way positively correlated with customer focused behavior and CRM technology. However, the enthusiasm generated around CRM and a select concentration of companies that might be classified as "relationship leaders" is in stark contrast to the nay saying of many business commentators. Building on the resource-based view of the firm this study identifies the human and technological capabilities required to successfully execute a CRM program. Further, the study shows that to be successful, CRM programs must be feasible and this requires a wider understanding of the structural and behavioral limits to performance.

Disciplines
Physical Sciences and Mathematics

Publication Details
This article was originally published as: Coltman, TR, Where Are the Benefits in CRM Technology Investment?, Proceedings of the 39th Annual Hawaii International Conference on System Sciences(HICSS '06), 4-7 January 2006, 111c. Copyright IEEE 2006.

This conference paper is available at Research Online: http://ro.uow.edu.au/infopapers/239

Where Are the Benefits in CRM Technology Investment?

Timothy R. Coltman
University of Wollongong
tcoltman@uow.edu.au

Abstract

A common belief today is that sustainable competitive advantages are in some way positively correlated with customer focused behavior and CRM technology. However, the enthusiasm generated around CRM and a select concentration of companies that might be classified as "relationship leaders" is in stark contrast to the nay saying of many business commentators. Building on the resource-based view of the firm this study identifies the human and technological capabilities required to successfully execute a CRM program. Further, the study shows that to be successful, CRM programs must be feasible and this requires a wider understanding of the structural and behavioral limits to performance.

1. Introduction

In most markets one sees leaders who outperform their rivals through their close and connected relationship to their customers. A number of these "relationship leaders" come to mind: National Australia Bank in Australia, Otto Versand in Germany, Tesco in the UK, Travelocity.com, Capital One and Harrah's Entertainment in the U.S. For organizations such as these, customer relationship management (CRM) is more than a tool but part of a deeply embedded strategic disposition that enables them to outperform their rivals in what are otherwise fiercely competitive markets.

For those wanting to learn from these role models a number of questions come to mind. Why are they so successful? How much time and effort have they invested in CRM? Is it possible to simply invest in the latest CRM software to leapfrog the competition? Questions similar to these remain a key focus area on the Marketing Science Institute's (MSI) priority list and related papers frequently appear at major information systems conferences such as ICIS and HICSS.

However, the enthusiasm generated around CRM and a select concentration of "relationship winners" is in stark contrast to the nay saying of many business commentators. For example, research and advisory firm, the Gartner Group, claimed that close to 50% of all CRM projects failed to meet expectations (*The Australian*, 8th July, 2003). Additionally, an *InfoWorld* survey of chief technology officers found that close to 30% of them believed that CRM was one of the most "over hyped" technologies they had seen. A follow up survey of IT executives found that 43 per cent of large companies that have deployed CRM still claim that it deserves the bad press. Day [1] contends that investment in CRM technology has failed to live up to expectations because software glitches, poorly trained staff and disparate legacy systems continue to characterize execution.

These commentaries highlight the frustration many executives experience as software glitches, poorly trained staff and disparate legacy systems continue to hinder effective deployment of CRM programs. Far from improving profits and cementing relationships, some companies find themselves in the worst case scenario where their CRM systems wind up alienating long-term customers and employees [2]. Yet despite these issues, the tide of CRM growth and development continues to swell and rise.

So why invest in CRM technology and what, if anything, is wrong with CRM programs? These questions provide the focus for this paper. The remaining sections set about testing a general framework of CRM performance, which explains why and through which mechanisms the adoption of a customer focused strategy should lead to operational and economic advantage. The importance of these measures is examined using field interviews and a survey of 100 senior executives in Australia. Results reveal that an adroit combination of human and technological capabilities is required to successfully execute a customer strategy. Further, it is shown that to be successful, CRM programs must be feasible and this requires a wider understanding of the structural and behavioral limits to organizational alignment. Perhaps most importantly, high performing companies are not overly concerned with reactive responses to expressed needs. Instead, they seek a proactive orientation that directs attention towards latent or unarticulated demand. Our analytical approach is further developed in subsequent sections and represents new insight into the all important benefits of investment in CRM programs.

0-7695-2507-5/06/$20.00 (C) 2006 IEEE

2. Theoretical Background

Among the many things that managers do, nothing affects a company's ultimate success or failure more fundamentally than the choice of strategic orientation and the ability to implement whatever needs to be done to execute the strategy [3]. In the strategy and marketing literature, scholars have long suggested that a customer centred strategy is fundamental to competitive advantage. A customer or market-oriented strategy implies that organizations should allocate resources to systematically gather and analyse customer and competitor information, to share this market knowledge, and then to use this knowledge to guide strategy recognition, understanding, creation, selection, implementation and modification [4 p.11].

It should come as no surprise that customer relationship management (CRM) programs are increasingly used by organizations to support the type of customer understanding and interdepartmental connectedness required to effectively execute a customer strategy or market orientation. The Gartner Group defines CRM as a business strategy whose outcomes optimise profitability, revenue and customer satisfaction (*the why?*) by organising around customer segments, fostering customer-satisfying behaviours and implementing customer-centric processes (*the how?*).

Although this is a reasonably complete definition it is still quite abstract and has little to say about what capabilities are required to achieve these outcomes. Deeper understanding of CRM resources and capabilities is important for several reasons. Firstly, the contemporary work conducted in strategy has argued that resources and dynamic capabilities are fundamental to sustained competitive advantage [5]. Secondly, researchers have begun to point out that the CRM artefact is more than just technology [6]. Rather, successful CRM programs are best represented as an adroit combination of technical, human and business capabilities. The reason for this is that each capability is nested within an intricate organizational system of interrelated and interdependent resources.

However, despite the conceptual appeal that underpins this type of thinking, the resource based view of the firm (RBV) has been criticized for a lack of operationally sound criteria that distinguish important capabilities from parity ones. Although, no attempt is made to dispute this claim, signs of a general consensus are beginning to emerge. For example, Bharadwaj [7] classified IT-based resources as: (i) IT infrastructure, (ii) technological and managerial skills, and (iii) knowledge assets and synergy. Tippins and Sohi [8] define IT competency as consisting of three components: (i) extend to which the firm possesses a body of technical knowledge about IT systems, (ii) extent to which the firm uses IT, and (iii) number of IT related artifacts. Further, marketing scholars have drawn on the RBV to identify three antecedent CRM capabilities: (i) *orientation* to represent the firm's values, behaviors and mindset, (ii) *information* to reflect the availability, quality, and depth of information about customer relationships and usage of CRM technology, and (iii) *configuration* as the supporting structures, incentives and controls [9].

The trend that emerges from each of these studies is that companies require a combination of human, technical and business capabilities if CRM programs are to be successful. They need technology to drive a portfolio of CRM processes that includes cross-selling, up-selling, marketing and fulfillment, customer service and support, field service operations and retention management. This technology is necessary to integrate customer content, customer contact information, and end-to-end business processes throughout the organization.

However, IT or CRM software alone is insufficient, as the data needs to be interpreted correctly in the context of the business. In other words, the insights gained must inform the decision-making process and a "good" decision must emerge more often than not. In this respect, the skills and know-how possessed by staff in the organization are crucial to success. Furthermore, simply gathering information to gain insight will have no impact on business performance unless action is taken. CRM programs need business processes and policies that support customer-relating activities if the outputs of these programs are to be acted upon in the wider organization.

One of the problems with the CRM performance literature to date, is that there is a temptation to be normative about the pursuit of market orientation based on the identification of certain CRM capabilities. However, a critical aspect of overall success is to establish whether investment in new CRM programs or further tweaking of existing programs is "a sensible thing to do." The ultimate impact of technological capabilities on the achievement of a market orientation (and hence, on its profitability) cannot be posited to be positive or negative per se. It is contingent on the feasibility of implementing complex systems integration and mutually reinforcing capabilities. Reality for many firms is that they may be deterred from making CRM a central strategic theme because they recognize that close relationships are path dependent, require investment in relationship specific-assets, take a long time to materialize, and targeted customers may not be receptive.

Therefore, the challenge taken up in this study and described in the sections that follow, is to outline the theoretical basis for a model, that is supported by empirical data, to provide a more sophisticated understanding of the way capabilities and constraints interact to influence CRM success.

3. Model Structure

The focus for thinking about the impact of CRM programs on the performance of the firm was originally derived from a model of competitive advantage developed by Day and Wensley [10]. Their model is based on a relatively simple deterministic relationship between sources of advantage, positions of advantage and performance. The relevance of this model to an assessment of CRM performance is threefold:

1. The model enables one to assess the contribution that superior CRM capabilities—human, technological and business capabilities—have on competitive advantage.
2. The model recognizes the mediating impact that positional advantage (i.e., customer orientation) has on performance.
3. The model captures the path dependent nature of performance. Prior investment in sources of CRM advantage is used to enhance future performance and sustain competitive advantage.

However, superior skills and resources are not automatically converted into positions of competitive advantage. As Day and Wensley [10 p.88] rightly note;

> *Underlying the simple, sequential determinism that superior sources of advantage -> superior positions of advantage -> superior performance framework is a complex environment fraught with uncertainty and distorted by feedback, lags and structural rigidities.*

To capture the forces that influence this uncertainty suitably, the author turns to a recently articulated theory developed by Devinney, Midgley and Venaik [11] (hereinafter DMV). DMV builds on a number of traditions not captured in Day and Wensley's model. Most importantly, they build on issues of institutional feasibility that define what the firm can actually do. By separating resources and capabilities from organizational constraints, a clearer understanding of the nature and evolution of supply chain strategy is revealed. This combined approach is of theoretical and practical importance to CRM because it underlies the extent to which organizational success is determined by structural antecedents (CRM software and their performance consequences) and/or process (soft constraints regarding implementation). Important constructs and their hypothesized relationships are shown schematically in figure 1.

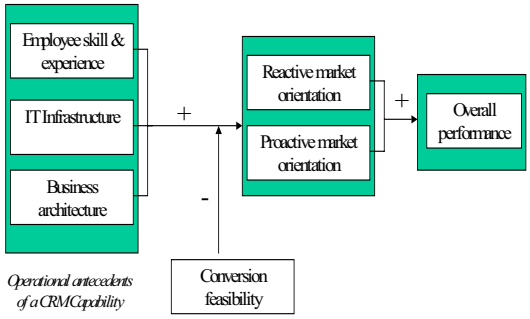

Figure 1 – Model and hypothesized relationships

4. Instrument Development and Measures

Using the strategic business unit (SBU) as the level of analysis, all scales were developed using an extensive and recursive pre-testing procedure. The SBU is an appropriate unit of analysis because our preliminary interviews indicated that CRM programs vary considerably between different business units in large corporations.

Business ***performance*** is central to the information systems field, yet the many ways in which it is measured suggests that both the conceptualization and measurement of performance is still problematic. First, organizational performance is a multidimensional construct that encompasses both internal and external measures. Second, it is commonly accepted that the causes of organizational performance are difficult to determine. Subjective measures of all types are subject to recency bias arising from the availability of recent events, while the direction of causality of many measures, be they internal (such as employee satisfaction) or external (such as customer satisfaction), is often unstable. This situation arises because informants often face limitations in terms of retrospective recall whenever measures are surrounded by spurious relationships and causal ambiguity. Similarly, although accounting based measures and market valuations are often treated as "objective" indicators, the data is still subject to "political, negotiated, judgmental processes."

This discussion implies that to be useful, both theoretically and practically, the validity of performance measures needs to be convincingly established. Past studies suggest that *measures of performance* need to exhibit three key attributes: (1) it should provide a multidimensional and balanced assessment of performance, (2) it should incorporate a competitive assessment element, and (3) it should address the notion of performance over time. This three-dimensional method is applied to a balanced scorecard view of performance that includes: (a) Financial measures such as return on investment, (b) customer satisfaction including

sales growth, (c) business process improvement as reflected in the reduction in cost of transacting with customers, and (d) innovation or success generating revenue from new products. See table 1 for a summary.

Table 1 – Measures of performance

Major Area	Operational Question
	Relative to the highest performer in your industry, how has your business performed over the last three years: *(Five point scale from Far better to Much worse)*
Financial	Return on investment (after tax)
Customer Satisfaction	Sales growth (revenue turnover)
Business Process	Reduction in cost of transacting with customers
Innovation	Success at generated revenue from new products

The level of customer or **strategic** (**market) orientation** can be measured according to two complementary perspectives: cultural and behavioral [12]. The cultural stream describes market orientation as a culture that commits the organization to the continuous creation of superior value for customers [see 13, 14]. Although the importance of the cultural perspective should not be underestimated, culture is a difficult domain to define and measure. As a consequence, Homburg and Pflesser [12] notice that most of the research has typically measured market orientation in terms of behaviors.

The behavioral stream of research describes market orientation in terms of specific behaviors related to the organization-wide generation of market intelligence. This includes current and future customer needs, dissemination of intelligence across departments and organization-wide responsiveness to it [15]. Key features in this view are a focus on customers, an emphasis on the specific form of inter-functional coordination and activities related to information processing. Narver, Slater et al. [16] hold that measures of market orientation must take into account the two forms in which customers needs and solutions exist: expressed (reactive market orientation) and latent (proactive market orientation). All items for the reactive market orientation construct were taken from the MORTN scale [17], while measures of the reactive market orientation construct were derived from recent work by Narver and Slater [18]. See table 2 for a summary of market orientation measures.

Table 2 – Measures of market orientation

Reactive - *(Based on MORTN)*	**Proactive -** *(Based on Narver and Slater 2000)*
Least/most responsive to individual customer needs	Worst/best at predicting new market developments
Worst/best at driving business objectives by customer satisfaction	Worst/best at discover unarticulated (latent) customer needs
Worst/best at sharing customer experiences across business functions	Worst/best at brainstorming how customers might better use products and services
Worst/best at helping customers to help themselves	Work/best at working closely with lead users
Least/most trusted	
Most/easiest to do business with	

It has previously been proposed in the marketing literature that customer focused capabilities are best seen as a meta or higher order capability that contributes positively to firm performance [19]. To fully capture the expansive nature of CRM a similar approach is taken to operationalize a **CRM capability**. Three items—measured on a seven point likert scale—were used to establish the higher order construct CRM capability. Importantly, each item required respondents to compare capabilities to their direct competition. The importance of this is that capabilities need to be superior to the competition if they are to contribute positively to competitive advantage. The three measures of customer relating capability are: (1) skills and experience at converting data to customer knowledge, (2) level of CRM information infrastructure, and (3) CRM business alignment of incentives, customer strategy and structure. See table 3 for a summary description.

Table 3 – Operational measures of CRM capability

Operational questions
Compared to your direct competitors, how do you rate your organization's: *(We are: The Worst to The Leader)*
Skills and experience at converting data to customer knowledge
CRM information infrastructure
CRM business architecture (i.e., alignment of incentives, customer strategy and structure)

Furthermore, this construct was validated by measuring the extent to which CRM applications and IT infrastructure is able to deliver high quality customer

histories that are supported by accurate transaction capture, timely business intelligence and disciplined customer data processes. A battery of 19 questions was used to assess the IT, human and business capabilities required to support the CRM artifact. The results were highly correlated and supportive of the higher order CRM capability.

The conversion **feasibility** of a market orientation and subsequent infrastructure is influenced by the limitations of all the affected players (customers and partners) and the costs of setting up the new arrangement and undoing the old arrangement. Capacity limits and other operational realities such as cost heterogeneity, inertia, cultural and political barriers offer a promising stream of research that has not been widely examined by the management science community [20].

Since this line of thinking is relatively new and no existing scales exist, a new scale was created to capture explicit constraints—sunk costs in equipment and personnel—and implicit constraints facing the firm—embedded political and behavioral complexity. Eight items are used to adequately capture this construct based on studies by Weill [21], Christensen and Overdorf [22] and Coltman, Devinney and Midgley [23]. See table 4 for a summary description.

Table 4 – Measures of conversion feasibility

Operational questions Please indicate your extent of agreement with the issues stated below: *(Strongly disagree to Strongly agree)*
Our customer knowledge is based on a delicately balanced chain of activities that may be adversely disturbed by new software programs
We are very proficient at integrating legacy systems with new customer/partner relationship needs
We have complex processes in place that make integration of customer data a difficult proposition
When deciding amongst strategic alternatives like CRM, political influence & parochial interest play a crucial role
Multiple units are/would be affected adversely by the deployment of a new customer relationship programs
It is difficult to get key managers to pay more than cursory attention to CRM initiatives because they are more concerned with areas generating immediate cash flow and profitability
Managers in other business units feel that a customer focused strategy would compromise their own role in the firm
My organization is well prepared to implement a fully integrated customer information system

5. Analysis of Data

A survey questionnaire was mailed to 450 organizations selected from a stratified random sample of firms across five industry groups—financial services, telecommunications, airlines, hotels and large retailers. Ninety-seven executives from marketing, strategy and information systems responded to the questionnaire, yielding a 20 percent response rate.

Distribution of responses to the survey was skewed towards the more traditional users of CRM: Finance (40%), Insurance (9%), Telecommunications (12%), Airline (7%), Hotels/Tourism (6%), Utilities (6%), Retail (10%) and other (9%). The median firm studied had approximately 300 employees, with the smallest firm having 50 employees and the largest 12,000. Tests on the distribution of returned questionnaires relative to the sample indicated no significant industry or size bias.

To ensure the validity of each measure, key informant bias, non-response bias, common method bias, convergent and discriminant validity were examined. For the sake of brevity a short summary only is provided. Senior managers were targeted from three functional areas (IT, marketing, and strategy), reducing the impact of *key informant bias*. To determine the impact of informant bias in the study, t-tests were used to examine differences in the degree of market orientation and performance between top management (n=34) and middle management (n=48). While a slight difference was detected between groups, this difference was not significant for market orientation ($t=-0.810$ $p=0.420$) and performance ($t=-0.671$ $p=0.504$). On the basis of these tests, informant bias does not appear to be a concern in this study. Results from a follow up survey indicate that the risks from *non response bias* are low.

Table 5 shows the reliability data. The coding used in the measures column is derived from the questionnaire. Individual item reliability on the reflective measures is determined by examining the loadings (or factor/component scores) of each of the construct's indicators. For an item to be reliable a minimum loading of 0.707 is required, indicating that more than 50 per cent of the variance of the measure is accounted for by the respective construct (i.e., there exists more shared variance of the measure than error variance).

However, in the early stages of scale development, items with loadings of 0.6 to 0.5, may be accepted in the analysis. Thirty-two of the 51 indicators have a loading greater than 0.7. The remaining indicators have a loading between 0.5 and 0.7. Due to the exploratory nature of the study (and hence the early stages of scale development), these loadings are sufficiently high to justify retaining the measures.

Table 5 - Factor loadings and coefficient alpha scores

Construct	Measure	PLS Loading	Cronbach Alpha	AVE
Performance	FQ5a	0.80	0.67	0.49
	FQ5b	0.69		
	FQ5c	0.69		
	FQ5d	0.63		
Reactive Orientation	FQ1a	0.84	0.74	0.62
	FQ1b	0.83		
	FQ1c	0.75		
	FQ1j	0.68		
Proactive Orientation	FQ1f	0.68	0.73	0.56
	FQ1g	0.82		
	FQ1h	0.79		
	FQ1i	0.70		
CRM Skills & Know How	CQ1	0.80	0.74	0.58
	CQ2a	0.61		
	CQ2b	0.76		
	CQ2d	0.79		
	CQ2f	0.81		
IT Infrastructure	CQ6a	0.80	0.85	0.63
	CQ6b	0.83		
	CQ6c	0.70		
	CQ6e	0.79		
	CQ6g	0.82		
CRM Business Architecture	CQ9	0.67	0.73	0.41
	CQ10a	0.60		
	CQ10b	0.72		
	CQ10c	0.55		
	CQ10f	0.62		
Conversion Feasibility	EQ2C	0.79	n/a	0.30
	EQ2E	0.63		
	EQCD	0.64		
	EQ2H*	0.82		
CRM Capability	CQ3	0.85	0.74	0.65
	CQ8*	0.81		
	CQ11	0.77		

* denotes reverse coding

The second standard for reliability is that the average variance extracted from the construct by the items should exceed 0.5, indicating that, on average, the items share at least half of their variance with the construct. Again, all scales performed acceptably on this standard. Overall, the only problem was that business architecture had a low AVE score. However, this loading was not so low as to render this construct's measure unacceptable.

Additionally, it is important to ensure that the constructs are unitary. This is achieved by comparing the variance shared by constructs, as measured by the squared correlation between them, with the AVE by each constructs measurement items [24]. In other words, the amount of variance captured by the construct (through its indicators) should be demonstrably closer to its measurement items than to another construct. If not, there may be insufficient distinction between two constructs, as measure by the items in this study. The correlation matrix in Table 6 shows that the square root of the construct's AVE—as shown on the diagonal elements—is greater than the corresponding off-diagonal elements. Thus, it is possible to conclude that each measure was tapping into distinct and different concepts. The fact that the scores are higher than the correlations between the various constructs indicates adequate *discriminant* validity between these constructs.

Table 6 – Correlation of latent constructs (diagonal elements are square roots of average variance extracted)

	Overall Performance	Reactive Orientation	Proactive Orientation	Customer Relating Cap	Skills and Experience	IT Infrastructure	Business Architecture	Conversion Feasibility
Overall Performance	**.70**							
Reactive Orientation	.07	**.79**						
Proactive Orientation	.31	.57	**.75**					
Customer Relating Cap.	.35	.29	.36	**.81**				
CRM Skills and Experience	.38	.22	.36	.46	**.76**			
IT Infrastructure	.16	.17	.09	.37	.59	**.79**		
CRM Business Architecture	.30	.20	.20	.41	.64	.47	**.63**	
Conversion Feasibility	-.02	-.31	-.16	.02	-.01	-.16	-.16	**.55**

Increasingly, researchers investigating organizational issues are required to account for: (1) several interrelated organizational variables, (2) theoretical models which involve unobservable and second order factors (latent constructs), (3) measurement error in observed indicators, and formative, as well as reflective measures. In this study a form of structural equation modeling known as partial least squares (PLS) is used. PLS offers a sophisticated way to test direct, indirect and total effects of one variable on another: it is particularly suitable for exploratory work, can work with small to medium sample

sizes and does not assume multivariate normality in the data [25]. Finally, the PLS methodology is capable of including both formative and reflective measures simultaneously in a model and has gained the interest and use among researchers in strategy [see 26 for a review].

6. Discussion and Structural Model

As conceptualized, the structural model shows that the direct effect of CRM capability and conversion feasibility is as predicted (see table 7). In this table the loadings shown are of measurement items on their constructs, predictor constructs on outcomes and control measures on constructs. Bootstrapping [27] was used to generate t-statistics for all coefficients indicating those links that are significant. In the case of reactive market orientation, the structural model provides standardized beta scores of 0.326 for CRM capability and -0.351 for conversion effectiveness. Similar results are reported for proactive market orientation with standardized beta scores of 0.350 for CRM capability and -0.166 for conversion effectiveness. All path values are highly significant and provide further support for the hypotheses in this study.

The main effects model reveals a number of other interesting findings. First, a CRM capability is primarily driven by human skills and experience that is supported by appropriate business architecture (i.e., incentives and structures). The relative unimportance of IT infrastructure stands in contrast to what the marketing divisions of companies like Siebel, Oracle and SAP would like us to believe. Second, the effect of CRM capability is stronger on proactive market orientation than it is on reactive market orientation.

This finding is consistent with reports that CRM is best aligned with a market orientation that puts a premium on superior market sensing and a conducive cultural context [28]. Second, the effect of conversion effectiveness is quite robust with negative and significant effects on both measures of market orientation. It is also interesting to note that the conversion effectiveness path is more than double on reactive market orientation that on proactive market orientation (-0.384 versus 0.166).

Tests were also undertaken to determine the interaction or moderating effect of conversion effectiveness. The results show that a change in level of conversion effectiveness has a significant effect on the influence of customer relating capability on market orientation. A second model with the interaction effect included reveals standardized beta scores of 0.589 for customer relating capability, -0.215 for conversion effectiveness and the interaction effect is -0.357 with a total R^2 of 0.330 on reactive orientation. Thus, these results imply that a one standard deviation increase in conversion effectiveness will not only impact reactive market orientation directly by -0.215, but it would also decrease the impact of customer relating capability to reactive market orientation from 0.589 to 0.232. As expected the main effects model, shown in figure 2, resulted in a slightly higher standardized beta and a smaller R^2 of 0.265.

A measure of the predictive power for the model is the R^2 value—it indicates the amount of variance in the construct explained by the model. The results indicate that 27 percent of the variance in reactive market orientation, 17 percent of the variance in proactive market orientation, and 22 percent of the variance in performance was explained. Given the multidimensional nature of each construct there are large numbers of factors that could impact market orientation and performance. The variance explained by this parsimonious model is nevertheless substantial for performance related surveys.

Lastly, several industry and firm specific control measures were used to detect further patterns in the data. First, to control for the possibility of a size effect, organizational size was measured by number of employees. This control has no effect on the measures of market orientation or performance. Second, to control for the possibility of variance across different industry sectors, four dummy variables were used to represent five broad industry sectors. No uniform pattern in the data was revealed to suggest that an industry effect exists. The only exception was the business service sector where a positive and significant impact on reactive market orientation was found. This finding is to be expected, as the essence of this sector is customer service.

Overall the lack of an industry effect is by no means conclusive and may be attributable to insufficient power. Lastly, customer relationship controls were used to identify customer preferences for a particular kind of relationship. Three dummy variables used were acquaintance, friend and true partner. The base case was no relationship at all. Negative and significant results were detected as one would expect. Companies with large proportions of customers that do not have the time energy or motivation to form deep customer relationships (i.e., customers who are classified as acquaintances or friends) are unlikely to gain competitive advantages through market orientation strategies—no matter whether they are reactive or proactive in focus. This finding underscores the need to differentiate relationships on the basis of how value is created and to link value creation in relationship segments to overall firm performance.

Table 7 – Structural model results

	Path Coefficient	Observed t-value	Significance level
CRM Capability			
Main Effects			
CRM Human Skills and Experience	0.37	3.43	**
CRM Infrastructure	0.05	0.45	n.s.
CRM Business Architecture	0.20	1.67	*
Reactive Orientation			
Customer Relating Capability	0.32	2.78	****
Conversion Feasibility	-0.35	2.37	****
Proactive Orientation			
Customer Relating Capability	0.35	3.67	****
Conversion Feasibility	-0.16	1.23	*
Effects on Performance			
Reactive Market Orientation	-0.19	0.17	n.s.
Proactive Market Orientation	0.28	1.60	**
Customer Relating Capability	0.34	3.54	****
Conversion Feasibility	-0.07	0.41	n.s.

P=value: *<0.100; **<0.05; ***<0.01; ****<0.001
n.s. = not significant; n.h. = not hypothesized

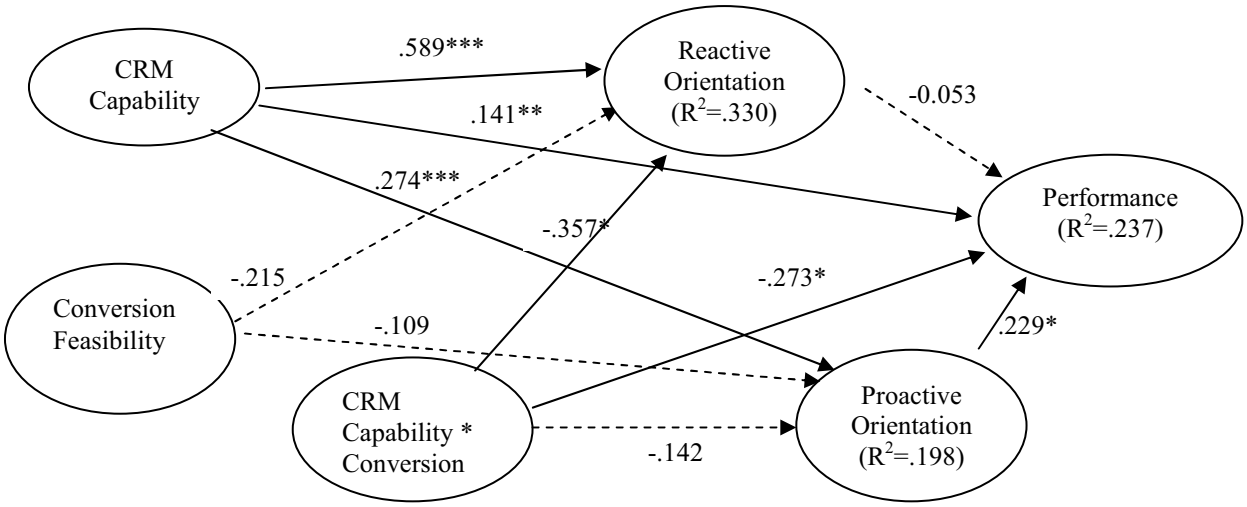

Figure 2 – Interaction model

8. Conclusion

CRM has become a buzzword of late, and like all new initiatives, suffers when it is poorly understood, improperly applied and incorrectly measured and managed. The key lesson that emerges from this study of industry leaders is that the structure of CRM programs should be directed towards customer value that competitor's cannot match [29]. That is the secret of Cemex's remarkable success in cement and the reason Tesco has emerged from the pack to become number one retailer in Britain. The empirical results in this study imply that more relationship building is not necessarily better, but rather building the *right* type of relationship is the key to performance improvement. What is noteworthy is that this study begins to show how companies can develop the right type of relationship. The first step is to identify the capabilities (i.e., human, technological and business) to nurture and which investment commitments to make. The exact extent of these capabilities is *ex ante* indeterminant and should be guided by a shared understanding of the feasibility of executing the type of organizational change required.

9. References

[1] Day, G.S. and K.J. Hubbard (2002), *Customer Relationships Go Digital.* Business Strategy Review 14(1):17-26.

[2] Rigby, D.K., F.F. Reichheld, and P. Schefter (2002), *Avoid the Four Perils of CRM.* Harvard Business Review, January: 101-109.

[3] Thompson, A.A. and A.J. Strickland (2001), *Crafting and Executing Strategy*. Twelfth Edition ed., Singapore: McGraw-Hill Irwin.

[4] Hunt, S. and R.M. Morgan (1995) *The comparative advantage theory of competition.* Journal of Marketing, 57(7):1-15.

[5] Teece D. J., G. Pisano, and A. Shuen (1997) *Dynamic Capabilities and Strategic Management.* Strategic Management Journal 18(7): 509–533.

[6] Johnson J. (2004) *Making CRM Technology Work.* British Journal of Administrative Management, 39:22-23.

[7] Harris, L.C. (2001) *Market Orientation and Performance: Objective and Subjective Empirical Evidence from UK Companies.* Journal of Management Studies, 38(1):17-43.

[8] Jaworski, B.J. and A.K. Kohli (1993) *Market orientation: antecedents and consequences.* Journal of Marketing, 57(7):53-70.

[9] Day, G.S and C. Van den Bulte (2002). *Superiority in Customer Relationship Management: Consequences for Competitive Advantage and Performance*. Marketing Science Institute. Cambridge.

[10] Day, G.S. (2003), *Creating a Superior Customer-Relating Capability.* MIT Sloan Management Review, Spring:77-82.

[11] Lovallo, D. and D. Kahneman (2003) *Delusions of Success.* Harvard Business Review, (7):56-63.

[12] Day, G.S. and R. Wensley (1988) *Assessing Advantage: A Framework for Diagnosing Competitive Superiority.* Journal of Marketing, 52(4):1-20.

[13] Devinney, T.M., D.F. Midgley, and S. Venaik (2000) *The Organizational Imperative and the Optimal Performance of the Global Firm; Formalizing and Extending the Integration-Responsiveness Framework.* Organization Science,11(6):674-695.

[14] Barua, A., et al., (1999) *Measuring the Internet Economy: An Exploratory Study*. Centre for Research in Electronic Commerce (CREC), University of Texas: Austin. p. 1-10.

[15] Tversky, A. and D. Kahneman,1973, *Availability: A Heuristic for Judging Frequency and Probability.* Cognitive Psychology, 5:207-232.

[16] March, J.G. and R.I. Sutton (1997), *Organizational Performance as a Dependent Variable.* Organization Science, 8(6):698-706.

[17] Christensen, C.M., P. Carlile, and D.M. Sundahl (2002) *The Process of Theory-Building*, in *Innosight Working Paper 02-016*..

[18] Homburg, C. and C. Pflesser (2000), *A multiple-layer model of market-oriented organizational culture: measurement issues and performance outcomes.* Journal of Marketing Research, 37(11):449-462.

[19] Narver, J. and S. Slater (1990) *The effect of a market orientation on business profitability.* Journal of Marketing, 54(10):20-35.

[20] Slater, S.F. and J.C. Narver (1994), *Does Competitive Environment Moderate the Market Orientation Performance Relationship.* Journal of Marketing, 58(1): 46-55.

[21] Kohli, A.K. and B. Jaworski (1990), *Market orientation: the construct, research propositions, and managerial implications.* Journal of Marketing, 54(April):1-18.

[22] Dull, S. (2000), *How much are customer relationship management capabilities Really worth? What every CEO should know*., Marketing Science Instutute. p. 25-27.

[23] Deshpande, R. and J. Farley (1998), *Measuring Market Orientation: Generalization and Synthesis.* Journal of Market-Focused Management, 2(3):213-232.

[24] Narver, J.C., S.F. Slater, and D.L. MacLachlan (2000), *Total Market Orientation, Business Performance, and Innovation*. Marketing Science Institute.

[25] Day, G.S. (2002), *Winning the Competition for Customer Relationships*. The Wharton School: Pennsylvania.

[26] Geoffrion, A.M. and R. Krishnan (2003), *E-business and management science: Mutual impacts (part 2 of 2).* Management Science, 49(11): 1445-1454.

[27] Weill, P. (1990) *Do Computers Pay Off? A study of information technology investment and manufacturing performance*., Washington: ICIT Press.

[28] Christensen, C.M. and M. Overdorf (2000), *Meeting the Challenge of Disruptive Change.* Harvard Business Review, March-April: p. 67-76.

[29] Coltman, T., T.M. Devinney, and D.F. Midgley (2003), *Strategic drivers and organizational impediments to ebusiness permance: a latent class assessment*, in *AGSM Working Paper Series*.

[30] Fornell, C. and D.F. Larcker, (1981) *Evaluating Structural Equation Models with Unobservable Variables and Measurement Error.* Journal of Marketing Research, 18(2):39-50.

[31] Fornell, C. and D.F. Larcker, (1981) *Evaluating Structural Equation Models with Unobservable Variables and Measurement Error.* Journal of Marketing Research, 18(2): 39-50.

[32] Fornell, C. (1982) *A Second Generation of Multivariate Analysis*. Vol. 1, New York: Praeger.

[33] Hulland, J. (1999) *Use of partial least squares (PLS) in strategic management research: A review of four recent studies.* Strategic Management Journal,. 20(2):195.

[34] Efron, B. and R.J. Tibshirani,(1993) *An Introduction to the Bootstrap*. New York: Chapman & Hall.

[35] Day, G.S. (1994) *The capabilities of market-driven organizations.* Journal of Marketing, 58(4): 37-52.

[36] Day, G.S. and C.V.Den Bulte (2002) *Superiority in Customer Relationship Management: Consequences for Competitive Advantage and Performance*, in *Marketing Science Institute*. Cambridge.